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Social Influence and Individual Risk Factors of HIV Unsafe Sex among Female Entertainment Workers in China

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Abstract

Female entertainment workers in China are at increased sexual risk of HIV, but causes of their unprotected sex remain poorly understood. We develop a model that integrates information-motivation-behavioral skills (IMB) with social influences and test the model in a venue-based sample of 732 female entertainment workers in Shanghai. Most IMB and social influence measures are statistically significant in bivariate relationships to condom use; only HIV prevention motivation and behavioral self-efficacy remain significant in the multiple regressions. Self-efficacy in condom use is the most proximate correlate, mediating the relationship between information and motivation and condom use. Both peer and venue supports are important, but their influences over condom use are indirect and mediated through prevention motivation and/or self-efficacy. Behavioral intervention is urgently needed and should take a multi-level approach, emphasizing behavioral skills training and promoting a supportive social/working environment.

Keywords

female entertainment workers; individual risk factors; social influences; condom use; sexual risk of HIV; China

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By the end of 2007, China was home to 700,000 persons living with HIV/AIDS (PLWHA), an increase of 50,000 over the 2005 estimate (State Council, 2008). The same source reported an estimated 50,000 new HIV infections in 2007, 20,000 less than the annual new infection estimate in 2005, which appears to indicate a slowdown in the growth of new infections. But the epidemic continues to expand with sexual transmission having taken over injection drug use to become the dominant route of HIV transmission (56.9% of new infections in 2007) and a decisive factor in the future course of the epidemic in China (Merli, Hertog, Wang, & Li, 2006). Further breakdowns by gender suggest that, as elsewhere in the world (Türmen, 2003; UNAIDS & WHO, 2007), the AIDS epidemic in China has increasingly affected women (Lin,

McElmurry, & Christiansen, 2007), with the male/female ratio of PLWHA having declined from 9 to 1 in the early 1990s to 4 to 1 in 2002 and less than 3 to 1 in 2007 (MOH and UN Theme Group, 2003; Renwick, 2002; State Council, 2008).

The combination of increasing sexual transmission of HIV and women's share in PLWHA underscores the need to study the sexual risk of HIV among high-risk women – here we focus on women working in China's "entertainment" industry, whose work and elevated alcohol/drug abuse (Qu et al., 2002) make them not only at high risk of sexually acquiring HIV, but also a potential source of sexual transmission of HIV (Lau, Tsui, Siah, & Zhang, 2002). While the increased sexual risk of HIV among female entertainment (sex) workers has been well documented in China (Ding et al., 2005; Qu et al., 2002; Yang & Xia, 2006; Yuan 2003), risk factors for their unprotected casual or transactional sex with clients remain poorly understood, as well as their sexual practices with non-commercial partners. This paper develops a conceptual model that integrates individual cognitive and social influence approaches and tests the model in a venue-based sample of female entertainment workers in Shanghai.

Background

A number of social cognitive theories have been applied in studies of HIV risk sexual behaviors (Glanz, Rimer, & Lewis, 2002). However, despite differences in the way the key variables are named, specified, and emphasized, there is a great deal of similarities among the social cognitive models (Fisher & Fisher, 2000). They all tend to focus on cognitive and affective risk factors, with a major emphasis on perceived risk, self-efficacy, and outcome expectancies. As such, instead of treating different theories as competing models, it is more reasonable and useful to consider them complementary (Zimmerman & Olson, 1994). Indeed, there is growing interest in and effort to integrate key elements from multiple social cognitive theories. The information-motivation-behavioral skills (IMB) model (Fisher & Fisher, 1992) is one of the approaches to integrate key features from various cognitive theories into a clearly specified and easy to quantify model of HIV risk behavior and behavior change. The model has been applied successfully in multiple settings and among different populations (Anderson et al., 2006; Benotsch et al., 2007; Cornman, Schmiede, Bryan, Benziger, & Fisher, 2007; Kalichman, Malow, Dévieux, Stein, & Piedman, 2005; Lemieux, Fisher, & Pratto, 2008) and also suggested for use in Asian populations (Martinez & Fisher, 1997).

According to the IMB model, HIV safe or unsafe sex is a joint function of accurate information about HIV and its transmission and prevention, motivation to prevent HIV, and behavioral skills necessary to perform specific preventive behaviors. The importance of information/knowledge 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, & RΔstam, 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, which is empirically often measured by corresponding preventive intentions, is also important to understand HIV safe or unsafe sex (Kalichman, Picciano, & Roffman, 2008; Mustanski, Donenberg, & Emerson, 2006). It is mostly influenced by individuals' attitudes toward and their perceived social or referent support for practicing HIV safe sex.

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 HIV 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. Measures of behavioral skills have been found the most proximal predictors of HIV unsafe sex among different populations (Anderson et al., 2006; Carey, Vanable, Senn, Coury-Doniger, & Urban, 2008; Cornman et al., 2007; Kalichman et al., 2008), especially among females (Robertson, Stein, & Baird-Thomas, 2006), including female entertainment workers in China (Yang & Xia, 2006). In essence and consistent with the original IMB model, behavioral skills are found to play a significant mediating role between information and/or motivation and unsafe sex.

