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HIV-Related Risk Factors Associated with Commercial Sex Among Female Migrants in China

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Abstract

Data from 633 sexually experienced female migrants were analyzed to examine the sociodemographic and psychosocial factors and human immunodeficiency virus (HIV)-related behaviors associated with involvement in commercial sex. Six percent (40/633) of the participants reported having had sex for money. Compared with women who had not engaged in commercial sex, women who had sold sex were younger, less educated, and more likely to be unmarried. They were more likely to have engaged in HIV-related risk behaviors, such as becoming intoxicated with alcohol and using drugs. Among women who engaged in commercial sex, only 28% of them consistently used condoms during the last three episodes of sexual intercourse. Women who had ever engaged in commercial sex demonstrated greater depressive symptoms than those without such a history ($p < .01$). Female migrants, especially those engaging in commercial sex, were vulnerable to HIV/sexually transmitted diseases (STDs). Sexual risk reduction and condom promotion are urgently needed among this population. Further studies are needed to examine the causal relationship between depression and HIV risk behaviors.

The role of commercial sex in the global HIV epidemic has been especially prominent in selected countries in Southeast Asia. Typically, the transmission path has been from drug users to sex workers, from sex workers to clients, and finally from clients to wives and regular sexual partners in the general population (Gangakhedkar et al., 1997; Weniger et al., 1991). To date, such a transmission path has not been widely evident in China. In some provinces with high rates of illicit drug use, however, the HIV prevalence rate among sex workers has been found to be as high as 11% (Settle, 2003). Sex workers in China, like their counterparts in other countries, appear to be especially vulnerable to HIV infection. A high prevalence of STDs and low rates of consistent condom use have been reported among these women (Gil, Wang, Anderson, Lin, & Wu, 1996; UNAIDS, 2003a). In the absence of effective prevention strategies suitable for this population, sex workers may serve as a “bridge population” in the further outbreak of HIV/acquired immune deficiency syndrome (AIDS) in China.

Few efforts have been made among this population in community settings to examine their HIV-related behaviors and other risk factors for HIV infection, although recently limited

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studies have been conducted among sex workers recruited from entertainment establishments (Liao, Schensul, & Wolffers, 2003; Rogers, Liu, Yan, Fung, & Kaufman, 2002; Qu et al., 2002; van den Hoek et al., 2001). Although providing valuable information about HIV risk behaviors and condom use, these studies did not include comparison groups. In addition, most of these studies did not examine psychosocial factors such as depression and peer risk involvement, which have been found to be related to risk behaviors in western nations (Alegria, Vera, Freeman, Robles, Santos, & Rivera, 1994; Perdue, Hagan, Thiede, & Valleroy, 2003; Simpson, Knight, & Ray, 1993). The current study, comparing female migrants who had engaged in commercial sex with female migrants who had not engaged in commercial sex, therefore, was designed to (1) examine the sociodemographic characteristics of female migrants engaging in commercial sex; (2) explore their HIV-related risk behaviors and perceptions; and (3) explore the association between depression and involvement in commercial sex.

BACKGROUND

In China, the incidence of HIV infection is increasing at an annual rate of more than 30%. Since the first AIDS case was reported in 1985, 62,159 infections had been documented through 2003. It is estimated that the number of actual infected individuals is approximately 840,000 (Yang et al., 2004). Injection drug use is the predominant mode of HIV transmission, followed by commercial blood/plasma collection. Blood/plasma donors were infected through unsafe blood/plasma collection practice, including using contaminated collection instruments (e.g., syringe and needles) and reinjecting contaminated blood cells back into donors during group collection (Wu, Rou, & Detels, 2001). The proportion of persons infected through heterosexual intercourse, however, appears to be increasing, from 5.5% in 1997 to 10.9% in 2002 (UNAIDS, 2003b). In eastern and coastal China where heterosexual transmission is the major mode of HIV transmission, many of the reported HIV infections occurred among high risk groups such as STD patients and commercial sex workers (Zheng, 1999).

