Partner violence and HIV risks among female sex workers in China

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Abstract

Global literature suggests that partner violence contributes to HIV-related vulnerability and risks among women. Female sex workers (FSWs) play a significant role in China's skyrocketing increase of heterosexual transmission of HIV. The aim of this paper is to examine the interplay between partner violence and HIV risks among FSWs in China. This study, based on a cross-sectional survey of 1,022 FSWs recruited from communities in China, attempted to address the relationship between partner violence and HIV risks among this vulnerable population. About 58% of the FSWs had experienced violence from their stable partners (including 55.5% reporting emotional violence, 20.1% physical violence, and 16.2% sexual violence) and 45% from their clients (including 39.7% reporting emotional violence, 17.1% physical violence, and 16.8% sexual violence). Partner violence perpetuated by either stable partners or clients was strongly associated with most of HIV risk measures. This study confirmed the association of partner violence and HIV risks among FSWs. We call for culturally appropriate interventions for both partner violence and HIV risk reduction among FSWs in China.

Keywords

Partner violence; Female sex worker; China; HIV risk reduction

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INTRODUCTION

China has entered the third decade of the HIV epidemic with an official estimate of 740,000 HIV cases by the end of 2009[1]. The growth of the HIV/AIDS epidemic in China has been largely due to heterosexual transmission which became a dominant mode that surpassed the drug-driven route in recent years. In 2007, heterosexual contact accounted for 45% of new HIV infections [2]. Meanwhile, the nationwide male to female ratio of people living with HIV/AIDS (PLWHA) has plunged from 9 to 1.8 [3]. Such rapid increase of sexual transmission and high number of women infected suggest a deteriorating situation in the HIV epidemic in China.

Economic and social reforms in China have resulted in huge income disparities and provided fertile foundations for sex works. Commercial sex plays a significant role in China's skyrocketing increase of sexual transmission of HIV [4]. Similar to other Asian countries, commercial sex in China is primarily establishment-based. An estimated 4 to 10 million female sex workers (FSWs) in China operate in a complex commercial sex hierarchy [4, 5]. Typically, establishment-based FSWs encounter their clients either in entertainment venues (e.g. karaoke [KTV], night clubs, dance halls, discos, and bars) or personal service sectors (e.g. saunas, hair salons, massage parlors, barbershops, roadside restaurants, and mini-hotels). The government estimates of HIV prevalence among FSWs were between 0.33–0.94% [2]; however, several community-based studies in Southern China reported much higher HIV prevalence in a range from 2.3% to 10.3% [6–8].

Female sex workers' vulnerability to HIV infection is associated with a series of behavioral and psychological factors. Violence against women, as one crucial factor contributing to the HIV epidemic among women, comes to light only recently [9]. Global literature showed that violence against women mainly came from their sexual or intimate partners (e.g., husband, boyfriends, or ex-partners) [10]. Risk factors for partner violence in existing studies included demographic factors (e.g. rural residency, living with their partners); behavioral factors (e.g. substance abuse); socioeconomic (e.g. financial dependency), and cultural factors (e.g. gender inequality) [11–13].

Despite the high prevalence of partner violence against FSWs, the relationship between partner violence and HIV risks has not been addressed sufficiently. Existing global studies have identified several possible mechanisms through which the epidemic of HIV and violence interplayed in the context of women's lives. First, violence may limit women's ability to perform or negotiate safe sex practice and increase women's risks of HIV infection (e.g., unprotected sexual intercourse) due to sexual coercion [14]. For instance, existing studies provided convincing evidence on the association between partner violence and lack of protections (e.g. condom use) in their sexual encounters [15–17]. In studies conducted by Wingood and DiClemente, women experiencing violence perpetuated from their partners were less likely to report condom use compared to non-abused women (42.6% vs. 71.2%) [16, 17]. Moreover, because the abrasion caused by forced vaginal or anal intercourse facilitated the entry of virus, sexual violence increased the risk of HIV transmission [18]. Second, experience of violence may increase psychosocial distress contributing to risk-taking behaviors in women's sexual activities, which may lead to higher HIV risks [9, 19,

20]. For instance, FSWs who reported psychosocial distress were 2.6 times higher to engage in unprotected sexual practice compared to their counterparts [20]. Third, women's vulnerability to violence is often associated with substance abuse (by themselves or their perpetrators), which is highly associated with increased risks of HIV infection [14]. Fourth, partner violence may prevent infected women from adequately disclosing their HIV sero-status to their partners as such disclosure may increase women's risks of experiencing violence perpetuated by their partners [9, 21].

