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Condom Use Among Female Sex Workers in China: Role of Gatekeepers

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Abstract

Objective— The objective of this study was to assess the potential role of gatekeepers of establishments in promoting condom use among female sex workers (FSWs) in China.

Goals— The goals of this study were to explore FSWs' perceptions of gatekeeper attitudes and support for condom use, and to assess their association with FSWs' practice, communication, intention, proper use, knowledge of correct use, and perceptions related to condom use.

Study— The authors conducted a cross-sectional study among 454 establishment-based FSWs in one Chinese county.

Results— Perceived gatekeeper support for condom use was low among FSWs. Perceived support was positively associated with condom use communication with sexual partners, condom use frequency and intention, but not associated with proper condom use among FSWs. Perceived support was significantly associated with most condom use-related perceptions (e.g., self-efficacy of condom use, barriers to condom use, and perceived peer condom use) among FSWs.

Conclusions— Healthcare professionals should work with gatekeepers to create a supportive local environment for condom use in sex work establishments. Gatekeepers need to clearly articulate their support for condom use to the FSWs. Training and skill acquisition regarding correct use of condoms among FSWs will be necessary.

Consistent and correct condom use is an effective method to control HIV transmission among female sex workers (FSWs).¹ Despite numerous efforts focusing on individual factors and individual behavioral change among FSWs,² individual-level intervention strategy has been shown to be insufficient to effectively promote and sustain condom use among this vulnerable and marginalized population.^{3,4} Researchers have begun to explore the relationship between condom use and social and contextual factors, and found that environmental–structural factors facilitate or inhibit condom use among establishment-based FSWs.^{5,6}

Like in many countries, commercial sex in China is mainly establishment-based. Although commercial sex is illegal in China, prostitution has developed into a widespread industry since the early 1980s.⁷ In 2003, there were an estimated four to 10 million women engaging in commercial sex.⁸ Establishment-based FSWs encounter their clients in service sectors or

entertainment establishments such as restaurants, barbershops, massage and sauna parlors, hair-shampooing rooms, dance halls, karaoke halls, bars, hotels, and guest houses.^{9–11} Although most entertainers in nightclubs, karaoke/dance halls, or bars are not employed by the owner, they are allowed to work at the establishments because their presence attracts clients and promotes business through their services.¹²

The role of gatekeepers about FSWs' preventive behavior is one of the foci of environmental-structural studies among establishment-based FSWs. Gatekeepers, defined as persons who manage sex workers (e.g., mommies, pimps, establishment owners, managers, or employers), have a reciprocal financial relationship with FSWs. Gatekeepers rely on FSWs to make money, whereas FSWs are dependent on gatekeepers for their financial opportunity.^{13,14} Limited studies among establishment-based FSWs and gatekeepers found that the level of support of gatekeepers was highly associated with condom use among FSWs.^{6,15,16} Gatekeepers who enforced an educational policy, mandated condom use in the workplace, and provided employees and clients with condoms contributed to increased condom use.⁶ However, in establishments where gatekeepers held negative/neutral attitudes toward condom use, FSWs were exposed to higher risks of sexually transmitted disease (STD)/HIV infection.¹⁷ In addition, FSWs' perceptions of gatekeeper support were found to be associated with FSWs' condom use.^{5,15}

Although previous studies have consistently depicted a positive relationship between gatekeeper support and FSWs' condom use, studies on the relationship between gatekeeper support and proper use of condoms are scant. In addition, most previous studies did not examine the association of gatekeeper support with FSWs' condom use-related attitudes, communication, and intention. A metaanalysis examining 44 psychosocial factors found that condom use communication, intention, and perceptions were the strongest correlates of condom use.¹⁸ Furthermore, most existing studies did not explore the role of gatekeepers on condom use among FSWs with stable partners. Stable partners, as distinct from clients, have different sociocultural meanings to FSWs.¹⁹ Finally, in China, there has been only limited research addressing the issue of gatekeepers.^{13,14,20} A couple of studies found that many gatekeepers held negative attitudes toward condom use but believed that FSWs were responsible for their own decision-making in this regard.^{13,20} In another qualitative study, FSWs' relationship with gatekeepers was discussed as part of the organizational structure of commercial sex in China.¹⁴

Therefore, using data from 454 establishment-based FSWs in China, the current study was designed: 1) to explore FSWs' perceptions of gatekeeper attitudes and support to condom use; and 2) to assess the association of gatekeeper attitudes and support with FSWs' practice, communication, intention, proper use, knowledge of correct use, and perceptions related to condom use. We hypothesized that FSWs' perceived support from gatekeepers for condom use will be associated with increased condom use and condom use communication with both clients and stable partners. In addition, we hypothesized that it will be associated with increased condom use intention, condom use-related perceptions, and HIV/STD knowledge. However, we did not expect an association of gatekeeper support with proper use of condoms and knowledge of correct use because the proper and correct use of condoms might largely depend on individual-level skill acquisition and training.