Commercial sex is illegal in China. If arrested, women engaging in commercial sex are fined or sent to a women's reeducation center, where they are detained for 3 months to 2 years to undergo correction and rehabilitation. Since the early 1980s when commercial sex reemerged in mainland China after two decades of virtual extinction, however, the sex trade has developed into a widespread industry (Pan, 1999). In 2003, it was estimated that more than 10 million women were engaging in commercial sex (Schafer, 2003). Most sex workers are female migrants who temporarily relocated from poor rural areas to larger urban areas (Gil et al., 1996; Lau, Tsui, Siah, & Zhang, 2002a; van den Hoek et al., 2001). They are young, have received limited formal education, and have inadequate knowledge about HIV/AIDS and reproductive health (Zheng et al., 2001).

METHODS

Research Sites

Two metropolitan cities, Beijing and Nanjing, were selected as our study sites. Beijing, the capital of China with a population of 13.82 million, is located in northeast China. According to 2000 census data, the rural migrant population in Beijing was estimated to be 3 million, including 31% female. Nanjing, the capital city of Jiangsu Province with a population of 5.3 million, is located in the east of China. The rural migrant population in Nanjing was estimated to be 800,000 (Li et al., 2004).

Sampling and Data Collection

Data in the current study were obtained from a feasibility study of an HIV/STD behavioral prevention intervention among Chinese rural-to-urban migrants in 2002. Eligible participants were defined as those who (1) had previously resided in a rural area; (2) worked in the city without having a permanent city residence; (3) had been in the city for at least 6 months; and (4) were between 18 and 30 years of age. A total of 4,208 migrants (1,699 or 40% female) from Beijing and Nanjing participated in the study. Detailed methods of data collection have been described elsewhere (Li et al., 2004). Briefly, 10 occupational clusters (restaurants, hotels, barbershops/beauty salons, bathhouses/massage parlors, nightclubs/karaoke/dance halls/bars, small retail shops, domestic services, street stalls, construction sites, and factories), which employed more than 90% of the migrants plus currently unemployed migrants in the job markets, served as the sampling frame. Quota sampling of occupational groups was utilized to achieve a representative sample of migrants in the cities so that the number of participants would be proportional to the estimated number of migrants in each occupational cluster. The workplaces (e.g., store, club, office, construction site, street) were used as the sampling units. To prevent oversampling from any single sampling unit, the number of participants recruited from any unit did not exceed 10% of total migrants in the unit or 10 individuals, whichever was greater. After obtaining permission from gatekeepers, employers, or workplace managers, trained interviewers approached eligible migrants at the sampling units. After providing informed consent, participants were asked to complete an anonymous self-administered questionnaire in a separate room at their workplace or a nearby place convenient to participants. The questionnaire, which was pilot tested and revised before the survey, took approximately 45 minutes to complete. Assistance (e.g., reading questions to them) was provided to the small number of respondents with limited literacy skills. Among the 1,699 female migrants in the feasibility study sample, 728 (42.8%) reported having ever had sexual intercourse. Among them, 633 (87%) provided complete data regarding whether they had ever engaged in commercial sex. The sample in the current study consists of the 633 female migrants.

MEASURES

Involvement in commercial sex. Participants were asked whether they had ever been paid for sex. According to their responses to the question, they were assigned to one of two groups: those who had ever engaged in commercial sex and those who had not.

Sociodemographic characteristics. Sociodemographics included demographic characteristics (age, marital status, and educational level), employment condition (workplace, daily working hours, and monthly income), and history of migration (years of being in the city, frequency of changing jobs, and whom staying with in the city).

HIV/STD awareness. Participants were asked to assess along a 4-point response (i.e., nothing, a little, some, and a lot) how much they knew about HIV/AIDS. They also were asked to assess how much they knew about STD symptoms on the same 4-point scale.

HIV/AIDS knowledge. Participants' actual HIV/AIDS knowledge was assessed using 11 items covering modes of transmission and clinical symptoms of HIV infection. These items were presented with a true/false or likely/unlikely response choice. A composite score of AIDS knowledge was created by summing the correct responses (possible range 0-11) of the 11 items, with a higher score reflecting a higher level of knowledge about HIV/AIDS. The internal consistency of this scale was 0.73.

