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“Bridge population”: sex workers or their clients? – STI prevalence and risk behaviors of clients of female sex workers in China

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Abstract

As the HIV/AIDS epidemic and the spread of sexually transmitted infections (STIs) in China has come to the forefront of public health attention, female sex workers (FSWs) and their clients (CFSWs) are becoming increasingly important to HIV/STI prevention efforts. This secondary analysis uses data abstracted from the Chinese Health and Family Life Survey 1999–2000 to report prevalence rates of two STIs as well as sexual risk behaviors for CFSWs – men who paid for sex with FSWs in the past 12 months – in comparison with men who had not patronized FSWs. Among 1879 Chinese CFSWs who completed anonymous interviews and urine testing, 152 (6.3%, weighted) said they had paid for sex in the past 12 months and 18.8% of CFSWs (weighted) tested positive for gonorrhea. CFSWs were 10 times more likely to have an STI (either self-reported or tested) than non-client Chinese men, and they were equally likely to use condoms inconsistently with their spouses. This study highlights the importance of studying CFSWs who use condoms inconsistently and do not practice safe sex with their spouse as a potential bridge population. Prevention and intervention efforts should target this bridge population and include education on HIV/AIDS and STI transmission, condom promotion, marriage counseling, destigmatization of HIV and STIs, and promotion of STI diagnosis and treatment.

Keywords

clients of female sex workers; HIV; STI; migrant; domestic violence

Introduction

As the HIV/AIDS epidemic and the spread of sexually transmitted infections (STIs) in China have come to the forefront of public health attention, female sex workers (FSWs) and their clients (CFSWs) are becoming increasingly important to HIV/STI prevention efforts.

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Due to their increased susceptibility to infection and high frequency of risk behaviors, FSWs are considered a bridge population for the transmission of STIs between population groups (Hesketh, Zhang, & Qiang, 2005). Over the past 10 years, increased attention has been placed on the behaviors and attitudes of FSWs during sexual encounters. The behaviors of CFSWs, however, have largely been overlooked, as very few studies have examined clients' socio-demographic characteristics and risk behaviors in the context of China's growing sex industry and soaring STI prevalence.

At the beginning of the twentieth century, STI prevalence rates in China reached record highs (Hershatter, 1997; Shan, 1995). As a response, the Communist government outlawed prostitution, closing all brothels, and sending prostitutes to re-education and rehabilitation camps alongside other "socially undesirable groups" (e.g., opium smokers and adulterers). From the 1950s to the 1970s, the government suppressed commercial sex with a commensurate decrease in STIs using a strict policing system (e.g., monitoring people's housing, movement, hairstyles, and makeup; Shan, 1995). Since the mid-1980s, however, the commercial sex industry has re-emerged in conjunction with China's economic boom and growing income gap, the government's relaxation of migration controls, and societal changes in attitudes and behaviors toward sex (Jeffreys, 2004; Pan, 1999; Xin, 1999; Zhang, 1993).

Today there are over 700,000 HIV/AIDS cases in China (Gill, Huang, & Lu, 2007; UNAIDS/WHO, 2008). In 2007, the number of HIV/AIDS cases per month averaged more than 3000 (China Daily, 2007). Sexual transmission is now the primary mode of HIV infection (CMOH, 2008; Gill et al., 2007) and in 2007, heterosexual transmission accounted for 44.7% of new HIV cases (Hornby, 2009; Kaiser Health News, 2007). Nationwide HIV prevalence among FSWs was estimated to have risen from 1.1% in 2004 to 2.1% in 2005, although surveys conducted in HIV "hotspots" found HIV prevalence rates among FSWs to be between 5 and 10% (CNN website, 2009).

At the same time, overall STI (excluding HIV) incidence in China has increased from 7.2% in 2002 to 43.6% by the end of 2005 (CMOH, UNAIDS, & WHO, 2006). Recent reports on STI prevalence among FSWs in China ranged from 13 to 57%; specifically: syphilis ranged from 4 to 17%; gonorrhea from 6 to 40%; and Chlamydia from 13 to 32% (Chen et al., 2006; Gil, Wang, Anderson, Lin, & Wu, 1996; Hesketh et al., 2005; Li et al., 2006; Liu et al., 2001; Pei, Yang, & Lai, 2002; Rogers et al., 2002; Van den Hoek et al., 2001; Wang, Chen, et al., 2008; Wang, Ding, et al., 2008; Wu, Jia, Duan, & Sullivan, 2007; Wu, Rou, & Cui, 2004; Xu et al., 2008; Yang et al., 2005; Yang & Xia, 2006; Zhu et al., 2003). These reports also showed that the rate of consistent condom use among FSWs was generally very low, with 13–45% reporting that they never used condoms with clients or casual sex partners, and up to 60% reporting that they never used condoms with boyfriends, regular partners, or spouses.