Methods

Study Site

The data in the current study were drawn from the baseline assessment of a longitudinal HIV/STD prevention project, which was conducted in H County, Guangxi Zhuang Autonomous Region ("Guangxi"). Guangxi, located in the central southwest China, has historically been a

transport hub for trade, commerce, and tourism in southwest China and Southeast Asia. The prosperous economy, international contact, and tourism in Guangxi have created a demand and market for commercial sex. According to statistics from the public security agency, there were at least 50,000 FSWs in Guangxi, although this estimate is believed to be much lower than the actual number.²¹

H County, approximately 90 km northeast from Nanning, the capital city of Guangxi, has jurisdiction over 22 townships with a total population of 1.08 million (94.5% are rural residents). The population consists of 23 ethnic groups with the majority of residents being Han (60%) and Zhuang (37%). Zhuang people have their own dialect, but can also speak the country's official language, Mandarin Chinese. They share a similar culture with Han, China's ethnic majority (92% of the population). Besides its proximity to Nanning, H County is the biggest production and distribution center for jasmine and jasmine tea in China (e.g., 50–60% of the jasmine and jasmine tea in the Chinese market were produced or manufactured in H County). There are an estimated 200 entertainment establishments with more than 2,000 women offering sexual service in the county. The majority of these women work in restaurants, barbershops, and shampooing salons (or literally “hairwashing rooms” in Chinese).

Three geographic locations (i.e., the county seat, the development zone, and one rural township) in H County were selected as study sites. The county seat has an area of 15 square kilometers with a population of 100,000. The development zone, approximately 10 km from the county seat, has more than 100 small factories in the area. The zone and surrounding areas has a population of 90,000. The rural township is 35 km from the county seat and has a population of 35,000.

Participants

Participants in the current study were female entertainers who worked in entertainment establishments or service sectors (e.g., restaurants, barbershops, shampooing salons, and massage parlors) where commercial sex service was believed to be available. Each participant was identified by gatekeepers and personally confirmed to be a commercial sex worker (i.e., having ever engaged in commercial sex). Women from restaurant-type establishments are normally not employed by the owners of the establishments, but are allowed to work there to attract clients who often come to drink and/or eat first. Usually, the women are selected by the clients as an entertainer (for drinking or singing) during dining and paid by the clients directly for sexual service afterward. The employers of the establishments typically provide living accommodation for these women on their premises so they can be available any time. Women in the “shampooing salon” type of establishments are usually employed by the owners and expected to perform some minimum low-technical job such as hair shampooing and massage (for head, feet, or body). The employers pay them a minimum base salary (typically 150 RMB or US \$20) per month. In addition to the base salary, they are paid a portion (usually 10–20%) of the fees clients pay to the managers for services delivered (including sexual service). They may also receive tips from clients directly as part of their income.

Sampling and Survey Procedure

Field work was conducted in March through May 2004. Workplace was used as the sampling unit. First, the research team conducted an ethnographic mapping of the establishments that provide sexual service based on information from local healthcare providers (e.g., STD clinicians, obstetricians/gynecologists), taxi drivers, public security agencies, and local business owners and residents. The mapping team collected data on the name and address of each establishment, estimated number of FSWs, and contact information of the gatekeepers. A total of 85 establishments were identified in the three targeted areas (53 in the county seat,

12 in the development zone, and 20 in the township) with an estimated 800 FSWs in these establishments.

Second, the owners or managers of these establishments were contacted for their permission to conduct study on their premises. Among the 85 establishments identified and approached, 28 of them refused to participate in the study.

Third, once we received permission from the owners/managers, local workers (health workers from local antiepidemic station or local hospitals) approached women who were identified by the owners/managers as FSWs to explain the purpose, procedure, potential benefit, and potential risk of the study and to invite them to participate. A total of 581 women were approached and 127 (21.9%) refused to participate. Those women who expressed interest in the study ($n = 454$) were asked to provide written informed consents and were assured of confidentiality and privacy. Each woman who provided informed consent was assigned a unique personal code number.