However, like other individually oriented approaches, the original IMB model tends to sidestep the importance of social influences of behavior. Research indicates that social and cultural factors have important influences over HIV-related sexual behavior. Research among Chinese women (Renwick, 2002; Tang, Wong, & Lee, 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. In general, non-condom use among Chinese women is related to lack of information, embarrassment in talking about condoms, and fear of being perceived as sexually available as a result of conservative Confucian concepts about women and sexuality. Studies of female entertainment workers in China (Hong & Li, 2008; Weeks et al., 2007; Yang & Xia, 2006) have repeatedly suggested the importance of gender norms, relationship power, and venue/social environment in understanding women's unsafe sex. Clearly, studies of risky sexual behavior among women need to go beyond individual cognitive approaches by paying greater attention to the importance of social influences on sexual behavior.

We propose a model that integrates individual cognitive constructs of the IMB model and social influences on sexual behavior. As shown in Figure 1, in addition to the IMB constructs, the model emphasizes the social influences of group norms, peer influence/support, relationship power, and venue environment. Social influences are hypothesized to influence sexual behavior mainly indirectly through HIV information, prevention motivation, and/or behavioral skills. HIV information and prevention motivation in turn influence behavior mainly indirectly through behavioral skills.

Group norms play a central role in the maintenance of group behaviors. In experimental studies, group norms have been shown to influence members' behaviors (Myers & Bishop, 1970; Newcomb, 1958). Group norms are characterized as conservative factors, working against the initiation of new behaviors. However, if new norms are introduced and adopted, they tend to be maintained and groups reward members who comply (Zucker, 1977). Research suggests that women's condom use behavior is significantly influenced by their social network norms about condom use and sexual risk-taking (Dedobbeleer, Morissette, & Rojas-Viger, 2005) and perceptions of peer non-condom use were significantly related to inconsistent condom use among female sex workers (Wong, Chan, Chua, & Wee, 1999). Research has also suggested the importance of gender norms in understanding female entertainment workers' unsafe sexual behavior in China (Chapman, Estcourt, & Hua, 2008); female entertainment workers who felt guilty for their role in commercial sex were less likely to take protective measures (Xia & Yang, 2005).

Peer influence/support is an important source of social influence on sexual risk behavior. Peers may influence each other's risk behaviors through a variety of mechanisms, including persuasion, information exchange, modeling, and social interactions (Fisher, 1988; Hall & Wellman, 1985). Peers were found to have a powerful influence over condom use among female sex workers (Basu et al., 2004; Morisky et al., 2002; Weeks et al., 2007). Peer support for condom use in particular can promote a normative environment supportive of safe sex and reinforce risk reduction behavior. For example, results from the Horizons Project (Dadian,

2002) suggested that female sex workers who felt a sense of support from peers were ten times more likely to report consistent condom use with clients.

Relationship power is increasingly recognized as an important determinant of HIV risk behaviors among women (Lin et al., 2007; Renwick, 2002; Tang et al., 2001). According to the theory of gender and power (Connell, 1987; Wingood & DiClemente, 2000), women's unequal power in sexual relationship is rooted in the sexual divisions of labor and power and in the gendered behavioral norms. Gender inequality in labor force participation leads to women's economic dependence and increases their economic exposure to unsafe sex. Gender inequality in power limits women's ability to make decisions on sexual matters and increases their physical exposure to unsafe sex. The gendered behavioral norms restrict women's sexual expressions, discourage open discussion within relationships, and limit women's access to HIV preventive information, and thereby increase their social exposure to unsafe sex. Together, economic inequalities, unequal relationship power, and gendered 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).

Venue environment is where information is shared, behavioral norms are formed and diffused, and peer interactions most often take place. Establishment policies and management support for HIV prevention can promote and reinforce risk reduction norms and are considered important facilitators of risk reduction behaviors among its work force (Hong & Li, 2008; Kerrigan et al., 2003; Morisky et al., 2002; Morisky, Stein, Chiao, Ksobiech, & Malow, 2006). Further, legislation and campaigns to suppress commercial sex in China often alienate female entertainment workers, limit their access to information, exacerbate the power imbalance, and render them vulnerable to both sexual and physical abuses (Kaufman & Jing, 2002; Wang, 2000; Xia & Yang, 2005). Many female entertainment workers are suspicious about government programs and trust more in what fellow workers and establishment owners say or do, making venue and peer support a critical source of information and social support for the women (Weeks et al., 2007).

Data and Methods

Data used in the paper are from the baseline survey of an on-going behavioral intervention in Shanghai. The intervention project is a cluster-randomized controlled trial of a peer-led and multi-level behavioral intervention that combines individual cognitive and social influence approaches with peer education. The clusters used are entertainment establishments, namely, karaoke bars, massage parlors, beauty salons, and sauna baths, selected from two (out of 18) administrative districts in Shanghai with one serving as the intervention and the other the control site.