Due to the recent increase in commercial sex, the urgency of the HIV/AIDS epidemic, and the persistence of traditional gender relations, understanding the behaviors of CFSWs may prove useful in combating the spread of STIs. Previous studies indicated that nearly 1 in 10 sexually active males have engaged in commercial sex at least once (Pan, Huang, Wang, &

Liu, 2008). CFSWs tend to have more than one sexual partner and many of these men engage in sexual intercourse with different FSWs (Decker, Raj, Gupta, & Silverman, 2008; Fajans, Kathleen, & Wirawan, 1995; Gomes do Espirito Santo & Etheredge, 2003; Xu et al., 2008). Of male migrants who used FSWs in Geiju City, China, 67.1% had one or more steady partners (Xu et al., 2008). In addition, CFSWs have reported low levels of condom use, low levels of STI knowledge, and high STI prevalence rates (Decker et al., 2008; Fajans et al., 1995; Gomes do Espirito Santo & Etheredge, 2003; Xu et al., 2008). Over 61% of CFSWs in Geiju City (Xu et al., 2008) reported never using condoms with FSWs. A recent study in China's Si-chuan province showed that consistent condom use with FSWs was significantly associated with interpersonal and venue-level factors (Yang, Latkin, Luan, & Nelson, 2010). However, few studies systematically link client's STI prevalence and condom use with different sexual partners to their social and economical environment in China.

Illuminating the behaviors of the male population may help us to better understand and thus limit the spread of HIV and STIs in China. Due to the illegal nature of commercial sex in China, both users and providers of commercial sex are unlikely to come forward in order to be studied. Using data from the Chinese Health and Family Life Survey (CHFLS), we aim to estimate the prevalence of STIs among men patronizing FSWs in China, describe the condom use behaviors associated with HIV and STIs, and observe associated familial, cultural, and social factors that lead to risk behaviors.

Methods

Data

Data are based on the CHFLS, a collaborative project of the University of Chicago and the University of North Carolina (USA) and Renmin University and Peking Union Medical College (China). The survey was conducted in 1999 and 2000 to produce a nationally representative study of Chinese adults aged 20–64 (Parish et al., 2003).

Survey

The adapted survey was presented to study participants in computer-assisted interviews based on questions from the 1992 US National Health and Life Survey. All the adapted survey was presented to study participants in computer-assisted interviews based on questions from the 1992 US National Health and Life Survey. Interviews were in Chinese. All participants were given an informed statement of consent prior to the interview. Both oral and computer-entered consent were obtained. Of particular interest to this study are questions relating to the use of commercial sex.

Measurements

The prevalence of two STIs (Chlamydia and gonorrhea) was estimated using a urine-based technology and participants self-reported history of STI diagnosis. Commercial sex use was assessed using three criteria. Participants who reported giving “valuable gifts” in exchange for sex, who indicated that their long-term partner was a sex worker, or who identified their short-term partner as a “Miss” (i.e., prostitute) were regarded as having used commercial sex. STI-risk behaviors were assessed using participants' behaviors and attitudes including

most recent sexual experience, premarital sex, cohabitation, gender of current spouse/partner, frequency of sex with current spouse/partner during the last 12 months, the effect of living conditions on sex life, and lifetime experiences with casual sexual partners. STI and HIV knowledge were assessed using participants' beliefs regarding recovery from STIs, clinical manifestations of STIs, HIV/AIDS transmission, and STI prevention.

Substance abuse was assessed by alcohol and tobacco use. Participants were asked the average number of cigarettes smoked per day, how often they consumed alcohol during the last 12 months, and whether they felt they had ever had too much to drink in the past 12 months.