Finally, participants were given a self-administered questionnaire, which contained four main components: demographic information, living and working conditions, health behaviors, which include sexual experience and history of sex work, and HIV/AIDS-related knowledge and attitudes. The questionnaire, taking approximately 45 to 60 minutes to complete, was extensively pilot-tested in two waves among 22 women (seven in wave one and 15 in wave two) to ascertain that the content and language were appropriate for the study population. The participants completed the questionnaire in separate rooms or private spaces and recorded their unique code number on the questionnaire. No one was allowed to stay with the participant during the survey except the trained interviewer who provided the participant with necessary assistance. For participants with limited literacy (approximately 10%), interviewers read each question and response options from the interviewers' copy of the questionnaire, whereas the participants marked the response on their own copy. Therefore, the interviewers would not see their answers.

Most of the outreach workers and interviewers were healthcare workers from the county antiepidemic station and local hospitals. They were carefully chosen and rigorously trained (and retrained) on survey procedures and confidentiality issues, and were asked to sign a pledge to protect respondent's privacy and confidentiality. The study protocol was approved by the Institutional Review Boards at Wayne State University in the United States and Beijing Normal University and Gauangxi Centers for Disease Control and Prevention in China.

Measures

Gatekeeper Support for Condom Use—FSWs' perception of gatekeeper attitude and support for condom use in the workplace was assessed with five items (see Table 1). The Cronbach α for the five items was 0.60. A composite score of perceived gatekeeper support was created by indexing positive condom use attitudes and practices (i.e., requiring FSWs to use condoms, allowing FSWs' refusal of sex if a client does not use a condom, discussing condom use with FSWs, providing FSWs with free condoms, and being supportive to FSWs in dealing with unreasonable clients). The composite score ranged from 0 to 5 with a higher score indicating a higher level of support for condom use.

For the purpose of data analysis in this study, participants were assigned to three groups according to the distribution of the composite score: low (composite score ≤ 1 , $n = 227$, 50%), medium (composite score = 2, $n = 136$, 30%), and high perceived support (composite score ≥ 3 , $n = 91$, 20%).

Consistent condom use with clients and with stable partners (e.g., husband, boyfriend, long-term commercial partners) was measured separately by two variables: overall frequencies of condom use (never, occasionally, sometime, often, and always) and number of time used a condom during the most recent three sexual encounters (none, once, twice, and three times). For the purpose of data analysis in the current study, participants were assigned into three groups in each of these measures: never use, inconsistent use (i.e., any use other than always use), and always use.

Condom communication was measured by two variables (one for clients and one for stable partners) asking participants whether they have ever discussed condom use with their clients or stable partners (yes/no).

Condom use intention was measured by a single item asking participants how often they plan to use a condom in the future (never, occasionally, sometimes, often, and always).

Proper Use of Condoms—Among the participants who reported any use of condoms, proper use of condoms was measured using two variables asking how often they put on a condom before penetration (never, occasionally, sometimes, often, and always) when having sex with a client and having sex with a stable partner. For the purpose of data analysis in the current study, all responses other than “always” were combined into “inappropriate use.”

Knowledge of correct use of condoms was measured by asking participants to sort six preprinted pictorial cards describing major steps of condom use. The six steps were 1) tie the used condom and throw it away in the trash can; 2) identify the rolling direction of the condom; 3) tear the condom package carefully, do not smear it with your nails; 4) roll the condom all the way down until it wraps the whole penis; 5) after sexual intercourse, withdraw the penis before it gets soft, be sure to hold the base when doing so, and then roll the condom off; and (6) pinch the air out of the tip and roll the condom down the erect penis before sexual intercourse. Only those who arranged all the six cards in the correct order (60%) were considered to know how to correctly use a condom.

Positive Expectancy of Unprotected Sex—The positive expectancy of unprotected sex (i.e., anticipated favorable outcomes of nonuse of a condom) was assessed by asking participants what would happen if they do not use a condom with clients. The participants indicated agreement (agree/disagree) with the following five possible outcomes: “make the sex with clients finish faster,” “save my money and time,” “make clients pay me more money,” “make clients happier,” and “bring me more returning clients.” The Cronbach α for the five items was 0.76. A composite score was created by summing the positive responses across the five items (i.e., “agree”).

Self-efficacy was measured using five items: “if you knew that your client/partner was infected with HIV, you would refuse to have sex with him”; “you knew where to get condoms”; “if your client/partner was unwilling to use a condom, you could persuade him to use it”; “if your client/partner was unwilling to use a condom, you would refuse to have sex with him”; and “you knew how to correctly use a condom.” The Cronbach α was 0.55. A composite score was created by summing positive responses across the five items.

