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Prevalence and Correlates of HIV Unsafe Sex and STIs among Women Working in China's Entertainment Industry*

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Abstract

Female entertainment workers in China are at risk of sexually acquiring HIV, but risk factors of their unsafe sex remain understudied. Using information from a venue-based sample of 724 female entertainment workers in Shanghai, this paper examines the prevalence and risk factors of unsafe sex and STIs. While both measures of unsafe sex and history of common STIs suggest that participants in this study appear to have lower rates of unsafe sex and STIs than reported in the literature, venue-based female entertainment workers are at risk of sexually acquiring HIV. Risk factors of unsafe sex include both individual cognitive (information, motivation, and behavioral skills) and social factors. However, HIV related information and most social factors are not directly and independently associated with unsafe sex. Behavioral intervention is needed for female entertainment workers in China. However, individual-based cognitive approach alone may be limited in effectiveness in reducing unsafe sex among female entertainment workers. Effective intervention needs to take a multi-level approach that addresses both individual cognitive and social risk factors and can particularly benefit from attention to empowering women in sexual relationships and creating a supportive social and working environment.

Keywords

HIV risk; female entertainment workers; unsafe sex; STIs; China

Introduction

In 2007, an estimated 50,000 persons in China were newly infected with HIV, and by the year's end, China was home to 700,000 persons living with HIV/AIDS (State Council, 2008). Although the annual growth in new HIV infections appeared to have stabilized or even declined in recent years, the epidemic continues to expand with evolving increase in sexual transmission of the virus and in the number of women infected. Since 2005, sexual transmission has taken over injection drug use to be the dominant route of HIV transmission. Increases in commercial and extra-marital sex among China's 1.3 billion population (Pan, Parish, Wang, & Laumann, 2004; Parish et al., 2003; van den Hoek et al. 2001) will likely continue to fuel the sexual transmission of HIV. Meanwhile, the male/female ratio of people living with HIV/AIDS has declined from 9 to 1 in the early 1990s to less than 3 to 1 in 2007 (China Ministry of Health [CMOH] and UNAIDS, 2003; Renwick, 2002; State Council, 2008). Like women elsewhere, women in China have become the fastest growing population newly infected with HIV (MOH and UNAIDS, 2003).

No women are more vulnerable to sexually acquiring HIV and other STIs than those engaging in various forms of commercial sex work on the street or in entertainment venues.

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Social stigma and legal punishments against commercial sex in China together alienate sex workers, exacerbate power imbalance, and render female sex workers, particularly those working on the street, vulnerable to both sexual and physical abuses (Kaufman & Jing, 2002; Wang, 2000; Xia & Yang, 2005). While the risk of HIV and STIs among female sex workers has been well recognized in China (Ding et al., 2005; Qu et al., 2002; Yang & Xia, 2006; Yuan, 2003), prevalence and risk factors of HIV unsafe sex among these women remain understudied. Using data from Shanghai, this paper examines the prevalence and individual and social risk factors of unsafe sex and STIs among venue-based female entertainment (sex) workers.

Background

A number of social cognitive theories have been applied to understand why people engage in HIV risk sexual behaviors (Glanz, Rimer, & Lewis, 2002). According to the information-motivation-behavioral skills (IMB) model (Fisher & Fisher, 1992), HIV unsafe sex results from a joint function of information about HIV, motivation to prevent it, and behavioral skills necessary to perform preventive behaviors. The importance of information is intuitively obvious. Without knowing what HIV is, how it is transmitted, and how it can be prevented, no one could even think about HIV safe or unsafe sexual behavior. However, there is growing consensus that information is necessary but not sufficient for practicing HIV safe sex (Bandura, 1997; Svenson, Östergren, Merlo, & Rastam, 2002). Research has even suggested that better knowledge is not necessarily associated with safer sex (Malow, Dévieux, Rosenberg, Samuels, & Jean-Gilles, 2006; Morrison-Beedy, Carey, & Aronowitz, 2003). Motivation to prevent HIV is also important to understand HIV risk sexual behavior (Kalichman, Picciano, & Roffman, 2008; Mustanski, Donenberg, & Emerson, 2006). It is most influenced by individuals' perceived risk of HIV and their attitudes toward as well as perceived social support for preventive behaviors.

