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Peer norms and consistent condom use with female sex workers among male clients in Sichuan province, China

Cui Yang,

Johns Hopkins Bloomberg School of Public Health, Baltimore, MD UNITED STATES

Carl Latkin, PhD,

Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health

Rongsheng Luan, MD, MPH, and

Department of Epidemiology, West China School of Public Health, Sichuan University

Kenrad Nelson, MD

Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health

Abstract

Despite their crucial role in HIV infection and transmission, commercial sex male clients (CSMCs) are rarely studied. The purpose of this study was to examine the relationship between peer norms and consistent condom use with female sex workers (FSWs) among CSMCs in Sichuan province, China. Male clients with peers who had paid for sex (n=562) were recruited by local health workers through snowball sampling. Measures of peer norms included 1) descriptive norms which were evaluated by perceptions of peer's condom attitudes and behaviors with FSWs; 2) injunctive norms which were assessed by the perceived peer approval of using condoms with FSWs; and 3) communication of HIV-related topics with peers. The outcome was consistent condom use with FSWs. Results of multivariate logistic regression models revealed that consistent condom use with FSWs was significantly more likely among male clients who perceived more pro-condom descriptive and injunctive norms among their peer groups. In addition, the pattern of commercial sex visits moderated the relations between peer norms and consistent condom use with FSWs. More peer approval of condom use and more HIV-related communication were significantly associated with consistent condom use among clients who visited FSWs with friends but not among those who visited FSWs alone. The findings suggest that social activities surrounding commercial sex visits may provide an entry point for HIV prevention intervention with men who patronize FSWs and that such efforts should tap into existing dynamics of social interaction to promote pro-condom norms.

Keywords

commercial sex; peer norms; condoms; HIV; China; female sex workers; male sex clients

Introduction

China has witnessed an increasing rate of heterosexual transmission of HIV in recent years. In 2007, heterosexual transmission was reported to be responsible for 37.9% of new infections, a rapid increase from 10.7% in 2005 (China Ministry of Health, UNAIDS, & WHO, 2007). In a nationally representative sample, an estimated 9% of Chinese men aged

20 to 64 years reported paying for sex (Parish, Laumann, Cohen, Pan, Zheng, Hoffman, et al., 2003). Furthermore, after three decades of the one-child policy and traditional male-preference culture, an estimated 8.5 million “surplus men” were born between 1980 and 2000. Many of these Chinese men are unable to find female partners for marriage, and therefore an expanded demand for commercial sex is expected (Tucker, Henderson, Wang, Huang, Parish, Pan, et al., 2005). Moreover, due to less social support, and less frequent and lower satisfaction in sexual activity, single men are more likely to have risk-taking behaviors as compared to married men (Waite, 1995). In the present context of the HIV/AIDS epidemic, where sexual contacts may have harmful consequences, intervening with the commercial sex industry and understanding the role of commercial sex male clients (CSMCs or simply “male clients”) in the control of HIV in China are of utmost importance.

Male clients have long been cited as a potential contributor to the spread of the HIV epidemic in China. Although there have been few studies of this population in China, their HIV-related risk has been documented by low rates of condom use and an alarmingly high prevalence of HIV (Xu, Wang, Lu, Pu, Zhang, Wong, et al., 2008; Zhang, Wu, & Liu, 2006; Chen, Li, Liu, Li, & Pei, 2003; Wang, Li, Stanton, Fang, Lin, & Mao, 2007). In a sample of male miners who had paid for sex in Yunnan province, China, the prevalence of sexually transmitted infections (STIs) and HIV was 23.3% and 1.8% respectively (Xu et al., 2008). However, little attention has been given to male clients in existing prevention efforts in China (Hong & Li, 2009; Pirkle, Soundardjee, & Stella, 2007). Moreover, most existing behavioral interventions in China have only tried to modify individual-level risk factors, such as HIV-related knowledge (Hong et al., 2009); the complex social and contextual factors contributing to HIV risk have largely been ignored (Hong & Li, 2008).