In addition, knowledge about specific methods to prevent HIV/STD transmission was assessed by six individual items.

HIV-related behaviors. Both risky and protective sexual behaviors were assessed, including the number of sexual partners in the last month, whether their sexual partner was having sex with others, number of times using a condom during the last three sexual encounters, and condom discussion with sexual partner. Other HIV-related risk behaviors also were assessed, including having sold blood or plasma for money at least once last year, having been intoxicated with alcohol at least once last month, and having ever used illicit drugs (e.g., heroin, opium, and marijuana). In addition, information on participants' sexual history was collected including age at first sexual encounter and whether their sexual debut occurred before or after marriage.

Vulnerability. Participants were asked to rate their perception of their likelihood of acquiring HIV or an STD infection on a 5-point scale (1 = unlikely, 2 = somewhat likely, 3 = likely, 4 = very likely, and 5 = having already been infected). The last four categories were combined to form one category (i.e., "likely").

Attitudes toward condom use. Participants were asked to indicate whether they agreed with statements regarding efficacy of condom use in HIV/STD prevention (one item), self-efficacy to use condoms (four items), and barriers to use condoms (three items). Each statement has a 4-point response option ranging from "1 = strongly disagree" to "4 = strongly agree." For the purpose of data analysis in the current study, "strongly disagree" and "disagree" were combined into "disagree"; "agree" and "strongly agree" were combined into "agree."

Perceived peer risk involvement. Perception of peer risk involvement was assessed using four questions. The internal consistency of the questions was 0.86. Participants were asked about how many (1 = none, 2 = few, 3 = some, and 4 = most) of their peers (including those at their home villages) had engaged in a number of HIV/STD risk behaviors, including having had multiple sexual partners, having engaged in commercial sex, and having contracted an STD. A composite score was created by averaging the response to the four questions.

Depressive symptoms. Depression was measured using the Center of Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The 20-item CES-D was introduced into China in the early 1990s (Wang, 1993) and was reexamined and modified by the investigators to assure the accuracy of the translation. The internal consistency was 0.87 for the current study sample. The scale score, which was the sum of responses to these 20 items, ranged from 0 to 60, with higher scores indicating higher frequency of depressive symptoms.

DATA ANALYSIS

All analyses were conducted with SPSS for Windows, Version 11.5 (SPSS Inc. 2002). Descriptive analyses were conducted to illustrate the proportion and patterns of sociodemographic variables for female migrants who had engaged in commercial sex and those who had not. Chi-square tests were performed to examine differences in distribution of categorical variables, and ANOVA was employed for continuous variables. To explore the association of commercial sex experience with other HIV risk behaviors, perceptions, and depression, an odds ratio of involvement in commercial sex was calculated for each of these risk factors, adjusting for age, educational level, and marital status.

RESULTS

Sample Characteristics Among the 633 sexually experienced female migrants, 40 (6.3%) reported that they had engaged in commercial sex. The participants' sociodemographic characteristics are presented overall and by involvement in commercial sex in Table 1. The mean age of the entire sample was 25 years. Nearly half of them had never been married (46.2%) and 59.1% had completed no more than elementary school (9.8%) or junior high school (49.3%). Most of them worked in entertainment establishments (i.e., 46.5% nightclub/bar,

barbershop/beauty salon, and bathhouse/massage parlor) or service sectors (i.e., 39.5% restaurant, hotel, retail shop, street stall, and domestic service). Approximately half (59%) worked 10 hours or longer per day. Likewise, about half (52.2%) earned less than 800 RMB (around U.S.\$97) per month. Nearly all (91.3%) had been staying in the current city for more than one year, but almost half (48.2%) had changed their jobs at least once per year.

Compared with women who had not engaged in commercial sex, women who engaged in commercial sex were younger (23.9 vs. 25.3 years old, $p < .05$), less educated (71.8% vs. 58.3% had finished no more than 9 years of formal education, $p = .10$), and more likely to be unmarried (76.9% vs. 44.1% never married, $p < .001$). A higher proportion worked in entertainment establishments and had higher incomes (75% vs. 46% had monthly incomes of 800 RMB or more, $p < .001$). They also were more mobile and changed their jobs more frequently (Table 1).