Further, a well-informed and highly motivated individual needs to also possess specific behavioral skills, including his/her perceived self-efficacy of using them, in order to translate information and protective motivation into actual preventive actions (Bandura, 1997; Fisher & Fisher, 2000; Svenson et al., 2002). For sexual behavior, which involves interpersonal relationships, behavioral skills in practicing HIV safe sex in difficult situations would be particularly critical. They are the most proximal risk factors (Anderson et al., 2006; Carey, Vanable, Senn, Coury-Doniger, & Urban, 2008; Cornman, Schmiede, Bryan, Benziger, & Fisher, 2007; Kalichman et al., 2008) and play a key mediating role between information and/or motivation and unsafe sex (Fisher & Fisher, 1992).

Research to understand why women are increasingly affected by HIV has frequently pointed to women's social and cultural vulnerability to unsafe sexual behavior. Gender-related inequalities, unequal power in relationships between men and women, and cultural norms about gender and sexuality all put women at greater risk of HIV and other STIs than men (Lin, McElmurry, & Christiansen, 2007; Renwick 2002; Tang, Wong, & Lee, 2001; Türmen, 2003). According to the theory of gender and power (Connell 1987; Wingood & DiClemente, 2000, 2002), women's heightened vulnerability to HIV and STIs is a function of gender inequalities that are rooted in the sexual divisions of labor and power and the gendered structure of social norms. The sexual division of labor limits women's access to paid labor and creates economic inequalities between men and women. This reinforces women's economic dependence and increases their "economic exposure" to HIV/STIs. The sexual division of power leads to gender inequalities that result in men's control in relationships, which renders women vulnerable to sexual or physical abuse and increase their "physical exposure" to HIV/STIs. The gendered structure of social norms and affective attachments generate gender-specific norms that restrict women's sexual expressions and

command the submission of women to men in sexual relationships. This discourages open discussion about sexuality within relationships and limits women's access to information and health services, thereby increasing their "social exposure" to HIV/STIs.

Together, economic inequalities, unequal power in relationships, and gender-specific cultural norms exert critical influences over women's sexual behavior and pose formidable barriers to women in exercising personal control in sexual and social relationships (Amaro & Raj, 2000). Research among Chinese women (Renwick, 2002; Tang et al., 2001) suggests that the deeply rooted Confucian concept of model womanhood, which calls for submission and self-sacrifice of women to men, significantly constrains women's ability to insist on condom use in sexual relationships. Studies among female entertainment workers in China (Hong & Li, 2008; Weeks et al., 2007; Yang & Xia, 2006) have further suggested the importance of gender norms, relationship power, and venue support in facilitating HIV/STI risk reduction behaviors.

Clearly, studies of unsafe sex among women need to go beyond individual cognitive factors to pay attention also to social risk factors. This is indeed the approach this paper takes to understand HIV/STI risk sexual behaviors among women in the entertainment industry. The central hypothesis is that, in addition to information, motivation, and behavioral skills, social influences are also important risk factors of unsafe sex and STIs among female entertainment workers.

Data

Data used in the paper are from the baseline and the 3-month follow-up surveys of an on-going intervention study. The study is conducted in two (out of 18) administrative districts in Shanghai with one serving as the intervention and the other the control site. All registered entertainment establishments in the two districts were listed by size and type of business. From the lists, a sample of 49 establishments was selected. To avoid overrepresentation of large establishments in the sample and high rates of closure and worker turnover in small establishments, sample selection was not strictly random, but gave priority to relatively more stable and medium-sized karaoke TV bars. Of the 49 selected establishments, 25 declined to participate. The final sample of 24 participating establishments included 13 karaoke bars, 1 beauty salon, and 10 massage parlors, approximately evenly divided and matched between the intervention and the control site.