There has been a growing interest in understanding how individual-level behavior change can be linked to the group or community level. Sexual intercourse is a social behavior not only in the sense that it usually involves two persons, but also in that multiple dimensions of social structures and social interaction can also influence the choice of sexual partners and risky sexual behaviors (Van Landingham, 1998). Examining the social interaction and norms that are network specific is considered essential to understanding HIV-related behaviors and risks (Latkin, Donnell, Celentano, Amramratna, Liu, Vongchak, et al., 2009a). The current study sought to explore the dynamics of peer norms underlying the risky behaviors of interest that potentially put male clients at risk of HIV infection and transmission.

Norms exist as a property of a group and exert influences on behaviors at the individual level (Coleman, 1989). Individuals’ behaviors are shaped and influenced by peers, with whom they feel some degree of similarity (Festinger, 1954; Hyman, 1942; Tajfel, 1981). Norms have been frequently conceptualized as comprising two distinct factors: descriptive and injunctive (Cialdini, Reno, & Kallgren, 1990; Yanovitzky & Rimal, 2006). Descriptive norms convey the information of what is common behavior among one’s peers; injunctive norms refer to the perception that a certain behavior is approved by important others, and, by implication, social sanction may be applied if individuals do not comply. Descriptive and injunctive norms may have different influences on individual behaviors (Borsari & Carey, 2003).

A large body of theoretically based literature has documented the influence of descriptive norms on HIV-related sexual behaviors among a variety of populations (Buunk, Bakker, Siero, van den Eijnden, & Yzer, 1998; Davey-Rothwell & Latkin, 2008; Latkin, Forman, Knowlton, & Sherman, 2003). In the context of commercial sex, a study by Barrington and colleagues in the Dominican Republic reported male clients’ consistent condom use was positively associated with the perception that some or all male social network members used

condoms (Barrington, Latkin, Sweat, Moreno, Ellen, & Kerrigan, 2009). This result is consistent with findings from Indonesia, where male clients were more likely to use condoms if they perceived that their friends used condoms with female sex workers (FSWs) (Ford, Wirawan, & Muliawan, 2002). In a sample of Chinese males, having commercial sex experiences was associated with high peer sexual risk involvement, which was measured by the perception that peers had multiple sexual partners, had engaged in commercial sex and had not used condoms (Wang et al., 2007).

Empirical findings on the association between injunctive norms and HIV-related sexual behaviors have been mixed. While Indonesian male clients with peers' encouragement to use a condom were more likely to use condoms with FSWs (Ford et al., 2002), Barrington and colleagues (2009) failed to observe the same association among male clients in the Dominican Republic. Barrington attributed this lack of association between injunctive norms and consistent condom use to the nature of condom use as a private behavior. Unlike descriptive norms, the influence of injunctive norms implies that one's own behaviors should be available for public scrutiny, so that social sanctions can be applied for violating group norms (Rimal & Real, 2005). Social sanctions are difficult to impose when violation of norms cannot be verified, and therefore it has been suggested that, compared to descriptive norms, injunctive norms are less relevant to sexual behaviors, which are primarily enacted in a private setting (Lapinski & Rimal, 2005). A meta-analysis of condom use among heterosexuals also concluded that, compared to descriptive norms, injunctive norms tend to be less strongly associated with condom use (Sheeran, Abraham, & Orbell, 1999).

Regardless of the observability of a particular behavior, it should be noted that people construct, modify, and maintain their perception of norms through social interactions, such as interpersonal communication, not necessarily involving a direct observation of others' behaviors (Noar, Carlyle, & Cole, 2006; Kincaid, 2004; Yanovitzky & Rimal, 2006). By informational and persuasive cues in interpersonal conversation, individuals can assess the prevalence of a particular behavior and whether other network members expect them to behave the same way. Communication with peers was an important correlate of condom use in a growing number of studies (Barrington et al., 2009; Latkin et al., 2003; Yang, Latkin, Celentano, & Luo, 2006). For example, peer discussion of condom use predicted lower odds of unprotected casual sex among a sample of drug users in China (Yang et al., 2006). In examining the association between norms and consistent condom use, there has been insufficient attention paid to the patterns of social interaction that can carry constraints or opportunities for communication and norm formation (Latkin et al., 2003).