Perceived barriers to condom use were measured by asking participants the barriers or negative consequences of condom use. The items included “if the police found you carrying a condom, you might be in trouble,”; “few men like to use condoms”; “if you insisted on using a condom, your partner might be suspicious that you had an STD”; “if you insisted on using a condom, your clients might get angry at you”; “if you insisted on using a condom, your clients might not come to you any more”; and “if you insisted on using a condom, you might make less

money.” The participants were asked to indicate that they agreed or disagreed with the statements. The Cronbach α for the six items was 0.56. A composite score was created by summing “agree” responses.

Perceived condom efficacy was assessed by one item asking participants whether using condoms during sexual intercourse can protect them from HIV infection (1 = “yes,” 2 = “no”).

Knowledge of HIV transmission was assessed using six items regarding the correct or possible transmission mode of HIV. These transmission modes included “having sex with an HIV infected person,” “using HIV-contaminated blood or blood products,” “from mother to fetus during pregnancy,” “from mother to child during delivery,” “from mother to child through breast feeding,” and “sharing needles with an HIV-infected person.” The response choices ranged from 1 = “very unlikely” to 4 = “very likely.” The Cronbach α was 0.90. A composite score (ranging from 0–6) was created by summing the correct answers (likely or very likely) to these six items with a higher score indicating a higher level of knowledge of HIV transmission.

Misconception about HIV transmission was assessed using six items regarding the likelihood that HIV will be transmitted through daily contact: sharing bowls, chopsticks, or cups with an HIV-infected person; sharing a swimming pool or toilet with an HIV-infected person; being sneezed on by an HIV-infected person; hugging or shaking hands with an HIV-infected person; being bitten by mosquitoes or insects; and dining with an HIV-infected person. The response choices ranged from 1 = “very unlikely” to 4 = “very likely.” The Cronbach α was 0.83. A composite score (ranging from 0–6) was created by summing the incorrect answers (e.g., likely or very likely) to these six items with a higher score indicating a higher level of misconception about HIV transmission.

Sexually Transmitted Disease Knowledge—STD knowledge was assessed by asking participants to judge whether a list of 10 symptoms was a possible STD symptom (yes, no, do not know). The Cronbach α for the 10 items was 0.88. A composite score was created by adding the correct responses to the 10 items with a higher score reflecting a higher level of STD knowledge.

Perceived peer condom use was measured by one item asking how many FSWs they knew had used condoms. The response choices included 1 = “none,” 2 = “less than half,” 3 = “at least half,” and 4 = “all of them.”

Analysis

First, responses to individual items regarding perceived gatekeeper support for condom use were presented in a contingency frequency table. Data were presented by gender of the gatekeepers and by the number of women working in the establishments (e.g., 1–9, 10–19, and ≥ 20). Chi-squared or Fisher exact tests were used for significance testing. Second, differences in condom use and condom use-related perceptions by the composite score of gatekeeper support were assessed by chi-square (for categorical variables) and analysis of variance (for continuous variables). Third, the relationships between gatekeeper support and condom use among FSWs were further measured by ordinal (for ordinal response) or binary (for dichotomous response) logistic regression, adjusting for gatekeepers’ gender, the number of women in the establishments, and FSWs’ condom use-related perceptions, including self efficacy of condom use, barriers to condom use, perceived condom efficacy, perceived peer condom use, and positive expectancy of unprotected sex because they were identified to be most important predictors of condom use.¹⁸ The length of being a sex worker and the number of clients per week were not included as confounders because they were not associated with condom use practice in the current study. Adjusted odds ratio (aOR) and its 95% confidence

interval (95% CI) were calculated. There was no violation to the assumption of proportional odds for each ordinal logistic regression model.

Results

Sample Characteristics

A total of 454 FSWs were interviewed. Their sociodemographic characteristics and sex work experience are presented in Table 2. The sample was young with a mean age of 23.5 years (standard deviation = 5.1). Half of the FSWs were of Han ethnicity, one third of Zhuang ethnicity, and 14% of other ethnicities (e.g., Dong, Yao, Miao, and so on). Fifty-eight percent of FSWs had obtained no more than 6 years of formal schooling and 35% had 7 to 9 years of schooling. Sixty percent had never been married, with 36% currently having no boyfriend. The majority (81%) earned less than 800 RMB (or approximately \$100 US) per month, with 39% having a monthly income less than 400 RMB. The sample was relatively new to the sex industry. Half of them (51%) had engaged in commercial sex for no more than 1 year, and approximately 81% had no more than two clients per week.