Sample selection followed a two-stage procedure. First, all registered entertainment establishments in the two districts were listed by size and type of business. Because the plan was to enroll all eligible workers from a selected establishment, sample selection gave priority to small to medium-sized (less than 60 workers) establishments so as to prevent overrepresentation by a few large ones in the given target sample size. Further, small establishments, namely massage parlors, beauty salons, and sauna baths are the frequent targets of government crackdowns on commercial sex. These establishments are subject to frequent closure, and women working there are subject to high rates of turnover. To avoid excess sample attritions in the planned follow-up surveys, sample selection also gave priority to relatively more stable karaoke TV bars. With these considerations, a random sample of 49 establishments was selected. Research staff then visited the selected establishments, explained to the owners the purpose of the study and procedures to protect their business privacy and identities, and requested their participation in the study. Of the 49 selected establishments (24 in the

intervention and 25 in the control site), 25 declined to participate (12 from the intervention and 13 from the control site). Of the final sample of 24 participating establishments, 13 were karaoke bars, 1 beauty salon, and 10 massage parlors, approximately evenly divided and matched between the intervention and the control site.

In the second stage of sample selection, research staff made a second visit to all selected participating establishments. With the cooperation of establishment owners, research staff approached individually all female entertainment workers in the establishment, explained to them the purpose of the study, the institutions conducting the study, and how the information would be used. They were informed of their roles in the study and compensation for their time and asked if they were willing to participate in the study. Participants were assured of confidentiality and shown procedures to protect their privacy. They were informed of the right to refuse to participate, answer any particular questions, or withdraw from the study later with no adverse consequences. Of the total of 806 eligible female entertainment workers working in the 24 participating establishments, 74 declined to participate (9.2% refusal rate) and 732 consented to participate and completed the baseline survey in March to June of 2008. Of them, 651 were from the 13 karaoke TV bars and 81 were from the 11 small establishments.

Version 9 of the STATA software is used to conduct the statistical analyses, which are divided into three parts. The first part of the analysis focuses on bivariate comparisons between consistent and non-consistent condom users during the last three intercours by individual demographic characteristics, IMB measures, and social influence variables as outlined in Figure 1 and discussed more fully below. The results will provide a bivariate test if each of the independent variables is significant in separating consistent from non-consistent condom users. In the second part of the analysis, we use logistic regression to test if and to what extent the individual cognitive/affective (IMB) and social influence measures explain individually and/or jointly the odds of having used a condom in all last three sexual intercours. Informed by the bivariate and multivariate analyses, the third part of the analysis focuses on mediations among the independent variables. A series of linear regressions are conducted to ascertain how the IMB and social influences measures are directly and/or indirectly related to condom use behavior.

Measures

The outcome variable in this paper is self-reported condom use during the last three sexual intercours, measured by a dichotomous variable taking the value of 1 if a condom was used in all last three intercours and 0 if not. Because condom use behavior tends to differ by relationships, the survey asked the question separately for stable and non-stable, including commercial sex, partner(s). Stable partner(s) was defined to include husband, boy friend, or/lover, while non-stable partner(s) included anyone other than husband, boy friend, and lover. Accordingly, the analysis that follows examines the correlates of consistent condom use separately for stable and non-stable partners.

Following the model in Figure 1, the independent variables are measures of the IMB constructs and components of social influences. All measures are composite indexes built from summing the numerical answers to a set of statements and questions. Summaries of the univariate distribution of all the index measures are presented in Table 1. Briefly, HIV related information index is defined as the number of correct answers to 16 questions about how HIV is and is not transmitted (e.g., HIV can be transmitted only through exchange of blood, semen, and/or vaginal secretion; if used correctly, condom can greatly reduce the risk of HIV transmission). The 16-item index ranges between 0 and 16; the higher the index value, the more knowledgeable the respondent was about HIV (Cronbach's $\alpha=0.60$). Judged by the mean

and percentile distribution of the information index, respondents were fairly knowledgeable about the basics of HIV; more respondents scored on the high than the low end of the range.

HIV prevention motivation is measured by two indexes. The prevention intention index is based on yes (1) and no (0) answers to 7 questions about intentions to practice preventive behaviors (e.g., discuss condom use before sex; avoid drinking or taking drugs during sex) by type of sexual partner. Both 7-item indexes range between 0 and 7; the higher the index scores, the more likely the respondent intended to practice preventive behaviors. On average, prevention intentions were stronger and more narrowly distributed on the high end of the range for sex with a non-stable than a stable partner. Cronbach's alphas are 0.80 and 0.78 for the two indexes, respectively. The negative attitude toward condom use index is based on answers on a 5-point scale (1 strongly disagree to 5 strongly agree) to 6 questions about condom use (e.g., condom use is troublesome; condom use can destroy the natural feelings of sex). The 6-item index ranges between 6 and 30; the higher the index value, the more negative the respondent felt about condom use ($\alpha=0.86$).

The behavioral skills index is constructed from answers on a 5-point scale (1 completely unable to 5 completely able) about self-perceived ability to use a condom in seven scenarios (e.g., persuade a partner to only have sex with a condom; refuse to have sex if a partner refuses to use a condom) by type of sexual partner. Both 7-item indexes range between 7 and 35, the higher the index values, the greater self-efficacy the respondent expressed in condom use. On average, respondents felt greater self-efficacy in condom use with a non-stable than a stable partner. For example, the mean score of the index was considerably higher (27.1 vs. 21.9) and the percentile distribution was narrower on the high end of the range for condom use with a non-stable than a stable partner. Cronbach's alphas are 0.87 and 0.83 for the two indexes, respectively.