Commercial sex visits are likely to be pursued in private in the US (Glass & Wright, 1992; Thompson, 1983). In contrast, they have been described as a social phenomenon, connected to social interactions in some cultural settings. According to the results of in-depth interviews with 41 male clients in Sichuan province, China (Yang, Latkin, Liu, Nelson, Wang, & Luan, 2010), commercial sex visits were often a group activity, typically starting in the evening with social eating, drinking, and game playing (*Majiang*), and ending with a visit to a commercial sex establishment with a small group of male friends. A similar phenomenon of commercial sex visit as group activity has been observed in other Asian contexts, such as Indonesia and Thailand (Ford et al., 2002; Van Landingham, 1998). Visiting FSWs in a group could potentially decrease the privacy of sexual behaviors and could create conditions that promote normative influences. Yet there has been no empirical study to date addressing how commercial sex visits with a group may shape peer norms that affect condom use among male clients.

Delineating the conditions that promote or inhibit normative influence can be important in developing peer-led interventions. Previous peer-led interventions have included the use of opinion leaders in the social network and have promoted interpersonal communication and positive peer norms about certain health topics (Boulay, Storey, & Sood, 2002; Latkin et al., 2003; Latkin, Mandell, Vlahov, Oziemkowska, & Celentano, 1996; Latkin, 1998; Roger & Kincaid, 1981). These interventions have explicit goals of altering risk behavior norms through increasing the acceptability of discussing HIV prevention and the salience of risk reduction norms. Understanding the dynamics of norms and risk behaviors may be particularly important in China given the rapid changes in HIV infection rates and in sexual norms and behaviors. The goals of this study were to characterize differences between male clients who visit FSWs alone or in groups, to evaluate the relationship between peer norms and consistent condom use with FSWs, and to examine how group commercial sex visits may moderate the relationship between peer norms and consistent condom use in Sichuan province, China. We hypothesized that (1) more pro-condom descriptive and injunctive norms and communication would be independently associated with consistently condom use with FSWs; and (2) those associations would be significantly stronger among male clients who visited FSWs with friends as compared to those who visited FSWs alone.

Methods

Study setting

Study sites were three cities in Sichuan province, Xichang, Zigong, and Leshan. Sichuan province is located in the southwest of China. It is the third most populous province with a population of 87.25 million in 2004 (Bureau of Statistics of Sichuan, 2005). There were 19,375 HIV infections reported in Sichuan by 2008, which ranked the 6th among all provinces/autonomous regions in China (China Ministry of Health et al., 2007). The HIV epidemic in Sichuan has been dominated by injection drug use, which accounts for 75.6% of HIV infection. In recent years, however, sexual transmission has increasingly contributed to HIV epidemic in Sichuan province (Liangshan CDC, 2007).

Participants and recruitment

From October to November 2008, a cross-sectional survey was conducted in three study sites. Selection criteria of the study included males aged 18 years or older who had given money or valuable gifts in exchange for sexual intercourse at least once in the past 12 months. Participants were recruited by the local Department of Health through snowball sampling (Magnani, Sabin, Saidel, & Heckathorn, 2005). Local health workers identified an initial group of eligible participants from the population who had sought voluntary HIV testing and by outreach to the venues or locations where commercial sex was negotiated or operated. Potential participants were screened to determine their eligibility. Men who met the selection criteria were asked if they would be interested in participating in a research study, including a finger-stick blood drawn for HIV testing and a 30-minute face-to-face survey about their sexual behaviors and other related information. Confidentiality and anonymity were emphasized. If the man expressed interest, a study appointment was made. In addition, initially identified participants were asked to serve as seeds to recruit their male friends who might be eligible to participate in this study.

Study procedures

In each study site, the research team rented a large tea house or karaoke club as the study facility. Given the sensitive nature of the study and the target population, entertainment sites provided a relatively safe and comfortable environment for the participants. In addition, each interviewer would be able to conduct the interview in a private room at the

entertainment sites. Finally, the location of the entertainment sites made them easily accessible by public transportation.

After each participant's eligibility was determined, an oral informed consent was obtained. Finger-stick blood samples were obtained for HIV antibody and confirmatory tests. All participants received pre- and post-test counseling. Due to the concern about the literacy of the participants, each participant completed a 30 minute face-to-face interview with a trained Chinese interviewer. All participants were paid 50 yuan (approximately 7USD) for their participation. The research protocols were reviewed and approved by the Institutional Review Boards at Johns Hopkins Bloomberg School of Public Health and Sichuan University.