Demographic and social characteristics were examined to determine the risk factors for STIs. These characteristics included geographic location, marital status, education level, employment status, living situation, occupation, monthly income, and frequency of social activities.

Participants' experiences with intimate partner violence were assessed to determine if it may be a covariate in the use of commercial sex. Survey questions asked whether participants had ever experienced intimate partner violence. Finally, participants' mental health was assessed in order to determine any correlation between the use of commercial sex and depression.

Statistical analysis

The STATA 9.0 statistical package adjusted the analysis for sample strata, primary sampling units, and population weights. Categorical variables were presented as weighted percentages together with standard error (SE) or confidence interval (CI) and compared with chi-square tests. Statistical significance was established at a p -value below 0.05.

Potential factors (e.g., lower income, being married, substance use, lower levels of STI knowledge, and depression) were included in multivariate logistic regression analyses to associate with clients' status (yes vs. no). Considering the potential multi-collinearity in risk factors (e.g., feeling depressed, drinking alcohol, and hitting spouse), four stepwise models were conducted for the analysis of CFSWs by adding the variables into the models.

Results

Socio-demographic characteristics

Of the 1879 men in the sample, 152 (8.1%) reported being CFSWs. As indicated in Table 1, CFSWs differed significantly from non-clients in two of the measured socio-demographic characteristics. Namely, CFSWs were more likely to be younger (15.44%, 50.63% vs. 9.23%, 28.46% under 35 years old, $p < 0.05$) and have a high monthly income (38.39%, 28.52% vs. 14.47%, 6.49% earning 800 Yuan or more per month, $p < 0.05$). Overall, approximately 90% of the sample were at 25 years old, 86% were married, 95% had little education (i.e., had completed only elementary, junior high, or high school), 79% lived in rural areas, and the majority were employed, lived with their spouse, and were farm workers.

Sexually transmitted infection (STI) prevalence and knowledge

There were striking differences in STI prevalence rates between CFSWs and non-clients. As indicated in Table 2, 15.3% of CFSWs had a lifetime history of sexually transmitted infections (STIs), compared to just 1.4% of non-clients ($p < 0.001$). These results were consistent for both objectively measured STIs in this study. Prevalence rates of gonorrhea and Chlamydia for CFSWs were 18.8% and 4.2%, respectively, compared to 0.42% and 0.45%, respectively, for non-clients (both $p < 0.001$). Conversely, non-clients had less knowledge about STIs, with 11% (vs. 3% of clients) reporting no knowledge of HIV/STIs, 27% (vs. 8% of clients) reporting that shaking hands can transmit HIV, and 47% (vs. 32% of clients) reporting that HIV can be transmitted through sneezing (all $p < 0.001$). Although not statistically different between groups, 70% of all men did not know the role of condoms in preventing HIV transmission, 87% did not know about STI treatments, and 52% believed that sharing food could transmit HIV.

Sexual history and practices

As seen in Table 3, there were statistically significant differences in the sexual histories and practices between CFSWs and non-clients. Among both groups, the rate of condom use was quite low. Over 74% did not consistently use condoms with their casual sex partners. Additionally, less than 3% used condoms consistently with their spouses. Clients were more likely to have engaged in premarital sex (49.7% vs. 21.6%, $p < 0.001$) and have had a short-term sex partner other than their spouse (20.2% vs. 3.4%, $p < 0.001$). Clients also reported higher rates of having paid for commercial sex at an entertainment venue (49.1% vs. 19%, $p < 0.001$) and higher rates of having watched pornography in the past year (75.61% vs. 37.4%, $p < 0.05$). Perhaps most importantly, over 90% of CFSWs indicated that they had engaged in extramarital sex, compared to 10.1% of non-clients ($p < 0.001$).

Alcohol, tobacco, domestic violence, and sex attitudes

As seen in Table 4, a majority of participants reported some depression, and 13% of all participants reported being “not too happy” or “very unhappy.” Data revealed statistically significant differences between the groups in tobacco and alcohol use: 73.1% of clients vs. 64.0% of non-clients ($p < 0.05$) smoked and 50.5% of clients vs. 25.4% of non-clients ($p < 0.001$) consumed alcohol daily. Despite their practices, only 15.3% of clients reported that it was okay to have extramarital sex, which was statistically significant ($p < 0.05$) compared to 6.3% of non-clients. Additionally, 38.5% of clients compared to 6.8% of non-clients ($p < 0.001$) reported it was okay to have sex for pleasure. Lastly, clients were significantly more likely to be a perpetrator or victim of domestic violence (59.2% hit their spouse and 19% were hit by their spouse) than non-clients (35.8% hit spouse and 4.1% were hit by spouse) ($p < 0.001$, $p < 0.05$, respectively).