Gatekeeper Support for Condom Use

The distribution of FSWs' perceptions of gatekeeper support for condom use is presented in Table 1. Only 8% of FSWs reported that their gatekeepers required them to use condoms, and 14% reported that refusing to have sex with a client who refused to use a condom was allowed. More than half (52%) of the FSWs reported no discussion of condom use with their gatekeepers, and 90% reported that they had never received a free condom from their gatekeepers. However, support nonspecific to condom use was reported by the majority of FSWs (91%). FSWs with female gatekeepers tended to report higher levels of perceived support for condom use compared with FSWs with male or mixed-gender gatekeepers. FSWs from establishments with large number of FSWs tended to report lower levels of perceived support for condom use compared with FSWs from establishments with a small number of FSWs.

Correlation of Perceived Support With Condom Use Among Female Sex Workers

Contingency frequency distribution of perceived gatekeeper support with FSWs' condom communication and condom use is presented by type of sexual partners in Table 3.

Approximately 75% of the participants had discussed condom use with their commercial partners, whereas only 24% consistently used condoms during their most recent three episodes of sexual intercourse and only 15% had consistently used condoms over their sex life. Statistically significant differences in condom communication and condom use frequency by perceived gatekeeper support were observed. Among participants who perceived medium or high support for condom use by their gatekeepers, 88% reported having discussed condom use with clients, whereas the proportion was 62% among participants who perceived low support from gatekeepers. Forty-two percent of participants perceiving high support from gatekeepers reported consistently using condoms during the last three commercial encounters, whereas the proportion was 23% and 17% for those perceiving medium and low support, respectively. Similarly, 23% of participants perceiving high support consistently used condoms over their sexual life, whereas only 15% and 11% who perceived medium and low support, respectively. After adjusting for gatekeepers' gender and FSWs' condom use-related perceptions, perceived gatekeeper support remained significantly related to condom communication (aOR = 2.0, 95% CI = 1.4–3.0) and condom use frequency (aOR = 1.4, 95% CI = 1.1–2.0 for their entire sexual life, and aOR = 1.5, 95% CI = 1.1–1.9 for last three sexual intercourses). No significant association was found between perceived gatekeeper support and proper use of condoms with clients.

Among the 309 participants who reported having stable sexual partners, 147 (48%) were recruited from establishments where gatekeepers were perceived to have low support and 63 (20%) were from establishments with high perceived support from gatekeepers.

When having sex with stable partners, 59% of the participants had discussed condom use, whereas only 14% consistently used condoms during the most recent three sexual intercourses and even less (8%) consistently used condoms over their entire sexual life. Reported condom communication and condom use frequency differed by perceived gatekeeper support with and without adjusting for gatekeepers' gender and condom use-related perceptions among FSWs. No significant difference was observed in proper use of condoms with stable partners.

Among all the participants interviewed, 60% arranged the six condom cards in correct order. No significant difference in knowledge of correct condom use was observed by perceived gatekeeper support. Approximately half of the FSWs reported that they would like to always use a condom in the future. Higher percentages were observed in high (68%) and medium (60%) perceived support groups than low perceived support groups (42%) ($P < 0.001$).

Correlates of Perceived Support With Female Sex Workers' Condom Use-Related Perceptions

Group mean and standard deviation of HIV/STD knowledge and condom use-related perceptions are presented in Table 4. Except for positive expectancy of unprotected sex, all other items were significant by gatekeeper support. Compared with the low support group, women from the high support group had higher knowledge of HIV transmission, higher knowledge of STDs, higher self-efficacy of condom use, less barriers to use condoms, and perceived more peers using condoms and higher condom efficacy. However, they appeared to have more misconceptions about HIV transmission.

Discussion

Although the majority of the FSWs reported a generally supportive working environment, perceived gatekeeper support specific to condom use was low. Perceived gatekeeper support for condom use was positively associated with FSWs' condom use communication with partners, condom use frequency, and condom use intention. However, perceived support was not associated with FSWs' proper use of condoms and knowledge of correct condom use. Significant relationships were also observed between perceived support and FSWs' condom use-related perceptions (except for positive expectancy of unprotected sex).

The positive association of perceived gatekeeper support with FSWs' condom use communication, frequency, and intention in the current study was consistent with previous studies in other countries.^{6,22} Several possible factors might contribute to the positive relationships. First, FSWs might believe that gatekeepers, especially female gatekeepers, are experienced and successful in sex industry. Gatekeepers represent popular opinion leaders in the eyes of many FSWs.¹³ Second, a perceived supportive working environment may empower FSWs to negotiate for condom use. Third, clients or FSWs are more likely to use condoms when free or affordable condoms are available at the workplace.²³ These findings suggest that increasing the perception of favorable attitudes among gatekeepers toward condoms may increase consistent condom use among FSWs. Therefore, gatekeepers need to be encouraged to clearly articulate their support for condom use to FSWs, including instituting work policies that mandate condom use among FSWs, increasing the availability of condoms in the workplace, meeting regularly with FSWs to discuss safe sex, promoting AIDS awareness in the establishments, and reinforcing protective behaviors among FSWs.