Measures

Commercial sex experience—We used an overall rate of consistent condom use with FSWs as a global measure of male clients' sexual risk behavior. Our pilot studies suggested that visiting FSWs was often an episodic behavior, and therefore the construct of overall consistent condom use could examine long-term patterns. Moreover, in the formative study participants reported that they were better able to answer questions on overall level of consistent condom use as compared to questions about condoms use with specific FSWs.

The outcome variable was assessed by asking participants the overall frequency of condom use when having sex with FSWs, on a 5-point scale from “every time”, “most of the time”, “half of the time”, “rarely” and “never.” This response was dichotomized so that “consistent condom use” indicated using condoms “every time” when having sex with FSWs.

The social pattern of commercial sex visit was assessed by asking participants if they usually visited commercial sex alone or with friends.

Peer norms—The number of participant's male friends who had paid for sex was assessed. Since normative influence was hypothesized to be stronger if individuals perceived that members of the reference group were similar to them, peer norms in this study were evaluated in reference to the peer group who used commercial sex, which was defined as participants' male friends who had paid for sex.

Descriptive norms were assessed by a 2-item measure on the perceived attitudes and behaviors of condom use with FSWs among their peer group. Participants reported the proportion of peers who thought it was important to consistently use condoms with FSWs, and the proportion of peers who consistently used condoms with FSWs. Each response was coded on a 5-point scale from “none”, “few”, “some”, “most” to “all.” A composite score was calculated by adding responses of these two items (range 0–8), with a higher score indicating more pro-condom descriptive norms in the peer group. The composite score of descriptive norm was dichotomized at the median.

Injunctive norms were evaluated by the degree of agreement with the statement “My friends would tease me if they know I use condoms with FSWs,” on a four-point scale from “strongly disagree” to “strongly agree”. This response was dichotomized as disagree vs agree, so that “disagree” indicated greater peer approval of condom use with FSWs.

HIV/STI communication was evaluated by whether participants had conversations about certain HIV/STI-related topics with peers. Participants were asked “have you ever talked with your friends about [topics]?” 1) the efficacy of using condoms in disease prevention, 2) consequences of getting infected with HIV, and 3) consequences of getting infected with STIs. Response to each question was coded as 0 or 1 to indicate whether certain topics had

been discussed. Responses were summed for a composite score, which was dichotomized as “have talked about all three topics” vs “have talked about less than three topics.” Norm and communication variables were dichotomized because of their skewed distribution (as reported elsewhere, Barrington et al., 2009).

Individual sociodemographic characteristics—Data on age, ethnicity, education level (i.e., illiterate, primary school, junior high school, senior high/professional school, college or above), having local household registration, employment, monthly income (less than 1,000 yuan or at least 1,000 yuan), and marital status were collected. Frequency of social activities with friends was assessed by the question “how frequently have you hung out with friends in the past year,” with the response options of “at least once a week” and “less than once a week.”

Data Analysis

Data analysis was limited to male clients with at least one male friend who had paid for sex (i.e., peer client). The correlations between the descriptive and injunctive norm measures were examined using Spearman’s Rho correlations, due to the ordinal nature of scores. The characteristics of male clients who visited FSWs alone or with friends were assessed using Pearson’s chi-square test for binary variables and Kruskal-Wallis equality-of-populations rank test for non-normally distributed continuous variable (i.e., age).

The outcome of interest was overall consistent condom use with FSWs, which was dichotomized as yes or no. Thus, bivariate and multivariate logistic regression models were conducted to assess the relationship between independent variables and the outcome variable. Variables that were significant at the $p < .10$ level in bivariate analyses of consistent condom use were included in the multivariate logistic regression models. A multivariate logistic regression to assess main effects (Model 1) was fit with all analysis variables and social patterns of commercial sex visits. This model was also run using continuous measures of the independent variables, and the results were highly similar to the model with dichotomized measures. Moreover, the moderator effect of social pattern on the relationship between peer norms and consistent condom use was tested using a multivariate logistic regression model (Model 2) with all analysis variables and three two-way interactions: (1) descriptive norm X commercial sex visit pattern, (2) injunctive norm X commercial sex visit pattern and (3) communication X commercial sex visit pattern.