Multivariate analysis of sexually transmitted infection (STI) risk factors

Table 5 presents the results of a multivariate analysis of the independent factors found to be significantly associated with being diagnosed with an STI. Ever having paid for sex (adjusted odds ratio (AOR): 5.8; 95% CI: 1.9–17.2) and not knowing that HIV can be

transmitted through blood (AOR: 0.0; 95% CI: 0.0–0.2) were independently and significantly associated with being diagnosed with gonorrhea or Chlamydia.

Discussion

This study is one of the first analyses to use data from a national survey in China in order to provide demographic, behavioral, social, and cultural information related to HIV- and STI-risk behaviors among a group of men who reported paying for female sex. Although the data are 10 years old, these findings are particularly relevant given the current surge in STI prevalence rates and flourishing commercial sex industry in China. They also identify a potential bridge population: male clients of sex workers who do not use condoms consistently and who do not practice safe sex with their spouses. When compared with non-clients, CFSWs were more likely to have higher incomes, be self-employed entrepreneurs, and be of prime economic productivity age (25–35 years old). CFSWs were also more likely to report having had premarital or extramarital sex and having had short-term sexual partners. They also were more likely than non-clients to frequent entertainment venues and report higher levels of smoking (73% vs. 64%, $p=0.03$) and drinking alcohol (50% vs. 25%, $p=0.001$). CFSWs also reported a more relaxed attitude toward sex than non-clients.

Such findings provide a broad socio-demographic profile of the CFSWs in China at the turn of the millennium. The economic reforms brought about by the government's "open door" policy of the late 1970s and early 1980s have contributed not only to an economic boom, but also to quickly changing social values. The country is experiencing a shift away from strict social policing toward ideas supporting personal freedoms, individual decision-making, and rights for women (Chan & Zhang, 1999; Chen et al., 2007; Wang, Fang, Su, & Qiao, 2004; Zhang, Li, Li, & Beck, 1999). Changing beliefs concerning sex and sexuality have contributed to a reemergence of STIs and an increase in commercial sex (Chan & Zhang, 1999; Chen et al., 2007; Pirkle, Soundardjee, & Stella, 2007; Wang, Fang, Su, & Qiao, 2004). Furthermore, attitudes toward extramarital sex, masturbation, and homosexuality have become increasingly tolerant (Zhang et al., 1999).

While China's economic, social, and cultural changes are particularly palpable in its cities, rural residents also have experienced these shifts first hand, oftentimes as rural-to-urban migrants. Our study found that the behaviors of CFSWs did not differ based on residency status. The Chinese census reported 121 million rural-to-urban migrants in the year 2000 (China National Bureau of Statistics [CNBS], 2000). In this paper, rural-to-urban migrants are defined as individuals who move from rural areas to urban areas for the sake of employment without obtaining urban residency. They are not unlike migrants elsewhere who settle in a city for months or years without gaining access to the education and health care resources that legal residents enjoy. The Chinese census also showed that the median age of migrants was 33 years old, compared to 40 years old for permanent urban residents. Migrants in China generally exhibit higher STI prevalence rates than non-migrant populations and are less likely to use condoms consistently (Anderson, Qingsi, Hua, & Jianfeng, 2003). Other factors contributing to higher STI prevalence rates among migrants include inadequate STI knowledge (Liang, 2001), participation in the sex trade (Pan, 2000; Yang et al., 2010), perceived low risk to STD (Choi, Zheng, Qu, Yiee, & Mandel, 2000;

Yunnan Reproductive Health Research Association, 2001), and limited access to health care (Zheng et al., 2002).

It is not surprising to find that self-reported STIs and urine-based STI testing showed CFSWs to be 7–10 times more likely to have had an STI. Specifically, prevalence rates for gonorrhea were 44 times higher (18.8% vs. 0.42%), rates for Chlamydia were 9.2 times higher, and self-reported STI prevalence rates were 10.6 times higher among clients than non-clients (15.3% vs. 1.4%). Multivariable analysis showed that after adjusting for income, urban/rural residency, marriage status, and knowledge of HIV/STIs and condom use as a prevention strategy, having ever paid for sex was the single most significant predictor of STIs among men in China (AOR = 5.8; 95% CI: 1.9–17.2).