However, the current study indicates a lack of perceived gatekeeper support for condom use. This may in part result from the legal implication of commercial sex. Commercial sex is illegal in China, and carrying condoms or storing condoms in the workplace has been used as evidence for arresting FSWs or implicating establishments in the sex trade.^{13,24} Study in other Southeast Asian countries also suggested that some gatekeepers held negative attitudes regarding condoms because they considered condom use as a threat to their business.²⁵ Gatekeepers might also lack a sense of responsibility for FSWs because of the division of work. Gatekeepers' responsibilities were for managing and maintaining their business operations,^{13,14} whereas the FSWs' responsibilities were to attract clients by offering sex services. Gatekeepers might believe that using or not using condoms with clients was the business of FSWs. Finally, some gatekeepers themselves might lack knowledge regarding safe sex, which might contribute to negative/neutral attitudes toward condom use. The successful experience of the 100% condom use programs among establishment-based FSWs in Thailand and Cambodia suggests that HIV prevention efforts among FSWs should go beyond FSWs to address a joint responsibility of the establishment gatekeepers, community outreach workers, local health authorities, and sex workers.²⁶ Although the Chinese government has taken many positive steps during the past decades to control HIV spread,²⁴ fundamental changes of the government's policy toward commercial sex may not occur in the near future because eradicating commercial sex is still the long-term goal.²⁷ Nevertheless, with the government's current relatively tolerant attitude compared with that of several years ago, healthcare professionals should work together with gatekeepers to create a supportive local environment for condom use. Gatekeepers need to be educated about condom efficacy and their responsibilities for safe sex among FSWs.

No association between perceived support and FSWs' proper use of condoms and knowledge of correct use was observed in the current study. This finding indicates that although gatekeeper support may increase condom use among FSWs, this association does not necessarily ensure correct use, because correct use requires behavioral skills at the individual level. Training and skill acquisition regarding correct use of condoms among FSWs will still be an important STD/HIV prevention component in conjunction with creation of a supportive working environment. HIV/AIDS prevention workers should reach the establishments and provide FSWs with condom use skill training through appropriate behavioral intervention education and counseling. Given the high mobility of FSWs, a "training of trainers" model might be implemented among gatekeepers to ensure feasibility and sustainability.

Our study found a substantial gap between condom use communication and actual condom use. Three fourths of the FSWs had talked to their clients about condom use, whereas only 15% had always used a condom. Similar result has been reported previously in other East Asian countries.²⁶ The gap may be the result of a lack of negotiation skill and unbalanced power between FSWs and their sexual partners. The most frequently reported reasons for not using condoms with clients was not being able to persuade them and fear of losing clients.^{25,26} Increasing gatekeepers' supportive attitudes toward condoms may help to empower women in their negotiation of condom use with clients as women would be less fear of losing jobs or being punished by gatekeepers for refusing sex with clients who do not want to use a condom. Increasing gatekeepers' supportive attitudes may also help to establish a positive social norm among FSWs regarding condom use, which in turn will promote condom use with both clients and stable partners. However, even if gatekeepers are supportive, they may not be knowledgeable on how to best help sex workers to gain needed protection and negotiation skills. Many gatekeepers themselves might know little about these skills or reluctant to talk with FSWs.^{14,20} Targeted training needs to be developed to increase gatekeepers' knowledge/skills in negotiation for safe sex and to increase their ability to pass on such negotiation skills to FSWs.

Limitations

There are several potential limitations in the current study. First, the study sample was a convenience sample. Because commercial sex is illegal in China, it is impossible to obtain a random sample. Second, retrospective self-report was used to assess consistent condom use. As a result of possible memory error and other factors, self-report bias may exist.²⁸ However, we used two time-frames for assessing consistent condom use, with both short (i.e., last three sexual intercourses) and long (i.e., over sex life) reporting intervals, trying to balance between accuracy and representativeness of the assessment. Third, gatekeeper support for condom use was measured by FSWs' perceptions rather than reports from gatekeepers themselves. These perceptions may not represent actual gatekeepers' attitudes and practices. Fourth, FSWs were identified by gatekeepers, introducing possible selection bias, because the gatekeepers might identify only certain women (e.g., the newer ones, the younger ones, and so on) as FSWs. Finally, the refusal rates for establishments and the individuals were both relatively high. Some gatekeepers or FSWs might chose not to participate because of the legal implications of commercial sex in China. Another recent study in China has also suggested a high refusal rate (e.g., 50%) of establishments.¹⁴