Since the sample was recruited by the local department of health at each study site, there was a need to account for possible clustering of responses. To adjust for this correlation, General Estimating Equation (GEE) was employed (Liang, Zeger, & Qaqish, 1992), which adjusts for variance within and between clusters of study sites. Data were analyzed using Stata 10.0 (StataCorp, College Station, TX).

Results

Sociodemographic characteristics, sexual behaviors and peer norms

Among a total of 601 eligible participants, 562 (93.5%) reported at least one peer who was also a client and so completed peer norm questions. Western blot confirmatory test results indicated the HIV prevalence in these 562 participants was 1.6% ($n=9$). Table 1 presents sociodemographic characteristics and commercial sex related characteristics of those participants who reported peers who had paid for sex ($n=562$). The median age of the sample was 37 years, with a range from 18 to 75. This sample represented a high proportion of male clients who were Han ethnicity (96.4%), had local household registration (91.8%),

and were employed (82.8%). Less than one-third (21.2%) had at least a senior high school education, and 58.7% were married.

The overall prevalence of consistent condom use with FSWs was 30.8%. Slightly over two-thirds of the sample (67.8%) indicated that they usually visited FSWs with friends rather than by themselves. The average number of peers who had paid for sex was 13.6 (median=8, range 1–200), and 15 participants (2.7%) reported only one of their peers had paid for sex. It should be noted that there was no significant association between number of friends who had paid for sex and consistent condom use, and therefore this is not included in analyses. Approximately half of the sample (47.5%) believed at least “most” of their [commercial sex] peers who were clients thought it was important to consistently use condoms with FSWs, and over one-third (42.1%) believed at least “most” of their peers consistently used condoms with FSWs (descriptive norm). The two items were highly correlated (Spearman $r=0.88$). The majority of participants (78.4%) either “strongly disagreed” or “disagreed” that their peers who were clients would tease them if peers found out they used condoms with FSWs (pro-condom injunctive norm). Descriptive and injunctive norm ratings were not significantly correlated. Finally, this sample reported high rates of communication about condoms, HIV, and STIs with peers. More than half of the sample (52.3%) reported they had conversations with peer clients about all three HIV/STI-related topics.

Social nature of commercial sex visit

As illustrated in Table 2, male clients who usually visited FSWs with friends were younger, not married, and had higher monthly income as compared to those who visited FSWs alone. Engaging in more frequent social activities was also associated with group commercial sex visits. In addition, male clients who usually visited FSWs with friends reported more pro-condom descriptive norms among peers ($p<.01$) but not more pro-condom injunctive norms, and had a wider range of HIV-related conversations with peers ($p<.10$) as compared to male clients visiting FSWs alone.

Consistent condom use with FSWs and normative influence

Table 3 presents the results of bivariate and multivariate analyses of associations between overall consistent condom use and peer norms. Bivariate analyses revealed that male clients who perceived more pro-condom descriptive norms and those who perceived greater peer approval of condom use were more likely to consistently use condoms with FSWs. Finally, communication with peers about a wider range of HIV-related topics was significantly associated with consistent condom use with FSWs.

In the multivariate logistic regression model looking at main effects (Model 1), older male clients were significantly less likely to consistently use condoms with FSWs, and married male clients were significantly more likely to consistently use condoms with FSWs as compared to single male clients. Male clients were 5.95 times more likely to report consistent condom use with FSWs if they perceived more pro-condom descriptive norms. Those who perceived greater peer approval of condom use with FSWs were also more likely to consistently use condoms. There was a trend observed for male clients reporting more HIV-related communication with peers to use condoms consistently with FSWs.

Social Pattern of commercial sex visit as a moderator

Results of multivariate logistic regression with interaction terms (Model 2) are presented in Table 3. The significant interaction terms in the model indicate that the social nature of commercial sex visits was a moderator of the relationship between peer norms and consistent condom use.

Among male clients who visited FSWs alone, more pro-condom descriptive norms were significantly associated with consistent condom use with FSWs. However, there were no significant associations between greater peer approval of condom use and communication of HIV-related topics and consistent condom use among male clients who visited commercial sex workers alone.

Among male clients who visited FSWs with friends, more pro-condom descriptive norms were significantly associated with consistent condom use, considering the combined main effect and interaction (Adjusted Odds Ratio [AOR]: 4.98, 95% Confidence Interval [CI]: 3.26, 7.62). In addition, greater peer approval of condom use with FSWs and communication of HIV were both independently associated with consistent condom use among male clients who participated with friends, considering the combined main effect and interaction (AOR: 2.83, 95% CI: 1.08, 7.37; AOR: 1.64, 95% CI: 1.33, 2.04).