During participant recruitment, research staff approached individually all women working in each of the 24 selected establishments, explained to them the purpose of the study, the institutions conducting the study, and how the information would be used. The women were informed of their roles in the study, compensation for their time, and the right to refuse to participate, answer any particular questions, or withdraw from the study later. Of a total of 806 women from the 24 participating establishments, 724 consented to participate. The baseline survey took place in March to June of 2008. At the 3-month follow up, only 445 of the original sample were remaining in the establishments and completed the survey. Both surveys were administered through face-to-face interview in private by a trained interviewer.

Measures

Outcome variables

The outcome variables are HIV/STI unsafe sex and history of STIs. Unsafe sex is measured by a dichotomous variable, which takes the value of 1 if a respondent self-reported unprotected sex with a casual partner last month or a condom was not used in all last three intercours with a casual partner and 0 otherwise. History of STIs is measured by self-

reports of ever being diagnosed with gonorrhea, syphilis, genital warts, Chlamydia, and/or genital herpes.

Explanatory variables

Other than socio-demographic characteristics, which are self-explanatory, the IMB and social risk variables are all composite indexes built from summing the numerical answers to a set of related questions. All English measures were translated, culturally adapted, and, along with newly developed measures, pilot-tested before their use in the final questionnaire.

IMB measures—The information, motivation, and behavioral skills measures are adapted from the original IMB measures, which have undergone considerable review and field-testing in the United States (Misovich, Fisher, & Fisher, 1998).

HIV related information/knowledge is based on the number of correct answers to 16 questions about how HIV is and is not transmitted (Cronbach's $\alpha=0.62$).

HIV prevention motivation is measured by a dummy variable and two composite indexes. The dummy variable measures perceived personal risk of HIV, which takes the value of 1 if the respondent perceived at least some personal risk and 0 if no personal risk at all. The prevention intention index is based on yes (1) and no (0) answers to seven questions about intentions to practice preventive behaviors ($\alpha=0.78$). The negative attitude toward condom index is based on answers on a 5-point scale to six questions about condom use ($\alpha=0.86$).

The behavioral skills index is constructed from answers on a 5-point scale to seven questions about self-perceived ability to use a condom in sex with a casual partner ($\alpha=0.83$).

For all the IMB composite indexes above, the higher the index value, the higher the respondent scored on the respective measure of information, motivation, and behavioral skills, e.g., more knowledgeable about HIV, more negative about condom use, etc.

Social risk factors—Two indexes measure norms. The general gender norm index models the Attitude toward Women Scale (Spence & Helmreich, 1972, 1978). It is based on answers on a 5-point scale (1 strongly disagree to 5 strongly agree) to 12 questions about traditional views about the role of women in family and society ($\alpha=0.73$). A second norm index measures the frequency with which respondents discussed with peers about sex, HIV, and condom. The index is constructed from answers on a 5-point scale to seven questions on related topics ($\alpha=0.83$).

Perceived peer support for condom use index is based on answers on a 5-point scale to four questions about respondents' perceptions about how their peers would think about condom related preventive behaviors ($\alpha=0.86$).

Lack of relationship power is measured by an adapted version of the Sexual Relationship Power Scale (Pulerwitz, Gortmaker, & DeJong, 2000). It builds from answers on a 5-point scale to seven questions about the extent to which women should obey their partner in decisions related to sexual practice ($\alpha=0.77$).

Finally, venue support is measured by an 11-item index of venue management support for risk reduction behaviors. It is constructed from answers on a 5-point scale to questions about rules and practices related to HIV prevention in the establishment ($\alpha=0.82$).