Implications

Efforts targeting environmental–structural factors may be helpful to empower FSWs and create a positive social norm regarding condom use. The positive relationship between gatekeeper support and consistent condom use among FSWs suggests that health workers should work with gatekeepers to create a supportive environment for condom use in establishments. Gatekeepers need to be educated about condom efficacy and their responsibilities for safe sex among FSWs. Gatekeepers need to be encouraged to play the role of popular opinion leader in promoting condom use among FSWs and to clearly articulate their support for condom use to the FSWs. In addition to creating a supportive condom use environment in the workplace, skills training regarding correct use of condoms among FSWs will be an important HIV/STD prevention component.

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TABLE 1

Distribution of Perceived Gatekeeper Attitude and Support for Condom Use

Gatekeeper Attitude and Support	Total	Gender of Gatekeepers		The Number of FSWs in Facilities			P Value	P Value
		Female	Male	Mixed	<10	10-20		
What was your boss'/mommy's attitude toward condom use?								0.003*
Required you to use	34 (7.6)	18 (12.4)	13 (5.8)	3 (3.7)	15 (13.4)	10 (30.3)	8 (4.2)	
Did not require, but remind you to use	172 (38.2)	70 (48.3)	76 (33.9)	26 (32.1)	51 (45.5)	46 (31.9)	74 (39.2)	
Did not care whether you use or not use	242 (53.8)	57 (39.3)	133 (59.4)	52 (64.2)	46 (41.1)	86 (59.7)	107 (56.6)	
Did not want you to use	2 (0.4)	0	2 (0.9)	0	0	2 (1.4)	0	0.256*
Did your boss'/mommy allow you to refuse to have sex if your client did not use a condom?								
Yes, allowed	62 (13.7)	22 (15.2)	37 (16.3)	3 (3.7)	18 (16.1)	23 (15.8)	18 (9.5)	
Did not care	377 (83.2)	116 (80.0)	183 (80.6)	78 (96.3)	89 (79.5)	119 (81.5)	167 (87.9)	
Did not allow	14 (3.1)	7 (4.8)	7 (3.1)	0	5 (4.5)	4 (2.7)	5 (2.6)	0.001
Did your boss'/mommy discuss condom use with you?								
Yes	217 (47.9)	97 (66.4)	91 (40.3)	29 (35.8)	71 (63.4)	62 (42.2)	83 (43.9)	
No	236 (52.1)	49 (33.6)	135 (59.7)	52 (64.2)	41 (36.6)	85 (57.8)	106 (56.1)	<0.001
Did you ever get a condom from your boss'/mommy?								
Yes, it was free	48 (10.6)	36 (24.7)	11 (4.8)	1 (1.2)	28 (25.0)	10 (6.8)	8 (4.2)	
Yes, it was sold to you	38 (8.4)	14 (9.6)	19 (8.4)	5 (6.2)	12 (10.7)	16 (10.9)	9 (4.7)	
No	368 (81.1)	96 (65.8)	197 (86.8)	75 (92.6)	72 (64.3)	121 (82.3)	173 (91.0)	0.877
Did your boss'/mommy support you in case a client did not talk with reasons or made trouble with you?								
Yes	412 (91.2)	133 (91.1)	203 (89.8)	76 (95.0)	102 (91.9)	135 (91.8)	171 (90.5)	
No	40 (8.8)	13 (8.9)	23 (10.2)	4 (5.0)	9 (8.1)	12 (8.2)	18 (9.5)	<0.001
Composite score of perceived support (0-5)								
Low (0-1)	227 (50.0)	50 (34.2)	121 (55.5)	51 (63.0)	43 (38.4)	80 (54.4)	103 (54.2)	
Medium (2)	136 (30.0)	40 (27.4)	70 (30.8)	26 (32.1)	24 (21.4)	41 (27.9)	68 (35.8)	
High (3-5)	91 (20.0)	56 (38.4)	31 (13.7)	4 (4.9)	45 (40.2)	26 (17.7)	19 (10.0)	

* Fisher exact test was performed for statistical significance test.

FSWs indicates female sex workers.

TABLE 2

Distribution of Sociodemographic Characteristics and Sex Work Experience Among 454 Female Sex Workers in H County

	No.	Percent
Age; mean years (SD)	23.5 (5.1)	
Ethnicity		
Han	243	54.5
Zhuang	142	31.8
Others	61	13.7
Education		
≤6 grades	260	57.8
7–9	158	35.1
>9	32	7.1
Marital status		
Unmarried, have no boyfriend	161	35.6
Unmarried, have boyfriend	110	24.3
Ever married	181	40.0
Monthly income		
<400	173	38.8
400–<800	190	42.6
≥800	83	18.6
Months of being a sex worker		
<12 mo	230	50.9
≥12 mo	222	49.1
Average clients per week		
≤2	353	80.6
>2	85	19.4

SD indicates standard deviation.