In addition to examining the relationship between overall violence and HIV risks, three specific types of violence against FSWs have been identified in previous studies: emotional violence (e.g., emotional abuse or verbal assaults), physical violence (e.g., physical assaults), and sexual violence (e.g., rape, sexual coercion)[22–23]. A few studies further suggested differential effects of various violence on women's HIV risks. For example, Wingood and colleagues reported that women who experienced both physical and sexual violence were 5.4 times more likely to be threatened as a result of attempted condom negotiations compared to women experiencing physical violence alone [24]. Molina and Basinait-Smith demonstrated that emotional violence had more negative outcomes among abused women in terms of HIV risks compared to consequences of physical and sexual violence [25].

Although the relationship between partner violence and sexual risks is well-documented in developed countries, there are several limitations in current literature. First, most of the studies were conducted in Western nations and data on this issue in developing counties are limited. Second, most studies only focus on one type of violence or only describe general violence against women. Only a few studies examined different types of violence (emotional, physical, and sexual) and HIV risks among abused women [25]. Third, most existing studies of partner violence employed only a single measurement for HIV risks, such as inconsistent condom use [16, 17, 26, 27] or STD infection [28]. Few studies have examined the association between partner violence and multiple measurements of HIV risks among FSWs.

As an attempt to fill out the literature gap on partner violence and HIV risks among FSWs in China, we conducted the current study with the following research questions: First, what was the prevalence of different types of partner violence among FSWs in China? Second, what were the demographic correlates of partner violence? Third, whether partner violence (different types as well as the overall measure) was associated with HIV risks including inconsistent condom use, a history of STI, never having an HIV test, and drug use?

METHODS

Study site

The current study was conducted in Guangxi Zhuang Autonomous Region (Guangxi). Guangxi is located in the southwest of China and it is one of the five autonomous and multi-ethnic regions. Guangxi is ranked the second in terms of HIV prevalence and the first in terms of new HIV infection cases among China's 31 provinces [29]. Two tourist cities in Guangxi, Beihai and Guilin, served as research sites for this study. Guilin is situated in the northeast of Guangxi with a population of 1.34 million including an urban population of

620,000. Beihai is located in the southern coast of Guangxi with a population of 1.36 million including 550,000 urban residents. Both cities are famous tourist spots, attracting 4–10 million tourists to each city every year. Because of the booming economy in Guangxi and significant tourism in Guilin and Beihai, commercial sex flourishes in both cities. An estimated 2,000 FSWs work in more than 155 commercial sex venues in each city [29].

Participant recruitment

Participants in the current study were recruited from 60 entertainment establishments that represent nine different kinds of commercial sex venues, including night clubs, saunas, karaoke (KTV), bars, hair salons, massage parlors, mini-hotels, restaurants, and the streets. The research team and local health workers identified commercial sex venues in Guilin and Beihai through ethnographic mapping. The owners/managers or other gatekeepers of these venues were contacted for their permission to conduct research in their premises. Once we obtained permission from the gatekeepers, trained outreach health workers from the local anti-epidemic stations approached the women in these venues to ask for their participation. A total of 1,022 women agreed to participate and completed a self-administered questionnaire; among the participants, 279 women did not report a stable partner and 85 women did not provide information on violence from clients.

Data collection procedure

A structured questionnaire was administered to women who provided a written informed consent. The survey was conducted in separate rooms or private spaces in the venues/sites where participants were recruited. No one was allowed to stay with the participant during the survey except the interviewer who provided the participant with necessary assistance. For those women with low literacy (less than 5%), interviewers read questions to participants. The questionnaire took about 45 minutes to complete. Each participant received a small gift with cash value equivalent to US$4.50. The study protocol was approved by the Institutional Review Boards at Wayne State University in the U.S. and Beijing Normal University in China.

Measures

Demographic information: Participants were asked to provide information on their age, ethnicity, residency (rural or urban household registration, or *"Hukou"*), education, marital status, length of working in the city (in months), living arrangement (whether or not living with their partners), working venue and monthly income (in yuan). For the purpose of data analysis in the current study, we categorized ethnicity into Han and non-Han, education attainment into no more than middle school versus more than middle school. Because of documented differences of FSWs in different levels of commercial sex hierarchy in terms of their age, income and HIV-related behaviors [4,5,30], all venues were categorized into four levels based on the mean income of participating FSWs at each venue: level one were those venues with mean income higher than 3,000 yuan each month (in this study, only FSWs working in sauna had a mean income higher 3,000 yuan), level two were those venues with mean income between 2,000 to 3,000 yuan (night club, KTV, bar, dancing halls), level three were those venues with mean income between 1,000 to 2,000 yuan (massage parlor, hair

salon), and level four were those venues with mean income less than 1,000 yuan (roadside restaurant, mini hotel, and streets).