For social influence constructs, two indexes measure group norms. The general gender norm index builds from 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 (e.g., ignorance is a virtue for women; women should submit to men in sexual relationship). The 12-item index ranges between 12 and 60; the higher the index, the more the respondent self identified with traditional gender norms ($\alpha=0.73$). Overall, respondents were more likely to score low than high on the index; in fact, no one scored higher than 49. A second 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 (1 never to 5 almost daily) to seven questions on HIV preventive topics (e.g., talk about sexually transmitted diseases; encourage each other to always use a condom in sex). The 7-item index ranges between 7 and 35; the higher the index, the more frequently the respondent had talked to and discussed with peers in the related topics ($\alpha=0.83$). Overall, peer discussion about sex, HIV, and condom did not appear frequent, as more respondents scored low than high on the index.

Perceived peer support for condom use index is based on answers on a 5-point scale (1 strongly disagree to 5 strongly agree) to four questions about respondents' perceptions about how their peers would think about condom related preventive behavior (e.g., my friends think I should carry condoms all the times just in case; my friends think that I should use a condom each time I have sex). The index was constructed separately for sex with a stable partner ($\alpha=0.85$) and a non-stable partner ($\alpha=0.86$). Both 4-item indexes range between 4 and 20; the higher the index scores, the more the respondent's perceived peer support for condom use.

Lack of relationship power is a seven-item index based on answers on a 5-point scale (1 disagree completely to 5 agree completely) to questions about the extent to which women should obey their partner in decisions related to sexual practice (e.g., to use or not to use a condom is up to

my partner; since a client pays you, he can do whatever he likes). The 7-item index ranges between 7 and 35; the higher the index, the stronger the respondent felt lack of power in sexual relationship ($\alpha=0.77$). On average, respondents scored more toward the low range of the index. Finally, venue environment 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 (1 disagree completely to 5 agree completely) to questions about rules and practices related to HIV prevention in the establishment (e.g., the management team regularly remind us of STD/HIV risks; when I have quarrels with a client due to my insistence on condom use, they always stand by me). The index ranges between 11 and 55; the higher the index the more the respondent perceived supports from the establishment management for HIV preventive behaviors ($\alpha=0.82$).

Results

More than 95% of the female entertainment workers enrolled in the study were migrants who did not have the official permanent household/residence registration in Shanghai. However, many of them (73.3%) had been in Shanghai for more than one year. On average, study participants were 24.5 years of age; 58.7% of them were between 18 and 24 years old. A majority of them were single (73.3%) and received less than a senior high school education (61.6%). Almost all (99.2%) were sexually experienced. During the 30 days prior to the interview, 70.1% self-reported sex with a stable partner and 31.4% with a non-stable, including commercial sex, partner. Asked about condom use in the last three sexual intercourses, 32.0% reported consistent condom use with a stable partner and 65.3% with a non-stable partner. Among those who did not use a condom in all last three sexes, 12.6% and 12.5% used it in one and two times, respectively, with a stable partner, while 8.6% and 12.8% used a condom in one and two times, respectively, with a non-stable partner.

Table 2 presents the means of individual demographic characteristics, information-motivation-behavioral skills (IMB) measures, and social influences indicators by condom use in the last three sexes with a stable or non-stable partner. Overall, there was not much difference between women who had sex with a stable partner and those with a non-stable partner. However, regardless of type of sexual partners, consistent condom users (used a condom in all last three sexual intercourses) differed significantly from non-consistent condom users. The former were more likely to be single, and, among those who had sex with a non-stable partner, were also older than the latter.

Consistent condom users scored significantly higher on the HIV information, prevention intention, and condom use self-efficacy indexes, but lower on the negative attitudes toward condom index, than their non-consistent counterparts. Compared to non-consistent condom users, consistent users in general hold less traditional gender norms, had more peer discussion about condom, perceived more peer support for condom use, felt less strongly about lack of relationship power, and worked in establishments with greater management support for safe sex. For more definitive analyses, we now turn to multiple logistic regressions.

For condom use with a stable partner, results in Table 3 suggest that individual demographic characteristics made no difference in whether or not female entertainment workers consistently used a condom once the IMB and/or social influence measures were controlled for. Different from the bivariate result in Table 2, HIV information was no longer significant when it was examined along with the other IMB measures (Model 1) or with both the IMB and social influence measures (Model 3). The other IMB measures, however, remained statistically significant. Consistent with predictions by the IMB model, female entertainment workers who possessed stronger HIV prevention intentions, had less negative attitudes toward condom, and

perceived greater self-efficacy in condom use were significantly more likely to have used a condom consistently with a stable partner.

Of the five measures of social influence on condom use, only peer support for condom use with a stable partner retained statistical significance in the multiple logistic regression analysis (Model 2). On average, female entertainment workers who perceived greater peer support were significantly more likely to have consistently used a condom in sex with their stable sexual partners. However, peer support also lost its statistical significance in relation to condom use when the individual-level IMB measures were included in the analysis (Model 3). By contrast, the three IMB measures that were significant in Model 1 remained statistically significant when they were examined along with measures of social influences in Model 3. In fact, the coefficient estimates for the three measures in Model 3 were almost identical to those in Model 1 when the IMB measures were examined without the control of social influence measures. The results suggest that consistent with our theoretical model (Figure 1) the influence of peer support for condom use over participants' condom use were mainly mediated by individual-level motivation and behavioral skills measures.