TABLE 3
 Correlation of Perceived Gatekeeper Support With Female Sex Workers' Condom Use Practice, Communication, Intention, and Knowledge of Correct Use; Contingency Distribution and Ordinal Response Model Analyses

	Total	Level of Perceived Support			P Value	aOR	95% CI of aOR
		Low	Medium	High			
No.	454	227	136	91			
Condom use with clients							
Condom use, over sex life						1.45	1.07–1.96
Never	86 (19.0)	71 (31.4)	10 (7.4)	5 (5.5)			
Inconsistent use	299 (66.0)	129 (57.1)	105 (77.2)	65 (71.4)			
Always use	68 (15.0)	26 (11.5)	21 (15.4)	21 (23.1)			
Condom use during last three sexual encounters							
0 times	149 (33.0)	108 (48.2)	30 (22.1)	11 (12.1)		1.47	1.13–1.92
1–2 times	194 (43.0)	78 (34.8)	74 (54.4)	42 (46.2)			
3 times	108 (24.0)	38 (17.0)	32 (23.5)	38 (41.8)			
Condom communication: ever discussed	338 (75.3)	140 (62.2)	118 (88.1)	80 (88.9)		1.99	1.35–2.95
Proper use of condom	264 (72.9)	110 (71.9)	93 (75.6)	61 (70.9)		0.96	0.69–1.34
Condom use with stable sexual partners							
No.	309	147	99	63			
Condom use during lifetime							
Never	131 (42.4)	80 (54.4)	31 (31.3)	20 (31.8)		1.50	1.09–2.08
Inconsistent use	152 (49.2)	60 (40.8)	59 (59.6)	33 (52.4)			
Always use	26 (8.4)	7 (4.8)	9 (9.1)	10 (15.9)			
Condom use during last three sexual encounters							
0 times	180 (58.2)	106 (72.1)	45 (45.4)	29 (46.0)		1.43	1.03–1.99
1–2 times	86 (27.8)	27 (18.4)	40 (40.4)	19 (30.2)			
3 times	43 (13.9)	14 (9.5)	14 (14.1)	15 (23.8)			
Condom communication: ever discussed	180 (58.6)	67 (45.9)	69 (70.4)	44 (69.8)		1.44	1.02–2.06
Proper use of condom	107 (61.8)	39 (60.0)	39 (59.1)	29 (69.0)		1.25	0.77–2.04
Knowledge of correct use	238 (60.2)	103 (56.9)	76 (59.4)	59 (68.6)		1.15	0.86–1.53
Condom use intention in the future							
Never use	85 (18.7)	61 (26.9)	16 (11.8)	8 (8.8)		1.42	1.08–1.88
Inconsistent use	130 (28.6)	71 (31.3)	38 (27.9)	21 (23.1)			
Always use	239 (52.6)	95 (41.8)	82 (60.3)	62 (68.1)			

aOR indicates adjusted odds ratio; CI = confidence interval.

TABLE 4
 HIV Knowledge and Condom Use Perceptions Among 454 Female Sex Workers in H County by Perceived Gatekeeper Support for Condom Use

	Level of Perceived Support			Overall <i>P</i> Value
	Low	Medium	High	
No.	227	136	91	
Misconception of HIV transmission	2.5 (2.0)	2.6 (2.0)	3.2 (2.0)	0.024
Knowledge of HIV transmission	4.3 (2.1)	4.6 (2.0)	5.1 (1.7)	0.008
Knowledge of STD	2.6 (2.8)	3.8 (2.7)	4.2 (3.0)	<0.001
Self-efficacy of condom use	2.9 (1.4)	3.5 (1.2)	3.6 (1.4)	<0.001
Positive expectancy of unprotected sex	1.9 (1.6)	1.8 (1.7)	1.7 (1.7)	0.487
Barrier to condom use	2.9 (1.6)	2.6 (1.6)	2.5 (1.7)	0.046
Perceived peer condom use	2.2 (0.8)	2.6 (0.8)	2.9 (0.8)	<0.001
Perceived condom efficacy	1.3 (0.5)	1.2 (0.4)	1.2 (0.4)	<0.001

Note: Mean (standard deviation) is presented in the table unless noted otherwise. STD indicates sexually transmitted disease.