Methods

Version 11 of the STATA software is used to conduct the analyses. After a descriptive analysis of the sample and the prevalence of HIV/STI unsafe sex and history of STIs, bivariate analysis of the association between measures of the IMB and social risk factors and HIV/STI unsafe sex and STIs will be presented. Chi-squared tests of independence or two sample *t* tests of differences in means will be used in the bivariate analysis. Multiple logistic regression will then be used to test if and to what extent the IMB and social risk factors explain individually and/or jointly the odds of having unprotected sex with a casual partner or ever being diagnosed with a STI. To further account for potential correlations among repeated measures from the same respondent as well as correlations among respondents from the same establishment, mixed-effect logistic regression (xtmelogit in STATA) will be used in the multiple regression analysis. Xtmelogit models the intra-establishment and intra-respondent correlations as random effects at establishment and respondent level, respectively, and produces the fixed effects (coefficients) analogous to standard logistic regression but adjusted for the intra-level correlations (StataCorp., 2009).

Results

More than 95% of the women enrolled in the study were migrants who did not have the official permanent household/residence registration in Shanghai. However, many of them (72.7%) had been in Shanghai for one year or longer. On average, study participants were 24.6 years of age; a majority of them were single (70.9%) and received less than a senior high school education (62.6%). Almost all (99.3%) were sexually experienced. During the month prior to the interview, almost 12% self-reported unprotected sex with a casual partner; 16.3% reported having not used a condom in all last three sexual encounters with a casual partner. Asked about history of STIs, 4.8% reported that they had been diagnosed with gonorrhea, syphilis, genital warts, Chlamydia, and/or genital herpes. However, an overwhelming majority of study participants (88.3%) perceived no personal risk at all of HIV.

Table 1 presents the means of individual demographic characteristics, IMB measures, and measures of social risk factors by HIV unsafe sex and past STI status. For HIV unsafe sex, all the measures were associated with unsafe sex at least at the 10% significance level. Participants who were younger, currently married, and less educated were significantly more likely to have had unprotected sex with a casual partner. Better knowledge about HIV and its transmission, stronger prevention intentions, and greater condom use efficacy all were associated with lower likelihood of having unprotected casual sex, so was less negative attitude toward condom use. Self perceived risk of HIV was, however, unexpectedly associated positively with HIV unsafe sex.

All social risk factors were significantly associated with HIV unsafe sex in the expected directions. On average, participants with more traditional gender norms and lack of relationship power were more likely to have had unprotected sex with a casual partner. By contrast, those who had more peer discussion of condom, perceived greater peer support for condom use in casual sex, and worked in establishments more supportive of HIV prevention were less likely to have had unprotected sex with a casual partner.

For the likelihood of having ever been diagnosed with a STI, only a few variables obtained statistical significance at the bivariate level. Age was positively associated while education was negatively associated with being diagnosed with a STI. Perceived personal risk of HIV and venue support for condom use were the only individual cognitive and social risk factors, respectively, that were marginally ($p=0.10$) associated with a history of STIs. The

association between unsafe sex and ever had a STI was particularly strong, 8.8% of participants with a history of STI, compared to only 2.9% of those without, had unprotected sex with a casual partner. This difference is equivalent to an odds ratio of 3.23, indicating that the odds of having been diagnosed with a STI would be more than three times as likely for participants who had unprotected casual sex as those who had no such unsafe sex.

Table 2 presents the mix-effects logistic regression analysis of independent associations between the IMB and social risk factors and the likelihood of having unprotected casual sex and/or a history of STIs. For the likelihood of unprotected casual sex, age remained statistically significant and was negatively associated with the likelihood of having unprotected sex with a casual partner. Among the five individual cognitive (IMB) measures, four remained highly significant in the multiple logistic regression analysis. After controlling for other variables in the model and adjusted for intra-establishment and intra-respondent correlations, the odds of having unprotected casual sex were almost doubled (1.965) among those who perceived personal risk of HIV. The odds of having unprotected casual sex were also positively and independently associated with negative attitudes toward the use of condom in sex. By contrast, the odds of HIV/STI unsafe sex were negatively and independently associated with HIV prevention intentions and perceived efficacy in condom use. Knowledge about HIV and its transmission and prevention did not appear to have significant and independent association with HIV/STI unsafe sex.