Discussion

In this sample of male clients with peers who paid for sex, individuals who had more pro-condom descriptive norms were significantly more likely to consistently use condoms with FSWs. This association remained significant among both male clients who visited FSWs alone and with friends, even after adjusting for individual-level characteristics that were previously found to be associated with condom use, such as age and income (Parish et al., 2003; Chen et al., 2003; Pickering, Quigley, Hayes, Todd, & Wilkins, 1993). In addition, greater peer approval of condom use and more HIV/STI communication with peers were significantly associated with individual sexual behaviors among male clients who visited FSWs with friends, but not among those who usually visited FSWs alone. The findings reveal peer norms are significantly associated with male clients' behaviors with FSWs. More importantly, the results suggest that researchers who seek to understand how norms influence behaviors must take into account the patterns of social interaction that stimulate communication and norm formation.

In this sample of male clients, two-thirds of participants reported they most often visited FSWs with friends. The widespread nature of commercial sex visits as a group activity could be due to the unprecedented social changes in China during the past few decades. A survey among a sample of urban Chinese youth found one-third of respondents believed extra-marital affairs should be tolerated, reflecting a wide spectrum of views and behaviors that exist in urban China (China Daily, 2005). In the current study, compared to men who visited FSWs alone, men who visited FSWs with friends were younger, not married, had higher monthly income and socialized more frequently. There has been increasing awareness that a sizable group of the middle-class, brought about by the rapid urbanization in China's cities, may have produced new sets of social behaviors and lifestyles, which could contribute to potential risk factors for HIV/STI spread in flourishing Chinese cities (Christopher, 2006).

We found that, compared to male clients who visited FSWs alone, those who visited FSWs with friends reported a higher prevalence of peer pro-condom attitudes and behaviors, and had a wider range of HIV/STI communication with peers. One possible explanation for the findings is that the opportunities provided by these patterns of group activity were more extensive than just the fact of men accompanying each other to visit FSWs. Visiting FSWs with friends may help to promote health-related conversations and inform individual men as to what constitutes appropriate modes of conduct in the peer groups.

In the current study, the social pattern of commercial sex visit moderates the relationship between peer norms and individual sex behaviors. More specifically, greater peer approval of condom use with FSWs was significantly associated with consistent use of condoms with

FSWs among male clients who most often visited FSWs with friends, but not among those who most often visited FSWs alone. Previous studies have documented the role of group identity in moderating the relationship between descriptive norms and individual behaviors (Lapinski & Rimal, 2005; Rimal & Real, 2005). Present findings indicate that group identity may also play an important role in the association between injunctive norms and individual sexual behaviors. One explanation for this moderation effect could be that a sense of group identity was further enhanced when visiting commercial sex with friends. As a key component of several social influence theories, peer group members often have high credibility based on similarity and are more influential than other individuals (Nadler & Fisher, 1992). Nadler and Fisher (1992) suggested that peer groups can provide instrumental and emotional supports to the individual. In return, a certain amount of conformity to group values is expected from the individual. It has been noted that when group identity is salient and the issue is relevant to ingroup identity, there is an implicit assumption that group members can assess individuals' compliance with group solidarity (Abrams, Rutland, Cameron, & Marques, 2003).

In this sample of male clients, we expected that a commercial sex visit with friends may have provided an opportunity for public scrutiny of individual sexual behaviors. Hence, the influence of peer approval of condom use with FSWs on individual sex behaviors is likely to be greater among male clients who visited FSWs with friends, as social sanctions tend to be imposed when violation of norms can be verified. The findings suggest that peer-led intervention approaches may be effective and should tap into naturally existing social dynamics among male clients. Based on our findings, future interventions are needed that emphasize the perceived norms that encourage risk reduction, and prevention messages should be tailored to male clients based on the social nature of their visits to FSWs. For male clients who visit FSWs alone, prevention interventions should focus on promoting pro-condom attitudes and behaviors among peers. For male clients who visit FSWs with friends, risk-reduction messages illustrating prevalent pro-condom attitudes and behaviors coupled with the unacceptability of risky behaviors among peers may be effective in reducing individual risk behaviors.