Partner violence: Measures of violence perpetrated by clients and stable partners were adapted from the WHO's Women's Health and Life Experience Questionnaire [31] and scales used in several Chinese studies [32]. Questions of violence from stable partners and clients included a common set of 17 questions on emotional violence (e.g. belittled or humiliated you in front of others; threatened to hurt you or someone you care about), physical violence (e.g. slapped you or threw something at you that could hurt you; pushed you or shoved you or pulled your hair, kicked you), and sexual violence (e.g. had sexual intercourse when you did not want; put something into your vagina). Measures of violence perpetrated by stable partners included three additional items of emotional violence (ignored you for a long time, threatened to separate you from your children or terminate your pregnancy, and restricted freedom of your daily activities). The final partner violence scales include 20 items for stable partners and 17 for clients. All items were assessed using a 4-point response option: 0=never, 1=occasionally, 2=sometimes, and 3=frequently. We divided items in each scale into three different types of violence: "emotional", "physical", and "sexual". Because the responses to these subscales were highly skewed, we dichotomized the responses into "never" and "ever" categories. For respondents who answered "never" to all items in a subscale, we assigned them into "never" group; otherwise, we assigned them into "ever" group. Likewise, we created a dichotomous indicator ("never/ever") for overall partner violence based on the responses to all items in relevant scales.

HIV risks: Measures of participants' HIV risks consist of inconsistent condom use, history of STI, HIV testing and drug use. Two sets of three questions were used to measure condom use (one set pertaining to clients and the other pertaining to stable partners): "how often do you use condoms with clients [stable partners] (never, occasionally, often, and always)"; "how often do you use condoms with clients [stable partners] in the last three sex acts (none, once, twice, and all three times)"; "how often do you think you will use a condom with clients [stable partners] in the future (never, occasionally, often, and always)". Those respondents who didn't answer "always" or "all three times" were considered having used condoms inconsistently or having inconsistent condom use intention with clients/stable partners. Participants were also asked whether they had a history of STI (yes, no, and don't know), respondents were considered to have a history of STI if they answered "yes" to this question. HIV testing was assessed by a question of "have you ever tested for HIV? (yes/no)". Women were considered to never have HIV testing if they answered "no". Drug use was measured by a single item: "Have you ever used illegal drugs, including club drugs? (yes/no)". Women were considered to have used a drug if they answered "yes" to this question.

A composite score of HIV risks was calculated by indexing those women who inconsistently used condoms with stable partners/clients in their sex life and during the last three sex acts, had inconsistent condom use intention with stable partners/clients in future, had a history of STI, never had tested for HIV, and ever used a drug. The HIV risk composite score had a range of 0 to 6 with a higher score indicating a higher level of HIV risks.

Data analysis

First, Chi-square (for categorical variables) and ANOVA (for continuous variables) were employed to assess the association of different types of partner violence from stable partner or client with participants' demographic characteristics and six measures of HIV risks. Second, multivariate regression models were performed to further examine the association between partner violence and HIV risks controlling for key demographic characteristics. Logistic regression models were employed with six binary HIV risk measures as the dependent variables (inconsistent condom use, inconsistent condom use in the last three sex acts, and intention of inconsistent condom use, history of STI, HIV testing, and drug use); linear regression models were employed with continuous dependent variables (the composite scores of HIV risks). Adjusted odds ratio (aOR) for logistic regression model and unstandardized regression coefficient (B) for linear regression model and their 95% confidence intervals (95% CI) were used to depict the relationship between partner violence and measures of HIV risks while controlling for key demographic characteristics. All statistical analyses were performed using SPSS 18.0.

RESULTS

Demographic characteristics and partner violence

As shown in Table 1, among participants who reported having stable partners, 57.9% (430/743) had experienced at least one type of violence from their stable partners with 55.5% (411/740) experiencing emotional violence, 20.1% (148/735) experiencing physical violence, and 16.2% (120/739) experiencing sexual violence. Participants who ever experienced physical violence were more likely to be younger (23.93 vs. 25.64, p<0.01), of non-Han ethnicity (18.9% vs. 12.3%, p<0.05), having rural residency (63.8% vs. 53.5%, p<0.05), with less education (71.6% vs. 62.7%, p<0.05), and never married (76.4% vs. 65.4%, p<0.05). Participants who ever experienced emotional violence were more likely to have less education (70.1% vs. 58.1%, p<0.001). All three types of violence are all significantly associated with living with partners. Likewise, participants who experienced at least one type of violence were more likely to be non-Han ethnicity (16.0% vs. 10.5%, p<0.05) with less education (69.1% vs. 58.8%, p<0.01).