For the likelihood of consistent condom use with a non-stable, including commercial partner, demographic characteristics seemed to play a more important role (Table 4). Both age and marital status remained highly significant and powerful correlates of consistent condom use. For example, every one year difference in age (older) would be associated with 7–10% higher odds of consistent condom use. Other things being equal, a single female entertainment worker would be about twice as likely as a married counterpart to have used a condom in all last three sexual intercourses with a non-stable partner.

The relationships between the IMB measures and the likelihood of consistent condom use with a non-stable partner were almost identical to those with a stable partner presented earlier in Table 3. When individual level IMB measures were examined along with demographic characteristics (Model 1), HIV information did not seem to have any independent association with the odds of consistent condom use. HIV prevention intentions and perceived self-efficacy in condom use were both independently and positively while unfavorable attitudes toward condom were independently and negatively associated with the odds of consistent condom use with a non-stable partner. The results remained basically unchanged with the further control of measures of social influence in Model 3.

Social influences also appeared to be more important for condom use with a non-stable than a stable partner. As a group, the five measures of social influence, along with demographic characteristics, explained more variances in the odds of consistent condom use with a non-stable ($R^2 = 0.10$, Model 2 of Table 4) than a stable partner ($R^2 = 0.07$, Model 2 of Table 3). Individually, perceived venue supports for HIV prevention was a highly significant and independent correlate of the odds of consistent condom use with a non-stable partner. With every one point increase in the perceived venue supports for condom use composite index, female entertainment workers' odds of consistent condom use with a non-stable partner would increase by 6%. Although statistically not significant at the 5% level, traditional gender norms, peer support for condom use, and lack of relationship power were all significant at the 10% level. Their associations to consistent condom use were all in the expected directions: more traditional gender norms and lack of relationship power were both negatively while peer supports for condom use was positively associated with the odds of consistent condom use.

All measures of social influence, including the highly significant measure of venue supports for HIV prevention, lost their statistical significance once the IMB measures were included in the analysis (Model 3). The relationships between the IMB measures and odds of consistent condom use, however, hardly changed with the presence of measures of social influence. The

results suggested that the influence of venue support over participants' condom use behavior in sex with a non-stable partner might be largely mediated by the individual level motivation and behavioral skills measures. For a further test of the mediating role of the IMB measures as well as the mediating relationships among the IMB measures themselves, we conducted a series of multiple regression analyses, in which the suspected mediators were treated as the dependent variables.

Table 5 presents the results of the detailed mediation analysis for sex with a non-stable partner (Results for sex with a stable partner were almost identical and were thus not presented but available upon request). Consistent with the original IMB model, the results suggested that HIV information and knowledge would influence condom use behavior largely through condom use behavioral skills, measured in the study by the perceived self-efficacy in condom use. Behavioral skills would also mediate the relationship between HIV prevention motivation, measured in this study by the HIV prevention intentions and negative attitudes toward condom, and consistent condom use. Further, the results from the left two models in Table 5 also indicated mediation by HIV prevention motivation in the relationship between HIV information and the likelihood of consistent condom use in sex with non-stable partner(s).

Consistent with our theoretical model (Figure 1), social influences over individual condom use behavior were mainly mediated by individual level HIV prevention motivation and perceived self-efficacy in condom use. As presented in the right three models in Table 5, each measure of social influence was significantly associated with at least two of the three IMB measures of HIV prevention motivation and behavioral skills.

Discussion and Conclusions

Despite heightened HIV risk among female entertainment workers in China, risk factors for their unsafe sex remain poorly understood. In this study, we develop a conceptual model of unsafe sex that integrates the information-motivation-behavioral skills framework of HIV risk behavior (Fisher & Fisher, 1992) with social influences. The central hypothesis is that individual cognitive and affective factors are important but not sufficient in understanding female entertainment workers' HIV risk sexual behavior. Given their marginal and highly stigmatized social status in China, gender norms, peer support, relationship power, and supportive social/working environment that are beyond individual control or cognition will all influence female entertainment workers' sexual behavior. We then empirically test the proposed model and examine by types of sexual partner the risk factors of unsafe sex in a venue-based sample of female entertainment workers in Shanghai.

Overall, study participants were sexually active. However, the 30-day measure of sex with a non-stable partner (31.4%) appeared surprisingly low, particularly when the majority of the study participants were identified as *Chutai Xiaojie* (girls who go out with clients), offering sexual service typically in the client's hotel room. It was possible that some women might have either considered repeated clients as stable partners (c.f., Chapman, Estcourt, & Hua, 2008) or intentionally reported them as stable partners to avoid admitting involvement in commercial sex. However, it more likely resulted from a study design overlook. Because the baseline survey was conducted in March of 2008, the 30-day period prior to the interview covered mainly the month of February when most female entertainment workers, like most other migrants, went home for the Lunar New Year holiday and were indeed not involved in transactional sex with client(s).