Another important finding from the current study is that having a wider range of HIV-related conversations with peers was significantly associated with consistent condom use with FSWs among male clients who often visited with friends. Communication has been operationalized in various ways in previous studies, often in terms of the frequency of conversation (Barrington et al., 2009) or proportion of peers communicating certain topics (Latkin et al., 2003). In the current study, the assessment of communication focused on the message content. On a theoretical basis, the breadth of conversation is expected to reflect the level of acceptance of pro-protective behaviors of the social group. However, these measures may not be sufficient to capture the complexity of human communication.

A prior qualitative study revealed that one of the most important functions of the collective action of patronizing FSWs among Chinese men was the provision of an environment where restraints from the traditional culture and society were temporarily relaxed and men could engage in conversations about commercial sex experiences (Yang et al., 2010). Within the context of group commercial sex activity, HIV risk reduction communication may be more salient and relevant. These events may provide the opportunity for men to assess their own risk and facilitate the process of behavior change through verbal persuasion (Low-Beer & Stoneburner, 2004). In future HIV prevention interventions, peers trained as health educators should facilitate dialogue about risk reduction messages in the context where those messages are more salient and relevant, such as before male clients visit FSWs as a group, or in restaurants or tea houses where men who visit FSWs with friends often socialize.

Several limitations of this study should be noted. A primary limitation of the study is the use of a cross-sectional design, which limits our ability to make a causal inference of the relationship between peer norms and consistent condom use with FSWs. Individual behaviors may be influenced by the actions of group members, or an individual may seek like-minded friends who can provide a supportive environment in which his behaviors are widely acceptable. Moreover, the face-to-face assessment of illegal behaviors and HIV pre-test counseling may have led to heightened social desirability response bias. In addition, the nature of snowball sampling may limit the generalizability of findings. In snowball sampling, the sample composition can be heavily influenced by the choice of initial seeds and has the tendency to include more participants with larger personal networks (Magnani et al., 2005). Future studies should consider alternative sampling strategies, such as venue-based or respondent-driven sampling, which have been shown to have greater external validity among a variety of hidden populations (Heckathorn, 1997; McKnight, Des Jarlais, Bramson, Tower, Abdul-Quader, Nemeth, et al., 2006; Wang, Carlson, Falck, Siegal, Rahman, & Li, 2005). Moreover, we used the overall rate of consistent condom use with FSWs as a global measure of male clients' sexual risk behavior. Given the potential bias of self-reports from recall errors or social desirability, future studies should include additional measures of sexual risk behaviors, such as condom use with specific sexual episodes, for a cross-validation of the measures. Furthermore, current data analysis was limited to male clients with at least one male friend who had paid for sex.

Finally, our measures of norms regarding condom use were limited. We assessed descriptive norms through two items and injunctive norms with a single item. Multiple-item scales might be more valid and reliable. The normative influences in this study were in reference to participants' male friends who had paid for sex. Results from a prior qualitative study suggested that family and community communicate alternative injunctive norms (Yang et al., 2010).

In summary, the present study suggests that peer norms of sexual risk behaviors are strongly associated with male clients' individual commercial sexual behaviors, and the strength of these associations are moderated by the group nature of visits to a sex worker. Previous intervention studies to promote HIV protective behaviors have documented that altering norms within existing social networks can effect sustainable social-level behavior changes (Latkin, Donnell, Metzger, Sherman, Aramrattna, Davis-Vogel, et al., 2009b; Celentano, Bond, Lyles, Eiumtrakul, Go, Beyrer, et al., 2000). The results obtained from this study provide insight into the need for psychosocial HIV prevention intervention approaches in this context.