As shown in Table 2, 45.0% (422/937) of participants had experienced at least one type of violence from their clients with 39.7% (372/937) of them experiencing emotional violence, 17.1% (126/735) experiencing physical violence, and 16.8% (135/802) experiencing sexual violence. Emotional violence perpetuated from clients among FSWs was significantly associated with non-Han ethnicity and working at high-income venues (p<0.05). Neither sexual violence nor physical violence from clients was significantly associated with any of the key demographic factors. Overall violence perpetuated from clients was significantly associated with non-Han ethnicity (18.5% vs. 12.8%, p<0.05). Further analysis indicated that 32.2% women who reported violence perpetuated by both stable partners and clients and both of these violence measures were significantly correlated (r=0.438, p<0.0001).

Association of partner violence and HIV risks

As shown in Table 3, all three types of partner violence perpetuated by stable partners were strongly associated with most measures of HIV risks. Abused FSWs had significantly higher levels of HIV risks than their counterparts. For instance, abused FSWs were more likely to use condoms inconsistently with stable partners in their sex life (85.9% vs. 78.0%, p<0.01) and during the last three sex acts (70.4% vs. 60.4%, p<0.001), and have higher inconsistent condom use intention with stable partners (80.7% vs. 72.3%, p<0.05). Respondents who ever had emotional violence from stable partners were four times more likely to have a history of STI compared to their counterparts (12.4% vs. 2.7%, p<0.0001). More sexually abused FSWs never had an HIV test compared to women reporting no sexual violence from their stable partners (62.4% vs. 49.4%, p<0.01). FSWs were more likely to use a drug if they ever experienced either physical (24.3% vs. 16.9%, p<0.05) or sexual violence (25.8% vs. 16.8%, p<0.05) from their stable partners.

For FSWs who suffered violence from clients, they reported a higher level of HIV risks included having a history of STI, never having HIV testing, and ever using a drug. FSWs ever had at least one type of violence from clients were two times more likely to have a history of STI compared to their counterparts. Similarly, 23.2% of women who experienced at least one type of violence had ever used a drug, compared to 15.5% FSWs never experiencing any violence from their clients (p<0.001) (table 4).

Multivariate analysis

In the multivariate models (Table 5) that assessed relationships between partner violence from stable partners and HIV risks while controlling for potential confounders, violence from stable partner remained significantly associated with inconsistent condoms with stable partners in their sex life (aOR=1.76, 95%CI=1.19, 2.61) and during the last three sex acts (aOR=1.56, 95%CI=1.13, 2.14), inconsistent condom use intention with stable partners(aOR=1.61, 95%CI=1.13, 2.29), and a history of STI (aOR=4.58, 95%CI=2.21, 9.51). Similarly, violence from clients remained significantly associated with a history of STI (aOR=2.12, 95%CI=1.30, 3.46), and drug use (aOR=1.87, 95%CI=1.31, 2.66) (Table 6).

The composite score of HIV risks was positively significantly associated with partner violence perpetuated by stable partners (B=0.42, 95%CI=0.22, 0.62) and violence perpetuated by clients (B=0.25, 95%CI=0.06, 0.44). Age, education, and venue level were also significant predictors in the multivariate models (p<0.05). Specifically, women who had younger age, lower education, and worked in lower income venues were more likely to report higher HIV risks (Tables 5 and 6).

DISCUSSION

Our data indicated that 58% FSWs in our study had experienced violence from their stable partners and 45% from their clients. The most prevalent type of violence is emotional violence, which is 55.5% and 39.7% for stable partners and clients, respectively, followed by physical violence (20.1% and 17.1%) and sexual violence (16.2% and 16.8%). Such rates were lower compared to existing studies conducted in developed countries. For instance, a

study conducted among 130 FSWs in the U.S. revealed that more than 80% of the respondents experienced physical violence, while 60% of them experienced sexual violence during sexual encounters with their clients [33]. In a qualitative study conducted among FSWs in the U.S., 86% participants experienced physical violence and 72% experienced sexual violence [14]. However, rates of violence in our study were similar to other existing studies conducted in China. For instance, previous studies showed that 15% of the FSWs reported having been coerced into sex in the last six months and 68.4% FSWs reported having client-perpetuated violence in the previous year [2, 34]. Future studies are needed to explore reasons for the relatively lower rates of partner violence reported by FSWs in China. Furthermore, our data indicated that a substantial proportion of FSWs (about one-third) experienced violence perpetuated by both stable partners and clients.