Consistent with the literature, condom use was found more consistent in sex with a non-stable than a stable partner among female entertainment workers, largely attributable to their stronger prevention intentions, greater self-efficacy, and more peer support for condom use in sex with

a non-stable than a stable partner. Trust in a stable partner and concerns for negative reactions from him may have also contributed to the lower condom use with a stable partner. Still, more than a third of study participants failed to use a condom in all last three sexual intercours with a non-stable partner, putting themselves at the risk of HIV. The actual rate of inconsistent condom use with non-stable partner(s) and consequently the potential sexual risk of HIV could be even higher because some study participants might have mistakenly or intentionally reported a non-stable as a stable partner and that as revealed in the analysis the rate of inconsistent condom use with a stable partner was twice that with a non-stable partner.

Individual demographic characteristics were not directly associated with condom use with a stable partner. For non-stable partners, age and marital status were significantly and independently associated with the likelihood of consistent condom use among female entertainment workers. Being young and being married appear to be two significant and powerful risk factors of unsafe sex with non-stable partner(s). Young women are more likely to be new (migrants) to the city and the entertainment industry; sexual/work inexperience and social immaturity may render them less able to handle difficult situations in transactional sex and in turn resist the pressure for unprotected sex from clients. For married women, it is likely that many are already using other contraceptives and consequently feel no need to use a condom in sex because many female entertainment workers still consider condom use as a means of preventing pregnancy but not diseases (Xia & Yang, 2005).

Most IMB and social influence measures were statistically significant in their bivariate relationships to consistent condom use in sex with a stable and/or non-stable partner, and all the bivariate associations were in the expected directions. However, when IMB and social influence measures were examined together in the multiple logistic regression analyses, HIV prevention motivation and perceived self-efficacy in condom use were the only factors that remained statistically significant while HIV-related information and all social influence measures lost their significance in relation to the likelihood of consistent condom use. There was little difference between types of sexual partner. For both stable and non-stable partner(s), HIV prevention intentions and self-efficacy in condom use were positively associated with the odds of consistent condom use while negative attitudes toward condom were negatively associated with the odds.

Further mediation analysis suggested that consistent with the original IMB model, self-efficacy in condom use was the most proximate correlate of consistent condom use, mediating the relationship between HIV information/prevention motivation and condom use behavior. We also found significant mediation by HIV prevention motivation between HIV information and condom use. In other words, better information and knowledge about HIV and its transmission/prevention led to stronger prevention intentions, less negative about condom, and greater self-efficacy in condom use, all in turn led to greater likelihood to consistently use a condom in sex with a stable and/or non-stable partner. Thus, the lack of direct and independent effect of HIV information/knowledge on safe sex must not be taken to negate its importance in HIV/STD prevention. Further, even though most study participants appeared to know a fairly good amount about HIV/STDs, there were still critical gaps in knowledge about effective preventive measures, and the role of consistent condom use in preventing HIV/STDs was not fully appreciated by study participants. For example, in in-depth interviews, some participants thought (actually practiced) that regularly taking of antibiotics or douching right after sex could prevent HIV/STDs, others believed occasional unprotected sex would be just fine, and still others believed it was not necessary to use a condom with known clients or stable partner(s).

Consistent with our integrative model, social influences of peer and venue support for condom use were important in understanding unsafe sex among female entertainment workers in China, but their influences were largely indirect and mediated through HIV prevention motivation

and/or self-efficacy in condom use. This finding was somewhat different from that in an earlier and smaller pilot study among the same target population (Yang & Xia, 2006), in which venue support was found to have, in addition to indirect association through prevention motivation and perceived self-efficacy, significant direct association with condom use. However, that pilot study used a 30-day measure of consistent condom use and did not distinguish stable from non-stable partners. More research is needed to ascertain mechanisms in which peer and venue supports for condom use are related to individual condom use behavior.

Some study limitations need to be aware of when interpreting and generalizing the results. First, the selection of entertainment establishments was not strictly random; the sample contained more of the medium-sized karaoke TV bars but was less representative of high-end large night clubs and small entertainment establishments, such as beauty salons, sauna baths, and massage parlors. Second, the data are cross-sectional, which cannot reliably establish the causes (i.e., the IMB and social influence measures) and the effect (i.e., the odds of consistent condom use). When the follow-up assessment data from the on-going intervention study become available, we will revisit the study and retest the model with clearly specified temporal sequence of causes and effect. Third, our fieldwork suggested that the distinction between a stable and a non-stable sexual partner was not always clear or meaningful to study participants, as some considered repeated clients their “boy friends” and consequently stable partners. It is difficult to assess the extent to which this may have caused outcome measurement biases or how exactly the potential measurement biases may have affected the partner-specific analyses. It is likely that this may lead to potential underestimates of the rate of inconsistent condom use with non-stable partners and in turn potential differences in risk factors of unsafe sex between a stable and a non-stable (client) partner.