HIV-related Behaviors

Differences in HIV-related risk behaviors by involvement in commercial sex (yes/no) are presented in Table 2. Compared with women who had never engaged in commercial sex, women engaging in commercial sex were more likely to have engaged in other HIV-related risk behaviors, including both risky sexual behaviors and other risk behaviors. A larger proportion of them reported that their first sexual episode occurred before marriage (87% vs. 57%, $p < .05$) and when they were younger than 20 years old, the legal marriage age for women in China (74% vs. 36%, $p < .001$). More of the women (85% vs. 31%, $p < .001$) reported that either they knew or they were uncertain whether their sexual partners were having sex with others. Women engaging in commercial sex were more likely to report having multiple sexual partners in the last month (43%), compared with 1.7% for their counterparts ($p < .001$).

Around 17% of sexually experienced female migrants had always used a condom during the previous three episodes of sexual intercourse and around 55% had discussed condom use with their sexual partners. No significant differences were found between the two groups regarding condom use or communication with their sexual partner regarding condom use.

A higher proportion of women engaging in commercial sex, compared with women who had not engaged in commercial sex, reported having been intoxicated with alcohol at least once during the previous month (65% vs. 22%, $p < .001$). They also were more likely to have a lifetime history of drug use (20% vs. 2%, $p < .001$), and were more likely to sell their blood or plasma for money (10.3% vs. 3.2%), potentially placing themselves at risk, although the difference was not statistically significant.

HIV/STD Awareness and Knowledge

Compared with women who had never engaged in commercial sex, a larger proportion of the women who had engaged in commercial sex perceived themselves to be knowledgeable (e.g., knowing a lot) about HIV (12.5% vs. 2.4%, $p < .05$) and a lower proportion perceived that they knew little/nothing about HIV (40% vs. 53.2%, $p < .05$). The same tendency was seen for awareness of STD symptoms (data not shown). The mean value of the HIV knowledge score, which ranged from 0 to 11, was significantly higher for women who had engaged in commercial sex (9.14 vs. 7.94, $p < .01$; see Table 3).

More than half of the women in both groups knew ways to prevent HIV transmission through sex and blood. Significantly more women who had engaged in commercial sex believed that using condoms during sex could prevent HIV, but significantly more women who had not engaged in commercial sex believed that avoiding casual sex could help prevent HIV transmission. Misconceptions regarding HIV prevention were common in both groups. Many

women perceived that keeping themselves clean (66%) and after-sex vaginal washing with (salt) water (34%) enabled them to prevent the transmission of HIV/STD (data not shown).

Vulnerability to HIV/STD Infection

A large proportion of women engaging in commercial sex perceived themselves to be susceptible to HIV or other STDs (70% and 82.5%, respectively), which is twice as likely as the perception among women who had not engaged in commercial sex (25.9% and 30.8%, respectively; see Table 3).

Attitudes Toward Condom Use

Perceptions of barriers to condom use were more common among women engaging in commercial sex. Most women perceived that men did not like to use condoms (80%) and that using condoms would reduce the sense of pleasure (87.2%). These rates were 66.8% and 60.2%, respectively, among women who had not been involved in commercial sex ($p = .11$ and $p < .01$, respectively). Women engaging in commercial sex were more likely than those who were not to perceive that condoms always break (57.5% vs. 40.3%, $p < .05$; see Table 3).

Most women (71.5%) believed condom use was effective for HIV/STD prevention, although women engaging in commercial sex were more likely than those who were not to subscribe to this perspective (87.5% vs. 70.4%, $p < .05$; see Table 3).

About 70% of women believed that they could persuade a sexual partner to use a condom when he was reluctant to use it, and around half of them thought they could refuse sex if their sexual partner refused to use a condom. There was no significant difference in these two items between the two groups.

The majority of women engaging in commercial sex believed that they and their clients knew where to obtain condoms (90%), and that they knew how to correctly use condoms (84.6%). These percentages were marginally higher than those who had not engaged in commercial sex (75.6% and 69.4%, respectively; see Table 3).