Some demographic factors such as younger age, lower education, living with partners and working in a lower income venue were associated with partner violence in our study. This finding is consistent with existing global literature [35–36]. Living with partners was more likely to elicit interpersonal conflicts, which in turn caused the elevated prevalence of violence perpetuated by their partners among FSWs, especially for those FSWs who were living with drug abusing or abusive stable partners [37–38]. It also might be possible that FSWs who suffered violence were more likely to seek emotional support or physical protection by engaging in non-commercial sexual relationships [37–38]. In addition, women who were of ethnic minority, lower education, or working in lower-income venues could be less empowered and more vulnerable to sexual or other forms of partner violence than their ethnic majority, higher-educated counterparts.

Our findings lend support to the association between violence against women and HIV risks. Existing studies showed that partner violence was highly associated with sexual risk behaviors (e.g. unprotected intercourse) [14, 39]. Our data suggest that all three types of violence were strongly associated with HIV risks, although the strength of association between partner violence and HIV risks varies by type of violence (e.g., emotional, physical, and sexual) and source of violence (e.g., from stable partners vs. from clients). Our data revealed that FSWs who had violence perpetuated by their stable partners had relatively higher HIV risks compared to FSWs experiencing violence perpetuated by their clients. For instance, rates of inconsistent condom use in their life time/during the last three sex acts and intention of inconsistent condom use were higher among FSWs who experienced violence perpetuated by their stable partners.

There are several possible explanations for the strong relationship between partner violence and inconsistent condom use among FSWs in China. First, experiencing or fear of violence perpetuated by their stable partners and clients is the most frequently mentioned reason among FSWs for not using condoms with partners or clients [34, 40]. In order to avoid such victimization, FSWs may choose not to insist on condom use with their partners or lose the confidence that they can consistently use condoms in the future. Second, having sex without using a condom symbolized as trust and respect in Chinese culture [40]. Request to use a condom may create a tension between FSWs and their partners, and trigger violent reactions from their partners during sexual encounters. Third, some abused FSWs experienced sexual coercions perpetuated by their stable partners or clients, a situation in which women have no

power or choice to protect themselves with condom use or other disease prevention strategies [11].

Existing HIV/AIDS prevention efforts in China focus on several strategies including condom promotion, STD treatment among high HIV risk populations, counseling and testing (VCT), and education on reducing sexual risk behaviors [41]. Most of these strategies assumed that women can autonomously decide with whom, when and how they have sex with, without taking women's power inequality and vulnerability into consideration [42]. If women have to depend on their sexual partners for protection or to access to protective services (e.g., HIV testing), they may lack ability to perform or negotiate for safer sexual practice, especially when these women are victims of violence or under threats of violence. Without taking gender and power inequality into consideration, existing HIV prevention strategies may not be able to exert their most positive impacts on lives of these vulnerable women.

There were several limitations in the current study. First, our study was conducted in Guangxi, a multi-ethnic region of China. The findings may not be generalizable to other areas of China. Second, the sample in the current study was recruited through venue-based sampling, which might have resulted in under-sampling of street-based FSWs. Because global literature has suggested a higher prevalence of partner violence among street-based FSWs than establishment-based FSWs [43], such under-sampling of street-based FSWs might result in an underestimate of the prevalence of partner violence in the current study. Third, our study was based on a cross-sectional design, which precludes us from drawing any causal conclusions. Fourth, due to the illegal status and highly stigmatized and marginalized nature of the sex work in China, our data were subject to volunteer bias and socially desirable reporting.

Despite these limitations, the current study represents one of the first efforts to investigate partner violence, related factors and associated HIV risks among FSWs in China. Our data underline an urgency to reduce the interplay of partner violence and HIV risks among this population. Findings of the current study have several important implications for future violence and HIV/AIDS prevention intervention efforts among FSWs. First, violence screening protocol should be incorporated into existing HIV/AIDS prevention programs. Identifying FSWs who are victims of violence would be essential for health care providers to address issues related to violence victimization among women [44]. Second, future health promotion and prevention efforts targeting FSWs need to teach FSWs to identify elevated risks of partner violence in their living and working environments as well as strategies on how they could prevent and escape from abusive relationship and vulnerable encounters[19,45]. Third, condom promotion strategy should target both women and their male partners. Strategies that focus on sharing responsibilities between men and women should be encouraged in further HIV intervention programs [9]. Fourth, future HIV/AIDS prevention programs need to consider vulnerable women's gender and power inequality in the context of sexual relationships [42, 46, 47]. Empowerment would be a strategic intervention for FSWs. If FSWs or other vulnerable women could have an equal chance of education and employment, they may find other legitimate jobs to support themselves, rather than being involved in sex trade. Fifth, there is an urgent need for female-controlled approaches that protect women from HIV and other sexually transmitted infections [9, 42],

as most existing HIV interventions in China are male-dominated strategies (e.g. use of male condom) which have often been beyond the control of women [41]. Sixth, future violence prevention interventions efforts need to involve public security and law enforcement agencies. FSWs in China may fear to report partner violence to the police or others who could help them because of the fear of the legal implications of their commercial sex activities.