The high STI prevalence rates among CFSWs are especially concerning given our findings regarding rates of condom use. Our results show that although consistent condom use with casual partners was slightly higher among clients than non-clients (31.1% vs. 20%), rates of consistent condom use by clients with their spouses were low and did not differ from non-clients (3.1% vs. 2.3%, $p=0.46$). The vast majority (85%) of participating CFSWs were married, thus increasing the possibility that this population may be acting as a bridge group for STI transmission to their spouses and the general population. In 2007, the State Council AIDS Working Group and UN Theme Group on AIDS in China reported that the proportion of women infected by HIV had doubled over the past decade. Roughly 20–30% of heterosexual HIV transmissions occur among discordant couples (NCAIDS, 2009). In the past decade, the World Health Organization and Chinese Government have identified the following groups as potential HIV/STI bridge populations: female commercial sex workers, men who have sex with men, injection drug users, and migrants. Data presented here call for greater recognition of CFSWs as a potentially critical bridge population for STI transmission within China.

Another important finding involves domestic violence. Our results show that CFSWs were more likely to report being either the perpetrator of domestic violence (59.2% vs. 35.8% reported hitting their spouse) or its victim (19% vs. 4% reported being hit by their spouse). Intimate partner violence data from this study were similar to the rates presented in a recent study in rural China. The data presented here reveal higher rates of physical violence than Zhao's study (27.8%) and higher rates than those presented in another regional report that included both men and women (16% in Hunan) (Cao et al., 2006). The high rates of domestic violence presented here might more accurately reflect nationwide rates since other studies of domestic violence were locally scaled. Higher rates of reported spousal violence may suggest greater marital and relationship distress, which in turn may fuel the use of commercial sex. More in-depth studies are needed to further explore the association among marriage quality, changing cultural norms, and STIs.

The findings that CFSWs tend to have higher incomes, more education, and more knowledge about HIV/STIs seem somewhat counterintuitive. It might be that 10 years ago commercial sex in China was too expensive and furtive for those who lacked sufficient income, knowledge, and education. It is also worth restating that clients' knowledge of HIV/STIs was still quite limited.

In addition to the limitations of the survey already addressed elsewhere (Parish et al., 2003), several limitations are particularly relevant here. First, this study relies on self-reported behaviors to distinguish men who paid for sex from those who did not. Given the illegality of commercial sex in China, participants working for the government or other large institutions might have intentionally denied the use of FSWs. Therefore, the number of CFSWs is likely to be underestimated. Second, because urine tests were limited to Chlamydia and gonorrhea, the STI prevalence rate also might be underestimated. Finally, the survey and STI testing used here were conducted more than 10 years ago. Though a more recent wave of STI data has been collected, it does not include urine samples. Thus, our results may not reflect current realities, particularly in light of the rapid economic, social, and cultural changes taking place in China.

In conclusion, ours is one of the first studies to systematically examine the behaviors of CFSWs in China. Given their high mobility, frequency of sexual encounters, high STI prevalence rates, and low rates of condom use, these men could well be agents for the accelerated spread of HIV and STIs in China. The country's rapidly changing social, cultural, and economic environments require a scale-up of prevention and intervention efforts for existing and potential CFSWs. Actions should include "behavioral-change-theory"-based education on HIV/AIDS and STI transmission, condom promotion, marriage counseling, destigmatization of HIV and STIs, and promotion of STI diagnosis and treatment.

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Table 1.

Demographic and socio-economic characteristics of FSW clients and non-clients in China, Chinese Health and Family Life Survey (1999–2000).