Perception of Peer Risk Involvement

As shown in Table 3, the mean of the peer risk involvement score was significantly higher for women ever engaging in commercial sex (2.51 vs. 1.35, $p < .001$). Compared with women who had not engaged in commercial sex, a significantly higher percentage of women engaging in commercial sex believed that some/most of their peers had engaged in a number of HIV/STD risk behaviors, such as having multiple sexual partners (71.8% vs. 13.5%, $p < .001$), purchasing commercial sex (52.8% vs. 5.5%, $p < .001$), having paid sex (45.9% vs. 5.7%, $p < .001$), and having a history of STD infection (48.7% vs. 3.3%, $p < .001$; data not shown).

Depression

Among women ever engaging in commercial sex, the CES-D scores ranged from 0 to 49, with a mean score of 16.80. Among women who had never engaged in commercial sex, CES-D scores ranged from 0 to 51, with a mean score of 11.18. One-half (50%) of women engaging in commercial sex scored 16 or higher on the CES-D, a cut-point for high depressive symptoms in the United States (Radloff, 1977), while the corresponding percentage was 23.4% among women who had never engaged in commercial sex ($p < .01$). After adjusting for age, educational level, and marital status, we found that the odds of involvement in commercial sex among depressed individuals was 2.68 times (95% CI: 1.35-5.31) that of among the nondepressed individuals (Table 3).

DISCUSSION

The percent of women reporting involvement in commercial sex (6%) was higher than that (around 1%) of among general women in mainland China (Parish et al., 2003). The percentage of women having multiple sexual partners was also higher than that of among the general sexually active female population in both Hong Kong (Lau, Tang, Siah, & Tsui, 2002b) and mainland China (Parish et al., 2003). The high percentage of risk behaviors found in our study supports the perspective that female migrants in general are at increased risk of exposure to HIV/STD infection.

Perceived efficacy of condoms and self-efficacy regarding condom use were relatively high compared with previous reports among sex workers (Liao et al., 2003; Van den Hoek et al., 2001). Consistent condom use rate was low, which was comparable with previous reports (UNAIDS, 2003a). The gap between the relatively high level of perceptions of self-efficacy and condom efficacy and the low consistent condom use rate found in this study may be due in part to perceived economic consideration among the migrant women. Other studies have reported that commercial sex workers might lose clients if they were to insist on condom use and would receive more money if they did not use a condom (Ma, 2003). The economic consideration, however, may not be a rationale explanation for the gap among women who did not engage in commercial sex. Homaifar and Wasik (2005) found in their study that 24% of registered sex workers admitted to “never” using condoms with nonpaying partners, while 100% of them reported using condoms with their clients. This finding suggests that the relationship with their partners may partly explain the discrepancy.

The discrepancy between condom use practice and perceptions also may result from inadequate condom negotiation skills, unequal power in heterosexual relationships between men and women, or both (Lau et al., 2002b). Traditional Chinese culture held forth that women were inferior to men. In private life between a male and female couple, the female was supposed to meet her male partner’s needs. It was thought to be rude and licentious if the female spoke about sex. Although in contemporary China sexual attitudes and behaviors are changing under the influence of modernization and Western cultural norms and values (Zhang, Li, Li, & Beck, 1999), the traditional Chinese culture, with a history extending back over thousands of years, is doubtlessly still influential. Future HIV prevention intervention efforts targeting this population should address the gender and power issue and include men as well. In addition, peer education may be a promising approach for promoting condom use. McVerry and Lindop (2005) found in their study that sex workers’ ability to protect their sexual health varied with experience. Less experienced sex workers were less likely to refuse sex without a condom. Experienced sex workers, however, were found to try to educate both clients and younger women about sexual health matters.