Given the current social and political context in China, empowerment-based, multi-facet interventions are needed to help FSWs to reduce violence victimization and related sex risks, provide them with a safer working environment, and encourage abused women to actively seek help. More importantly, interventions to prevent partner violence needs to go beyond individual levels and involve multiple social sectors (e.g. policy makers, community leaders, health providers, public health professionals, public security and law enforcement) for the public health efforts truly to improve the well-being of these women.

Acknowledgment

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Table 1:

Demographic characteristics of FSWs and relationship with experience of partner violence from stable partners

	PV from Stable Partners (n=743)[a]							
	Emotional (n=740)		Physical (n=735)		Sexual (n=739)		Combined (n=743)	
	Never (n=329)	Ever (n=411)	Never (n=587)	Ever (n=148)	Never (n=619)	Ever (n=120)	Never (n=313)	Ever (n=430)
Age, mean (sd)	25.68 (6.54)	24.95 (7.04)	25.64 (6.79)	23.93 (6.82) **	25.38 (6.75)	24.67 (7.29)	25.81 (6.62)	24.84 (6.95)
Ethnicity								
Han	89.1%	83.9%	87.7%	81.1% *	86.9%	83.3%	89.5%	84.0% *
Non-Han	10.9%	16.1%	12.3%	18.9%	13.1%	16.7%	10.5%	16.0%
Residency								
Urban	46.9%	42.0%	46.5%	36.2% *	44.1%	45.3%	46.9%	42.3%
Rural	53.1%	58.0%	53.5%	63.8%	55.9%	54.7%	53.1%	57.7%
Education								
Less than MS	58.1%	70.1% ***	62.7%	71.6% *	64.5%	65.0%	58.8%	69.1% ***
More than MS	41.9%	29.9%	37.3%	28.4%	35.5%	35.0%	41.2%	30.9%
Marital Status								
Never	66.0%	69.1%	65.4%	76.4% *	66.6%	73.3%	64.9%	70.0%
Ever	34.0%	30.9%	34.6%	23.6%	33.4%	26.7%	35.1%	30.0%
Length of Working mean (sd)	47.06 (39.30)	44.79 (34.64)	46.68 (37.01)	43.05 (36.17)	45.49 (36.94)	47.21 (35.96)	47.19 (39.05)	44.65 (34.94)
Living arrangement								
Living with Partner	31.3%	40.9% **	34.2%	46.6% **	35.4%	43.3% **	29.7%	41.6%
Not living w. partner	68.7%	59.1%	65.8%	53.4%	64.6%	56.7%	70.3%	58.4%
Venue Level[b]								
>3,000RMB	23.7%	25.3%	24.5%	22.3%	25.0%	20.8%	23.6%	25.1%
2,000~3,000	59.3%	58.2%	57.2%	63.5%	58.0%	63.3%	58.5%	59.1%
1,000~2,000	7.9%	6.1%	7.5%	4.7%	7.1%	5.8%	8.3%	5.8%
<1,000	9.1%	10.5%	9.9%	9.5%	9.9%	10.0%	9.6%	10.0%

Note:

[a] FSWs who reported having stable partners, and who completed more than half of the 20-item IPV-stable partner scale.

[b] Venues were grouped based on the median income of FSWs in each venue.

*
p<.05,

**
p<.01,

***
p<.001,

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p<.0001

Table 2:

Demographic characteristics of FSWs and relationship with experience of partner violence from clients