For the social risk factors, the mixed-effects multiple logistic regression results were quite different from the earlier bivariate results. Despite their significant bivariate associations, four of the five social risk factors lost their statistical significance in their association with HIV unsafe sex when they were examined together and along with individual demographic characteristics and IMB measures. Perceived lack of relationship power was the only social risk factor that remained significantly and positively associated with the likelihood of having unprotected sex with a casual partner.

For the likelihood of having ever been diagnosed with a STI, age was no longer a statistically significant risk factor in the multiple regression analysis. However, education remained highly significant. Other things being equal, a senior high school or more education was associated with almost 75% reduction in the odds of ever being diagnosed with a STI.

Like their bivariate results, all IMB measures and most social risk factors showed no significant independent association with the likelihood of ever being diagnosed with a STI; venue supports for HIV prevention was the only significant social risk factor in the multiple regression. On average, respondents from establishments with more supports from the management were significantly less likely to self report a history of STIs. Having unprotected sex with a casual partner remained to be the powerful and independent risk factor, more than tripled the odds of ever being diagnosed with a STI. Apparently, a combination of poor education, working in a less supportive establishment, and having unprotected casual sex would put the women at extremely high risk of STIs and consequently HIV.

Discussion and Conclusions

Despite heightened HIV risk among women working in China's entertainment industry, studies of prevalence and risk factors of their unsafe sex and other STIs are still limited. Using data from a venue-based sample in Shanghai, this paper examined the prevalence and individual cognitive and/or social risk factors of unprotected sex with a casual or commercial partner and STIs among venue-based female entertainment (sex) workers.

More than 17% of study participants self-reported to have unprotected sex with a casual or commercial sex partner in the month prior to the interview or that a condom was not used in all last three intercours with a casual or commercial partner; almost 5% self-reported a history of STIs. While both measures are lower than similar measures reported for female sex workers in the literature (Hong & Li, 2008), they suggest that venue-based female entertainment workers are at risk of sexually acquiring HIV. Poor education appears to be a particularly significant risk factor for STIs.

Consistent with the literature, individual cognitive (IMB) and social risk factors were all statistically significant in their bivariate association with unprotected casual sex, and most of the bivariate associations were in the expected directions. The only unexpected finding was the positive association between perceived personal risk of HIV and unprotected casual sex. To the extent that perceived personal risk would motivate an individual to take protective measures, a negative association would be expected. However, the positive association may suggest that the potential causality actually runs from unsafe sex to perceived personal risk. In other words, it is her unsafe sex that leads a woman to believe that she is at personal risk of HIV. More research is needed to empirically test the causal direction between perceived personal risk and unprotected casual sex and to better inform future research, e.g., if perceived personal risk is a reliable or appropriate measure of motivation.

When the individual cognitive and social risk factors were examined together in the multiple logistic regression analyses, HIV related knowledge was no longer statistically significant. Likewise, all social risk factors, except for relationship power, lost their statistical significance. These findings are consistent with an earlier mediation analysis of the baseline survey data only (Yang, Xia, Li, Latkin, & Celentano, 2010), which showed that the association between HIV information and/or social risk factors and unsafe sex was indirect and mediated by prevention motivation and/or behavioral skills.

For the likelihood of having ever been diagnosed with a common STI, education, venue supports for HIV prevention, and unprotected casual sex appeared to be the most important risk factors; all were highly significant and powerful in their association with the likelihood of ever being diagnosed with a STI. The IMB and other social risk factors were not independently associated with the history of STIs in any significant ways.

There are several study limitations. First, the selection of entertainment establishments was not strictly random; the sample contained more medium-sized karaoke TV bars but was less representative of the high-end large night clubs and small entertainment establishments, such as beauty salons, sauna baths, and massage parlors. Second, the measure of unsafe sex was entirely based on self reports, which were subject to social desirability bias. An earlier analysis of the baseline survey (Yang et al., 2010) suggests potential underreporting or misreporting of sex with a casual or commercial sex partner. Third, some possible covariates of the outcome variables, such as access to condoms and health care and substance abuse, were not available or had high rates of non-response in the data set and consequently cannot be controlled for in the multiple logistic regression analysis.