With that in mind, the results confirm that female entertainment workers in China are at increased sexual risk of acquiring and/or transmitting HIV and that their unsafe sex results from both individual and social influence risk factors. However, measures of gender norms, peer discussion of condom use, and perceived relationship power, which the literature and our theoretical framework suggest to have important social influences over women’s sexual behavior, all lost their significance once peer and venue supports and/or IMB measures were controlled for. It was possible that the influences of gender norms, peer discussion, and relationship power were already picked up by the measures of peer and/or venue supports in our study. It was also possible that, as suggested by the mediation analysis (Table 5), their influences were mediated by the individual level HIV prevention motivation and/or behavioral skills measures. More research is needed to better measure and disentangle the various aspects of social influences and to ascertain mechanisms in which gender norms, peer discussion of condom use, and peer/venue supports for condom use, may influence individual condom use behavior.

Meanwhile, behavioral intervention is urgently needed for female entertainment workers in China. To be effective, intervention programs need to take a multi-level approach that, in addition to informational education, emphasizes HIV prevention motivation building and behavioral skills training and promotes a supportive social, normative, and working environment. As the results suggested, even though HIV-related information and knowledge and peer and venue supports for condom use were not directly associated with condom use behavior, they all contributed indirectly to safer sex through their influences on HIV prevention motivation and/or self-efficacy in condom use. And, despite fairly good knowledge about HIV, many participants did not feel personal vulnerability to HIV (e.g., participants often told us they knew HIV, but mistakenly believed they were safe because they had sex only with known clients) and also had ambivalences about effective ways to prevent HIV/STDs.

Particularly notable was the surprising lack of peer discussion on HIV prevention among study participants, as suggested by the low mean score and percentile distribution of the index (Table 1). In-depth interviews corroborated this; participants often told us they did not usually talk with peer workers about clients or HIV/STD prevention for fear of loss of clients and business due to peer competition. Even though peer discussion was not independently associated with safe sex in the analysis, it was strongly correlated with the measure of perceived peer support for condom use (results not presented but available upon request), and both measures (peer support and peer discussion) were significantly associated with prevention motivation and self-efficacy in condom use (Table 5), and in turn with safe sex.

So, in addition to trainings in techniques and know-how's, it is critical for prevention intervention programs to also work to boost female entertainment workers' self-esteem and self-assurance by refuting negative attitudes about women, imparting them to individual rights in society and in sexual relationships, and promoting a supportive social and working environment for HIV prevention. For the latter, to promote peer discussion and communication in HIV/STD prevention through peer outreach and structural intervention at the establishment level may be particular worthwhile. Without simultaneously addressing the various components of social influences, it is unlikely that individual-based motivation enhancing and skills training alone will be as effective in reducing unsafe sex among female entertainment workers.

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Figure 1.
An Integrated Model of HIV Risk Sexual Behavior

Table 1

Sample Univariate Distribution of IMB and Social Influence Index Measures.

	Responses (N)	Mean	Standard Deviation	25 Percentile	50 Percentile	75 Percentile
<i>Information, motivation, behavioral skills</i>						
HIV information/knowledge	726	10.8	2.5	9.0	11.0	13.0
HIV prevention intentions (stable partner)	682	3.9	2.2	2.0	4.0	6.0
HIV prevention intentions (non-stable partner)	339	5.7	1.8	5.0	6.0	7.0
Negative condom attitude	725	14.7	5.1	11.0	14.0	18.0
Condom use efficacy (stable partner)	681	21.9	7.1	17.0	22.0	27.0
Condom use efficacy (non-stable partner)	340	27.1	6.1	23.9	28.0	32.0
<i>Social influences</i>						
Traditional gender norms	726	29.3	6.8	25.0	28.0	34.0
Peer discussion of condom use	726	16.1	5.8	12.0	15.0	21.0
Peer support of condom use (stable partner)	663	11.9	4.1	8.0	12.0	15.0
Peer support of condom use (non-stable partner)	340	14.0	3.8	12.0	15.0	16.0
Lack of relationship power	726	14.2	4.7	11.0	14.0	16.0
Venue support	724	34.7	8.2	29.2	35.4	41.0

Table 2

Differences in Demographic Characteristics, IMB Measures, and Social Influence Indicators by Condom Use Status in the Last Three Sexual Intercourses and by Type of Sexual Partner.

	Stable Partner (N=682) ¹		Non-Stable Partner (N=342) ²	
	Consistent Users (N=218)	Non-Consistent Users (N=464)	Consistent Users (N=220)	Non-Consistent Users (N=122)
<i>Demographic characteristics</i>				
Age	24.3	24.8	24.8*	23.7
Senior high school or more (%)	41.7	38.4	39.1	30.3
Currently married (%)	21.1**	31.7	22.7**	36.9
<i>Information, motivation, behavioral skills</i>				
HIV information/knowledge	11.2**	10.7	11.0	10.7
HIV prevention intentions ³	5.1**	3.3	6.2**	4.9
Negative condom attitude	12.8**	15.8	13.0**	15.5
Condom use efficacy ³	26.6**	19.7	29.0**	23.6
<i>Social influences</i>				
Traditional gender norms	28.6	29.7	28.4*	30.2
Peer discussion of condom	17.1**	15.7	17.5	16.5
Peer support of condom use ³	13.6**	11.1	14.4**	13.2
Lack of relationship power	13.9	14.3	13.6*	14.6
Venue supports	35.9**	34.1	36.7**	33.9

¹ Note: N's vary slightly for the following measures due to missing values: N=680 (218 consistent and 462 non-consistent users) for HIV prevention intentions and venue supports; N=681 (218 consistent and 463 non-consistent users) for negative condom attitude and condom use efficacy; and N=663 (217 consistent and 446 non-consistent users) for peer support of condom use.