The observation that about half of women ever engaging in commercial sex did not report having multiple sexual partners for the last month may be explained by a number of factors. First, some women engaging in commercial sex may not be “professional” prostitutes. They might have other regular jobs and occasionally sell sex to supplement their incomes (i.e., survival sex; Zheng et al., 2001). Second, some women might have engaged in a monogamous, but commercial, sexual relationship typically between a rich man (e.g., “sugar daddy”) and a poor woman. This practice, called *Bao Er-nai*, means “hiring a second wife” (Liao et al., 2003). The hired “second wife” is supposed to provide sexual service only to her “employer” (i.e., client) during the period of being hired. These variations in commercial sex may result in different risk patterns. Some forms, such as “occasional survival sex” and *Bao Er-nai*, may result in less exposure to different male clients but also may compromise their ability to access or practice prevention activities. Further studies are needed to explore various

forms of commercial sex so that prevention strategies may vary based on the differing social contexts of client-sex worker interactions.

Western nations, several studies have reported significant associations between depression and HIV risk behaviors among high risk populations (Alegria et al., 1994; Perdue et al., 2003). The results from our study support the relationship between depression and involvement in commercial sex, although we are not able to determine the causality between them, given the nature of cross-sectional data. Women ever engaging in commercial sex had higher odds of being depressed, which suggests they have higher levels of psychological dysfunction or distress. Traditional Chinese culture places a high value on a woman's virginity. A woman who has lost her virginity before her marriage or is unfaithful to her husband is identified as a "bad" woman and is strongly denounced by the public (Tang, Wong, & Lee, 2001). Women engaging in commercial sex are stigmatized, marginalized, and labeled, which may explain their significantly higher proportion of depression.

Potential Limitations

There are several limitations to this study. First, we used a convenience sample rather than a random sample since there is no reliable local census data of the migrant population, and perhaps half of them are not in government registers at their current residence (Zhang, 2000). While efforts have been made in sampling to ensure the representativeness of the sample, caution is needed when generalizing results to other female migrant populations. Second, information collected was by self-report. Since questions regarding sexual behaviors or other risk behaviors were sensitive, social desirability may have influenced responses including possible underreporting of risk behaviors, such as involvement in commercial sex. Finally, as the original study was not designed to study commercial sex involvement among female migrants, some important data, such as condom use with specific types of sexual partners (regular/client) and the circumstances under which commercial sex occurred, were not collected.

Implications

Female migrants in general are at increased risk of involvement in HIV/STD-related risk behaviors. Migrant women who had ever engaged in commercial sex are at especially increased risk of exposure to HIV/STD infection. HIV prevention intervention activities among this population are of great urgency in China. Information and skills of preventive measures need to be delivered to them to avert their risk practice and correct their misconceptions. Situation analyses and negotiation skill training to initiate and promote condom use among them should be included in the prevention intervention program as they may be most relevant to this population. Prevention efforts should also address women's inequality in sexual relationships and include men in these efforts to achieve optimal prevention intervention effectiveness. Health workers should assess depressive symptoms among rural-to-urban migrants and try to help them to cope with psychological stresses in their life. More studies on conditions under which depression occurs and the causal relationship between depression and risk behaviors might be helpful in this regard.

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TABLE 1

Sociodemographic characteristics of female migrants who were sexually experienced overall and by commercial sex experience

Characteristics	Overall (n = 633)	CS (n = 40)	NCS (n = 593)	P value
Demographics				
Age	25.2 ± 3.4	23.9 ± 3.0	25.3 ± 3.5	.013
Ethnicity: Han ethnicity, %	96.3	92.3	96.6	.166
Education: ≤9 grades, %	59.1	71.8	58.3	.097
Never married, %	46.2	76.9	44.1	<.001
Employment condition				
Working place in the city, %				
Unemployed	3.3	0	3.5	<.05
Entertainment establishments	46.5	70.0	45.0	
Service sector	39.5	25.0	40.5	
Industrial or constructive sector	5.9	5.0	6.0	
Others	4.5	0	5.1	
Monthly income ≥800 RMB (or U.S.\$97), %	47.8	75.0	46.0	<.001
Daily work hours ≥10 hours, %	59.0	65.0	58.6	.426
History of migration				
Staying with whom in the city, %				
Alone	10.3	17.5	9.8	.171
Spouse	33.3	7.5	35.0	<.001
Coworker	36.6	35.0	36.7	.867
Village fellow	12.2	32.5	10.8	<.001
Friend	8.2	17.5	7.6	.038
Changing jobs ≥1 per year, %	48.2	65.0	47.1	.028
City resident <1 year, %	8.7	5.0	9.0	.565

CS: women who had ever engaged in commercial sex.