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Table 1

Characteristics of commercial sex male client participants with peers who also had paid for sex (n=562)

Characteristics	N (%)
Age (years)	37 (10.1) ^a
Ethnicity	
Han	542 (96.4)
Others	21(3.6)
Household registration	
Local	516 (91.8)
Other	46(8.2)
Education	
At least senior high school	123(21.9)
Less than senior high school	439(78.1)
Employment	
Full/part-time employed	448(82.8)
Unemployed	93(17.2)
Monthly income	
>=1,000 yuan	345(61.4)
<1,000 yuan	217(38.7)
Marital status	
Married	330 (58.7)
Others	232(41.3)
Consistent condom use with FSWs	
Yes	173 (30.8)
No	389(69.2)
Commercial sex visit	
With friends	381 (67.8)
Alone	181(32.2)
Number of peers who had paid for sex	8 (15.5) ^a
Proportion of commercial sex peers who think it is important to use condoms with FSWs	
All	129 (24.1)
Most	125 (23.4)
Some	71(13.3)
Few	148 (27.7)
None	62(11.6)
Proportion of commercial sex peers who always use condoms with FSWs	
All	99(19.1)
Most	120(23.1)
Some	59(11.4)
Few	163(31.4)
None	78(15.0)
Commercial sex peers would tease me if they know I used condoms with FSWs	

Characteristics	N (%)
Strongly disagree	28(4.9)
Disagree	413 (73.5)
Agree	97(17.3)
Strongly agree	24(4.3)
Communication with commercial sex peers	
Condoms	426 (76.2)
STIs	421 (75.2)
HIV	353 (63.0)
All three topics	296(52.3)

^aMedian (Standard Deviation)

Table 2

Characteristics of male clients who visited FSWs alone or with friends

<i>Patterns of commercial sex visits</i>			
	Individual (%) (n=181)	Group (%) (n=381)	<i>Chi-square statistics[#]</i>
Age (yrs, median)	41	35	43.79***
Married			
No	27.2	72.8	
Yes	35.8	64.2	4.62*
Monthly income			
< 1,000 yuan	41.9	58.1	
>= 1,000 yuan	26.1	73.9	15.32***
Frequency of social activities			
Less than once a week	37.3	62.7	
At least once a week	24.0	76.0	10.42**
Descriptive norm			
Low	37.8	62.2	
High	24.0	76.0	11.87**
Injunctive norm			
Low	34.7	65.3	
High	31.5	68.5	0.44
Communication			
Low	35.7	64.3	
High	29.1	70.9	2.84 ⁺

[#] Chi-square statistics of Kruskal-Wallis equality-of-populations rank test and Pearson's chi-square test were reported

⁺ p<.10

* p<.05

** p<.01

*** p<.001

Table 3
Associations between peer norms and consistent condom use with FSWs: bivariate and multivariate analyses

	Unadjusted model		Adjusted model	
	OR(95%CI) (n=562)	Model 1 AOR(95%CI) (n=562)	Model 2 AOR(95%CI) (n=562)	Model 2 AOR(95%CI) (n=562)
Age ^a	0.94(0.93,0.95) ****	0.94(0.93,0.94) ****	0.93(0.93,0.94) ****	0.93(0.93,0.94) ****
Monthly income (>=1,000 yuan)	1.37(1.09,1.72)**	0.94(0.61,1.44)	0.95(0.65,1.38)	0.95(0.65,1.38)
Married	1.17(0.93,1.46) ⁺	2.09(1.28,3.40)**	2.14(1.34,3.41)**	2.14(1.34,3.41)**
Commercial sex visit with friends (vs. alone)	1.30(0.72,2.36)	0.73(0.40,1.35)	0.30(0.13,0.69)**	0.30(0.13,0.69)**
Number of peers who had paid for sex	0.99(0.97,1.01)	---	---	---
High descriptive norm	6.84(4.60,10.18) ****	5.95(3.96,8.92) ****	9.94(4.87,20.32) ****	9.94(4.87,20.32) ****
High injunctive norm	2.50(1.65,3.80)**	1.94(1.00,3.74)*	0.81(0.55,1.20)	0.81(0.55,1.20)
More communication	1.78(1.11,2.84)*	1.48(0.98,2.23) ⁺	1.16(0.44,3.07)	1.16(0.44,3.07)
High descriptive norm × Commercial sex visit with friends	---	---	0.50(0.31,0.80)**	0.50(0.31,0.80)**
High injunctive norm × Commercial sex visit with friends	---	---	3.49(1.33,9.13)*	3.49(1.33,9.13)*
More communication × Commercial sex visit with friends	---	---	1.42(1.01,3.26)*	1.42(1.01,3.26)*

^a Age was centered by mean of 37 years old.

⁺ p<.10

* p<.05

** p<.01

**** p<.001