² N's vary slightly for the following measures due to missing values: N=339 (219 consistent and 120 non-consistent users) for HIV prevention intentions; N=340 (220 consistent and 120 non-consistent users) for condom use efficacy; and N=340 (218 consistent and 122 non-consistent users) for peer support of condom use.

³ The composite index/scale is constructed based on questions specific to type of sexual partner.

* $p < 0.05$;

** $p < 0.01$

Table 3

Individual IMB and Social Influence Correlates of Consistent Condom Use in the Last Three Sexual Intercourses with A Stable Partner¹

	Model 1	Model 2	Model 3
<i>Demographic characteristics</i>			
Age	0.99	1.00	0.99
Senior high school or more education ²	1.08	1.08	1.06
Currently married ²	0.85	0.71	1.01
<i>Information, motivation, behavioral skills</i>			
HIV information/knowledge	1.03	/	1.01
HIV prevention intentions ³	1.17**	/	1.16*
Negative condom attitude	0.91**	/	0.91**
Condom use efficacy ³	1.13**	/	1.13**
<i>Social influences</i>			
Traditional gender norms	/	0.98	0.98
Peer discussion of condom use	/	1.00	1.00
Peer support for condom use ³	/	1.16**	1.04
Lack of relationship power	/	0.99	1.03
Venue supports for HIV prevention	/	1.01	0.99
Sample size	679	662	660
Model Pseudo R ²	0.22**	0.07**	0.22**

¹ Notes: Results presented are odds ratios.

² Entered as dummy variables. The reference categories are less than a senior high school education and never married for the education and marital status dummy variables, respectively.

³ The composite index/scale is constructed based on questions specific to type of sexual partner.

* $p < 0.05$;

** $p < 0.01$

Table 4

Individual IMB and Social Influence Correlates of Consistent Condom Use in the Last Three Sexual Intercourses with A Non-Stable Partner¹

	Model 1	Model 2	Model 3
<i>Demographic characteristics</i>			
Age	1.09**	1.07**	1.10**
Senior high school or more education ²	1.41	1.34	1.26
Currently married ²	0.53*	0.48**	0.49*
<i>Information, motivation, behavioral skills</i>			
HIV information/knowledge	0.91	/	0.90
HIV prevention intentions ³	1.25*	/	1.23*
Negative condom attitude	0.90**	/	0.91**
Condom use efficacy ³	1.13**	/	1.13**
<i>Social influences</i>			
Traditional gender norms	/	0.96	0.98
Peer discussion of condom use	/	1.01	0.99
Peer support for condom use ³	/	1.06	0.99
Lack of relationship power	/	0.94	0.97
Venue supports for HIV prevention	/	1.06**	1.04
Sample size	338	340	336
Model Pseudo R ²	0.21**	0.10**	0.23**

¹Notes: Results presented are odds ratios.

²Entered as dummy variables. The reference categories are less than a senior high school education and never married for the education and marital status dummy variables, respectively.

³The composite index/scale is constructed based on questions specific to type of sexual partner.

*
 $p < 0.05$;

**
 $p < 0.01$

Table 5

Linear Regression Mediation Analysis of Individual IMB and Social Influence Measures among Female Entertainment Workers Who Self-Reported Sex with A Non-Stable Partner

Independent Variables	Dependent Variables					
	Intentions (1)	Attitude (1)	Efficacy (1)	Intentions (2)	Attitude (2)	Efficacy (2)
<i>Demographic characteristics</i>						
Age	0.02	0.11*	0.09	0.02	0.09	0.10
Senior high school or more education ¹	0.34	0.67	0.57	0.41*	1.03	1.42*
Currently married ¹	-0.17	1.57**	-0.83	-0.02	1.22*	-0.59
<i>Information, motivation, behavioral skills</i>						
HIV information/knowledge	0.12**	-0.24*	0.45**	/	/	/
HIV prevention intentions ³	/	/	1.74**	/	/	/
Negative condom attitude	/	/	-0.24**	/	/	/
Condom use efficacy ³	/	/	/	/	/	/
<i>Social influences</i>						
Traditional gender norms	/	/	/	-0.02	0.10*	-0.11*
Peer discussion of condom use	/	/	/	0.01	-0.11*	0.12*
Peer support for condom use ³	/	/	/	0.13**	0.02	0.49**
Lack of relationship power	/	/	/	-0.03	0.29**	-0.20*
Venue supports for HIV prevention	/	/	/	0.03*	-0.02	0.13**
Sample size	339	342	338	337	340	338
Model R ²	0.04**	0.05**	0.42**	0.14**	0.13**	0.24**

¹Notes: Entered as dummy variables. The reference categories are less than a senior high school education and never married for the education and marital status dummy variables, respectively.

²The composite index/scale is constructed based on questions specific to sex with non-stable partner(s).

*
p < 0.05;

**
p < 0.01