NCS: women who had never engaged in commercial sex.

TABLE 2
Relationship between HIV-related behaviors and involvement in commercial sex

Characteristics	Total (n = 633)	CS (n = 40)	NCS (n = 593)	Adj. OR (95% CI for OR)	P
Sexual behaviors & history					
Age at first sexual encounter <20y (%)	38.3	74.4	35.9	5.94 (2.45-14.39)	<.001
Sex debut occurred before marriage (%)	59.3	87.2	57.4	3.99 (1.13-14.10)	.031
Having multiple sex partners, last month (%)	4.2	43.2	1.7	27.84 (10.74-72.16)	<.001
Sexual partner has sex with others (%)	34.3	84.6	31.0	9.33 (3.73-23.32)	<.001
Consistent condom use, last 3 sexual encounters (%)	16.4	27.5	15.6	1.53 (0.70-3.33)	.286
Discussed condom use with sexual partner (%)	55.1	62.5	54.5	1.38 (0.68-2.82)	.371
Other risk behaviors					
Sold blood or plasma at least once last year (%)	3.7	10.3	3.2	2.20 (0.60-8.04)	.233
Got drunk at least once last month (%)	24.8	65.0	22.1	5.37 (2.61-11.06)	<.001
Ever used drugs over lifetime (%)	3.0	20.0	1.9	9.12 (3.17-26.26)	<.001

CS: women who had ever engaged in commercial sex.

NCS: women who had never engaged in commercial sex.

Adj. OR: adjusted odds ratio, which is defined as the odds of involvement in commercial sex among those who had the named behavior divided by the odds of involvement in commercial sex among those who did not have the named behavior, with adjusting for age, educational level, and marital status.

TABLE 3
Association of involvement in commercial sex with HIV-related knowledge, perceptions, and depression

HIV-related knowledge, perceptions, and depression	Total (n = 633)	CS (n = 40)	NCS (n = 593)	Adj. OR (95% CI for OR)	P value
HIV-related knowledge (Mean $\pm$ S.D.)	7.79 $\pm$ 2.52	9.14 $\pm$ 2.38	7.94 $\pm$ 2.37	1.28 (1.08-1.51)	.005
Vulnerability to HIV/STD infection (%)					
Likely to get HIV infection	28.7	70.0	25.9	6.33 (3.04-13.21)	<.001
Likely to get STD infection	34.1	82.5	30.8	8.52 (3.64-19.93)	<.001
Barriers to condom use (%)					
Few men like to use condoms during sex	67.7	80.0	66.8	1.96 (0.86-4.35)	.107
Using condoms will reduce the sense of sexual pleasure	61.9	87.2	60.2	5.26 (1.85-16.67)	.002
Condoms always break	41.5	57.5	40.3	2.13 (1.09-4.17)	.028
Perceived condom efficacy (%)					
Condom is an important way to keep away from STD/HIV Self-efficacy to condom use (%)	71.5	87.5	70.4	2.74 (1.04-7.21)	.041
I can persuade sexual partner to use condom if he is reluctant to use it	70.4	72.5	70.2	1.41 (0.64-3.12)	.389
I won't have sex with him if my sexual partner refuses to use condom	50.2	42.5	50.8	0.87 (0.44-1.72)	.688
My sexual partner and I know where to get condoms	76.6	90.0	75.6	2.78 (0.96-8.33)	.055
My sexual partner and I know how to use condom correctly	70.3	84.6	69.4	2.53 (1.02-6.28)	.047
Peer risk sex involvement (Mean $\pm$ S.D.)	1.41 $\pm$ 0.60	2.51 $\pm$ 0.54	1.35 $\pm$ 0.52	7.86 (4.70-13.15)	<.001
Depression (Mean $\pm$ S.D.)	11.57 $\pm$ 9.84	16.80 $\pm$ 9.42	11.18 $\pm$ 9.41	1.05 (1.02-1.08)	.002
Depression score ≥ 16 (%)	25.1	50	23.4	2.68 (1.35-5.31)	.005

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