With the limitations in mind, the study confirms that female entertainment workers in China are at risk of sexually acquiring HIV and other STIs; their unsafe sex is associated with both individual cognitive and social risk factors. However, most social risk factors do not seem to have independently significant association with unsafe sex. The only significant and independent social risk factor of unsafe sex among the women is their lack of relationship power in sexual relationships, which may significantly limit their ability to insist on protective measures.

Clearly, more studies with better sampling, better measures of unsafe sex, and more attention to other important covariates are needed to better understand the sexual risk profiles among venue-based female entertainment workers in China. Until then, behavioral intervention is needed for female entertainment workers in China and needs to take a multi-level approach that addresses both individual cognitive and social risk factors. Although most social risk factors examined were found not significant in contributing independently to unsafe sex, lack of relationship power was a significant independent risk factor for unsafe sex and the measure of venue supports was for history of STIs. Social factors may still contribute indirectly to safe or unsafe sex perhaps through information sharing, motivation enhancing, and/or norms/skills building. Future intervention may particularly benefit from attention to empowering women in sexual relationship and creating a supportive social and working environment.

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Table 1

Differences in Demographic Characteristics, IMB Measures, and Social Risk Factors by Unsafe Sex and History of STIs.

	Unsafe Sex		History of STIs	
	Yes	No	Yes	No
<i>Demographic characteristics</i>				
Age	24.1***	25.0	25.4***	24.8
Currently married (%)	20.4*	16.1	5.2	3.4
Senior high school or more (%)	14.8*	19.2	1.7***	5.4
<i>Individual IMB measures</i>				
HIV knowledge	10.4***	11.0	11.1	10.9
Perceived personal risk of HIV	27.2***	16.1	6.6*	3.6
HIV prevention intentions	5.1***	6.1	5.8	5.9
Negative condom attitude	15.9***	13.7	14.1	14.1
Condom use efficacy	23.9***	27.6	27.7	26.9
<i>Social risk factors</i>				
Traditional gender norms	28.8**	27.7	27.7	27.9
Peer discussion of condom	16.2**	17.0	17.3	16.9
Peer support of condom use	12.9***	14.0	14.3	13.8
Lack of relationship power	13.7***	12.7	13.1	12.8
Venue supports for HIV prevention	35.9*	37.2	34.5*	37.1
<i>Unsafe sex (%)</i>	/	/	8.8***	2.9
<i>Baseline sample size</i>	135	589	35	689

* $p < 0.10$;

** $p < 0.05$;

*** $p < 0.01$

Table 2

Mixed-Effects Logistic Regression Analysis of Individual and Social Risk Factors of HIV Unsafe Sex and STIs¹

	HIV Unsafe Sex	History of STIs
<i>Demographic characteristics</i>		
Age	0.953**	0.996
Currently married ²	1.233	1.644
Senior high school or more education ²	0.741	0.253***
<i>Individual IMB measures</i>		
HIV knowledge	1.000	1.066
Perceived personal risk of HIV ²	1.965***	1.594
HIV prevention intentions	0.839***	0.959
Negative condom attitude	1.060***	1.003
Condom use efficacy	0.943***	1.055
<i>Social risk factors</i>		
Traditional gender norms	0.986	0.987
Peer discussion of condom use	1.000	0.992
Peer support for condom use	1.003	1.046
Lack of relationship power	1.051**	1.012
Venue supports for HIV prevention	1.005	0.943**
Unsafe sex	/	3.867***
Sample size	1,112	1,112
Random effects in standard deviation		
Establishment level	0.070	0.594
Respondent level	0.379	1.462

Notes:

¹ Results are based on the xtlogit in STATA and expressed as the odds ratios adjusted for the random effects at the establishment and respondent level.

² Entered as dummy variables. The reference categories are never married, less than a senior high school education, and perceived no personal risk of HIV for marital status, education, and perceived personal risk dummy variables, respectively.

* $p < 0.10$;

** $p < 0.05$;

*** $p < 0.01$