	PV from Clients (n=937)[a]							
	Emotional (n=937)		Physical (n=735)		Sexual (n=937)		Combined (n=937)	
	Never (n=565)	**Ever (n=372)**	**Never (n=609)**	**Ever (n=126)**	**Never (n=802)**	**Ever (n=135)**	**Never (n=515)**	**Ever (n=422)**
Age, mean (sd)	25.31 (6.75)	25.21 (7.21)	24.76 (6.79)	24.91 (6.60)	24.91 (6.74)	24.27 (6.52)	24.78 (6.74)	24.86 (6.68)
Ethnicity								
Han	86.7%	84.9%	87.1%	80.9% [*]	85.5%	79.3%	87.2%	81.5% [*]
Non-Han	13.3%	15.1%	12.9%	19.1%	14.5%	20.7%	12.8%	18.5%
Residency								
Urban	45.4%	40.0%	43.2%	45.9%	43.9%	46.3%	43.9%	44.8%
Rural	54.6%	60.0%	56.8%	54.1%	56.1%	53.7%	56.1%	55.2%
Education								
Less than MS	63.5%	69.0%	63.0%	65.9%	64.6%	61.5%	63.3%	65.2%
More than MS	36.5%	31.0%	37.0%	34.1%	35.4%	38.5%	36.7%	34.8%
Marital Status								
Never	66.7%	72.2%	72.0%	71.8%	71.7%	73.3%	71.8%	72.0%
Ever	33.3%	27.8%	28.0%	28.2%	28.3%	26.7%	28.2%	28.0%
Length of Working mean (sd)	45.44 (36.56)	48.40 (38.21)	41.43 (33.72)	45.84 (37.61)	43.17 (35.08)	43.24 (37.13)	41.47 (33.48)	45.27 (37.46)
Living arrangement								
Living with Partner	36.5%	38.1%	26.5%	26.1%	26.1%	28.1%	25.8%	27.0%
Not living w. partner	63.5%	61.9%	73.5%	73.9%	73.9%	71.9%	74.2%	73.0%
Venue Level[b]								
>3,000RMB)	23.8%	29.4%	26.7%	33.6% [*]	28.8%	33.3%	26.0%	33.6%
2,000~3,000	59.9%	51.6%	57.5%	48.9%	54.5%	51.9%	57.5%	50.0%
1,000~2,000	6.7%	7.9%	6.5%	8.6%	7.5%	6.7%	7.2%	7.6%
<1,000	9.5%	11.1%	9.2%	8.9%	9.2%	8.1%	9.3%	8.8%

Note:

[a.] FSWs who completed more than half of the 17-item IPV-client scale.

[b.] Venues were grouped based on the median income of FSWs in each venue.

[*] p<.05,

[**] p<.01,

[***] p<.001,

[****] p<.0001

Table 3:

Association between partner violence from stable partner and HIV risks

	PV from Stable Partners (n=743)							
	Emotional (n=740)		**Physical (n=735)**		**Sexual (n=739)**		**Combined (n=743)**	
	Never (n=329)	**Ever (n=411)**	**Never (n=587)**	**Ever (n=148)**	**Never (n=619)**	**Ever (n=120)**	**Never (n=313)**	**Ever (n=430)**
Inconsistent condom use with stable partners	78.9%	85.5% *	80.7%	89.8% *	81.6%	88.0%	78.0%	85.9% **
Inconsistent condom use with stable partners in last three sex acts	61.7%	69.9% *	63.8%	76.2% ***	64.8%	74.6% *	60.4%	70.4% ***
Intention of inconsistent condom use with stable partners in future	72.5%	80.7% *	74.1%	88.5% ****	76.1%	82.5%	72.3%	80.7% *
STI history	2.7%	12.4% ****	6.8%	13.5% *	6.8%	15.0% **	2.9%	11.9% ****
Never HIV testing	47.7%	54.2%	49.9%	55.2%	49.4%	62.4% **	48.2%	53.9%
Drug use	15.5%	20.9%	16.9%	24.3% *	16.8%	25.8% *	15.3%	20.7%
Composite score of HIV risks associated with stable partners[a], mean (sd)	2.85 (1.26)	3.14 (1.21) ***	2.92 (1.25)	3.36 (1.13) ****	2.97 (1.25)	3.21 (1.19)	2.82 (1.26)	3.14 (1.21) ***

Note:

[a.] Composite score of HIV risks associated with stable partners including: inconsistent condom use with stable partners, inconsistent condom use with stable partners in last three sex acts, intention of inconsistent condom use with stable partners in future, past or current STI, never had HIV testing, and ever had drug use.

*
p<.05,

**
p<.01,

***
p<.001,

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p<.0001

Table 4:

Association between partner violence from clients and HIV risks

| | PV from Clients (n=937) | | | | | | | |
| | Emotional (n=937) | | Physical (n=735) | | Sexual (n=937) | | Combined (n=937) | |
	Never (n=565)	Ever (n=372)	Never (n=609)	Ever (n=126)	Never (n=802)	Ever (n=135)	Never (n=515)	Ever (n=422)
Inconsistent condom use with clients	47.0%	47.0%	45.9%	49.6%	45.9%	53.3%	45.3%	48.9%
Inconsistent condom use with clients in last three sex acts	34.6%	32.2%	31.7%	35.2%	33.0%	37.0%	33.7%	33.4%
Intention of inconsistent condom use with clients in future (mean, sd)	19.5%	21.4%	19.1%	23.2%	19.9%	22.2%	19.0%	21.7%
STI history	5.7%	11.3% ***	6.7%	15.1% ***	6.6%	15.6% ***	5.4%	10.9% ***
Never HIV testing	52.9%	50.1%	51.4%	48.8%	50.3%	60.4% *	52.4%	51.1%
Drug use	16.8%	22.3% *	16.6%	27.0% **	17.6%	27.4% **	15.5%	23.2% ***
Composite score of HIV risks associated with clients[a], mean (sd)	1.68 (1.29)	1.84 (1.35)	1.68 (1.26)	1.99 (1.45) *	1.71 (1.30)	1.96 (1.41) *	1.64 (1.29)	1.87 (1.34) *

Note:

[a.] Composite score of HIV risks associated with clients including: inconsistent condom use with clients, inconsistent condom use with clients in last three sex acts, intention of inconsistent condom use with clients in future, past or current STI, never had HIV testing, and ever had drug use.

[*] $p < .05$,

[**] $p < .01$,

[***] $p < .001$,

[****] $p < .0001$

Table 5:

Multivariate regression of HIV risks on violence from stable partners (n=743)

	Inconsistent condom use with stable partners	Inconsistent condom use with stable partners in last three sex acts	Intention of inconsistent condom use with stable partners in future	STI history	Never HIV testing	Drug use	Composite score of HIV risks with stable partner
	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	B (95%CI)
PV from stable partners(binary)	1.76 (1.19, 2.61) ***	1.56 (1.13, 2.14) **	1.61 (1.13, 2.29) **	4.58 (2.21,9.51) ****	1.25 (0.92,1.70)	1.21 (0.79,1.85)	0.42 (0.22,0.62) ****
Age	0.97 (0.92. 1.01)	0.99 (0.95, 1.02)	0.98 (0.95, 1.02)	1.00 (0.95,1.07)	0.91 (0.88,0.94) ****	0.79 (0.74,0.84) ****	−0.05 (−0.08,−0.03) ****
Non-Han Ethnicity	0.64 (0.37,1.08)	0.90 (0.57, 1.42)	0.81 (0.49, 1.33)	1.12 (0.54,2.33)	1.12 (0.72,1.75)	1.03 (0.60,1.78)	−0.07 (−0.36,0.21)
Had>middle school educa.	1.00 (0.66, 1.50)	0.99 (0.71, 1.38)	1.13 (0.78, 1.64)	1.12 (0.63,1.99)	1.50 (1.08,2.08) *	1.16 (0.76,1.75)	0.14 (−0.07,0.35)
Ever married	1.13 (0.64, 1.97)	0.86 (0.55, 1.35)	0.93 (0.56, 1.53)	0.98 (0.43,2.19)	1.04 (0.67,1.63)	0.90 (0.43,1.86)	−0.04 (−0.32,0.25)
Venue level	1.57 (1.18, 2.09) ***	1.39 (1.11, 1.75) ***	1.16 (0.91, 1.50)	0.95 (0.64,1.41)	2.03 (1.61,2.57) ****	1.57 (1.07,2.31) *	0.39 (0.25,0.54) ****

Note:

*
p<.05,

**
p<.01,

***
p<.001,

****
<.0001

Table 6:

Multivariate regression of HIV risks on violence from clients (n=937)

	STI history	Never HIV testing	Drug use	Composite score of HIV risks with clients
	aOR (95%CI)	aOR (95%CI)	aOR (95%CI)	B (95%CI)
PV from clients (Binary)	2.12 (1.30,3.46) [***]	1.02(0.78,1.34)	1.87(1.31,2.66) [***]	0.25 (0.06,0.44) [*]
Age	0.98 (0.93,1.03)	0.91(0.88,0.94) [****]	0.81(0.77,0.85) [****]	−0.08(−0.10,−0.06) [****]
Non-Han Ethnicity	1.33 (0.73,2.45)	1.18 (0.80,1.73)	0.98 (0.61,1.56)	0.13(−0.14, 0.39)
Had>middle school educa.	0.98 (0.59,1.63)	1.48 (1.11,1.97) [**]	1.14(0.79,1.60)	0.09(−0.11,0.29)
Ever married	1.14 (0.53,2.42)	1.17 (0.77,1.78)	0.99 (0.51,1.94)	0.17 (−0.13,0.47)
Venue level	1.12 (0.80,1.57)	2.13(1.75,2.61) [****]	1.65 (1.23,2.23) [***]	0.71(0.58,0.84) [****]

Note:

[*] p<.05,

[**] p<.01,

[***] p<.001,

[****] <.0001