Weighted% (SE)	Overall	Clients (N = 152)	Non-clients (N = 1727)	p-Value ^a
Age				
< 25 years old	9.62 (2.39)	15.44 (5.13)	9.23 (2.63)	0.010*
25–34 years old	29.86 (2.88)	50.63 (8.25)	28.46 (3.14)	
35–45 years old	21.35 (0.74)	22.86 (5.05)	21.24 (0.81)	
> 45 years old	39.17 (2.65)	11.08 (4.47)	41.06 (2.80)	
Marital status				
Never married	11.29 (2.20)	14.74 (4.84)	11.05 (2.48)	0.389
Married/remarried/cohabiting	86.10 (2.51)	84.65 (4.74)	86.19 (2.82)	
Divorced/widowed	2.62 (0.71)	0.61 (0.37)	2.75 (0.74)	
Highest education level attained				
Elementary school	34.13 (4.83)	17.52 (13.66)	35.25 (4.31)	0.053
Junior high school	42.54 (3.30)	30.87 (5.98)	43.32 (3.44)	
High school	18.14 (2.22)	42.92 (15.75)	16.47 (1.81)	
College and higher studies	0.52 (0.61)	8.69 (3.32)	4.96 (0.58)	
Residency status				
Rural resident	70.58 (2.86)	55.13 (13.62)	71.62 (2.75)	0.174
Urban resident	29.42 (2.86)	44.87 (13.62)	28.38 (2.75)	
Monthly income				
< 200 Yuan	21.59 (6.56)	0.00 (0.00)	23.05 (6.89)	0.012*
200–499 Yuan	30.73 (5.48)	5.41 (2.50)	32.44 (5.50)	
500–799 Yuan	23.82 (3.70)	27.68 (14.94)	23.56 (4.65)	
800–1099 Yuan	15.98 (1.83)	38.39 (8.61)	14.47 (1.41)	
1100 Yuan	7.88 (1.81)	28.52 (9.06)	6.49 (1.24)	
Employment status				
Unemployed	8.59 (1.16)	6.84 (3.04)	8.70 (1.27)	0.824
Employed temporarily (or part-time?)	12.40 (1.90)	11.61 (4.02)	12.45 (2.05)	
Employed full-time (or permanently?)	79.02 (2.65)	81.55 (5.76)	78.85 (2.92)	
Living situation				

Weighted% (SE)	Overall	Clients (N = 152)	Non-clients (N = 1727)	p-Value ^a
Living with partner or spouse only	70.01 (1.77)	65.70 (5.63)	70.30 (1.73)	0.159
Living with partner and parents or in-laws	23.51 (2.02)	30.20 (5.01)	23.06 (1.99)	
Living alone or with other non-family	6.48 (1.64)	4.09 (1.88)	6.64 (1.68)	
Occupation				
Farmer	40.93 (8.05)	14.12 (13.31)	42.74 (7.59)	0.051
Factory worker	18.86 (2.10)	21.51 (3.90)	18.68 (2.02)	
Self-employed or small business owner?	25.61 (5.64)	40.69 (9.57)	24.59 (5.35)	
Manager, official, or academic	14.60 (1.76)	23.67 (4.78)	13.99 (1.77)	

^a p-Value obtained from chi-square test.

* p < 0.05.

STI prevalence and HIV/STI knowledge among FSW clients and non-clients in China, Chinese Health and Family Life Survey (1999–2000).

Table 2.

Weighted% (N)	Overall	Clients	Non-clients	p-Value ^a
Self-reported lifetime STI	2.39 (1755)	15.33 (145)	1.44 (1610)	<0.001*
95% CI	1.08–5.21	8.30–26.58	0.35–5.71	
Gonorrhea by urine testing	1.69 (1580)	18.78 (128)	0.42 (1452)	<0.001*
95% CI	0.91–3.12	12.38–27.43	0.17–1.06	
Chlamydia by urine testing	0.68 (1865)	4.17 (150)	0.45 (1715)	<0.001*
95% CI	0.31–1.47	1.16–13.90	0.21–0.96	
<i>Knowledge of HIV and STIs</i>				
Did not know about HIV or STIs	10.73 (1876)	2.98 (152)	11.25 (1724)	0.014**
Did not know about treatment for STIs	86.70 (1879)	89.29 (152)	86.52 (1727)	0.586
Did not know that condom use can prevent HIV	71.98 (1770)	64.27 (147)	72.55 (1623)	0.345
Believed that handshaking can transmit HIV	25.63 (1772)	8.12 (147)	26.92 (1625)	0.018**
Believed that sneezing can transmit HIV	46.32 (1772)	32.05 (147)	47.37 (1625)	0.023**
Believed that eating can transmit HIV	51.72 (1772)	36.90 (147)	52.81 (1625)	0.066
Did not know that HIV can be transmitted through blood	9.17 (1772)	8.17 (147)	9.24 (1625)	0.787

^a p-Value obtained from chi-square test.

* p < 0.01;

** p < 0.05.

Note: Prevalence rates based on urine test results; N, number of observations; CI, confidence interval.

Table 3.

Sexual history and recent behaviors among FSW clients and non-clients in China, Chinese Health and Family Life Survey (1999–2000).

Weighted% (N)	Overall	Clients	Non-clients	p-Value ^a
<i>Sexual activity history</i>				
Age at time of first sex was less than 18	27.04 (108)	14.49 (47)	34.83 (61)	0.063
Had had premarital sex	23.39 (1727)	49.68 (152)	21.62 (1727)	<0.001 *
Had had extramarital sex	85.10 (1590)	92.23 (116)	10.06 (1474)	<0.001 *
Had long-term sex partner (other than spouse) for > 1 month	0.33 (1451)	0.86 (45)	0.31 (1406)	0.319
Had short-term sex partner (other than spouse) for < 1 month	4.46 (1879)	20.16 (152)	3.40 (1727)	<0.001 *
<i>Commercial sex</i>				
Had paid or given valuable gifts for sex in past 3 months	67.61 (86)	72.89 (70)	27.91 (16)	–
Had paid for entertainment venue in past 12 months	20.60 (1864)	49.07 (150)	18.68 (1714)	<0.001 *
Had viewed VCDs, pictures, photographs, or magazines with sexually explicit content in past 12 months	39.82 (1865)	75.61 (150)	37.41 (1715)	0.019 **
<i>Condom use</i>				
Used condom consistently with casual partner	25.63 (314)	31.11 (138)	19.72 (176)	0.174
Used condom consistently with spouse	2.36 (1576)	3.14 (131)	2.30 (1445)	0.469

^a p-Value obtained from chi-square test.

* p < 0.01;

** p < 0.05.

Note: Prevalence rates based on urine test results; N, number of observations; CI, confidence interval.

Table 4.

Other factors for FSW clients and non-clients in China, Chinese Health and Family Life Survey (1999–2000).

Weighted% (N)	Overall	Clients	Non-clients	p-Value ^a
<i>ATOD</i>				
Smoked regularly	64.61 (1879)	73.10 (152)	64.04 (1727)	0.033*
Drank alcohol every day	26.93 (1879)	50.45 (152)	25.35 (1727)	<0.001**
<i>Mental health</i>				
Felt depressed	54.33 (1879)	70.38 (152)	53.26 (1727)	0.274
Felt not too happy/very unhappy	12.90 (1879)	17.30 (152)	12.60 (1727)	0.365
<i>Attitude toward sex life</i>				
Believed it okay to have extramarital sex	6.85 (1875)	15.25 (152)	6.28 (1723)	0.024*
Believed it okay to have sex just for pleasure	8.81 (1874)	38.54 (152)	6.79 (1722)	<0.001**
<i>Domestic violence</i>				
Hit spouse	37.30 (1666)	59.15 (135)	35.82 (1531)	<0.001**
Hit by spouse	5.03 (1666)	18.95 (135)	4.09 (1531)	0.032*

^a p-Value obtained from chi-square test.

* p<0.05;

** p<0.01.

Note: Prevalence rates based on urine test results; N, number of observations; CI, confidence interval.

Table 5.

Multivariate analysis of risk factors for urine-based STIs.

Factors	AOR (95% CI, N = 1770)
Had ever paid for sex (reference: no)	5.8 (1.9–17.2)*
Monthly income 800 Yuan (reference: <800 Yuan)	1.6 (0.4–5.9)
Urban residents (reference: rural residents)	0.9 (0.4–2.3)
Marital status (reference: never married)	
Married/remarried/cohabiting	0.9 (0.2–3.6)
Divorced/widowed	0.3 (0.0–4.6)
Knew that condom use can prevent STI (reference: did not know)	1.1 (0.1–9.6)
Did not know HIV can be transmitted through blood (reference: knew)	0.0 (0.0–0.02)

* $p < 0.01$.

Note: AOR, adjusted odds ratio; CI, confidence interval.