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ORIGINAL PAPER

Condom Use During Commercial Sex Among Male Clients of Female Sex Workers in Sichuan China: A Social Cognitive Theory Analysis

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Abstract There has been little theory-based research focusing on condom use among male clients of female sex workers (CFSW) in China. The current study applied social cognitive theory to condom use behaviors of CFSW in China. Face-to-face structured interviews were conducted among 584 CFSW recruited through snowball sampling. Bivariate and multivariate logistic regression models were applied to examine factors associated with consistent condom use. A minority (30.65 %) of respondents reported using condoms consistently with FSW, and 7 of 12 social cognitive dimensions/subdimensions were found to be significantly influential. The most significant factors were self-efficacy [adjusted prevalence ratio (APR) = 2.11, 95 %, CI = 1.74–2.43] and personal pleasure reduction (APR = 0.3, 95 % CI = 0.15–0.6). HIV-related knowledge, perceived HIV susceptibility, condom cost, condom efficacy, and embarrassment of carrying condoms were not associated with consistent condom uses with FSW. Findings from the current study suggest future prevention programs should target sex venues, and condom access should ensure both quantity and quality. Peer education should focus on knowledge education and peer norms, and knowledge education should include information on HIV infection severity and how to increase pleasure with condom use.

Keywords Male clients · Commercial sex · Social cognitive theory · Condom use · HIV · China

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Introduction

Since 2007, the human immunodeficiency virus (HIV) epidemic in China has been primarily driven through heterosexual transmission [1]. Despite illegal status, commercial sex industry has flourished in China since the 1980s [2, 3]. Social factors such as separation from partners due to migration, social pressure from peers and business partners have been found to be associated with patronizing female sex workers (FSW). Between 10.8 and 14.0 % men from Hong Kong and 4.2–10.0 % men from mainland China have been reported patronizing FSW in the past 12 months [4–9]. The level of consistent condom use by FSW is not high (13.9–33.7 %). Several studies report that the major barrier is "refusal by clients". Sexually transmitted infections (STIs) are also common (14.0–73.2 %) [10–14], and HIV prevalence among FSW from some areas of Yunnan and Sichuan province is over 1 %, which is much higher than that of the general population (0.058 %) [1]. Male clients of FSW (CFSW) have been considered as "bridge population", as they may transmit HIV from a high risk group (FSW) to the general population [9, 15–24].

Consistent condom use is highly effective in preventing sexually transmitted HIV [25–27]. To improve condom use among FSW and CFSW, sufficient availability of condoms is critical [28–31]. Health education focusing on knowledge of HIV may help to improve condom use, but has not been found to be as effective as condom distribution [32]. There are key psychosocial factors other than knowledge that influences condom use. Social cognitive theory (SCT) has been widely applied [38–40] in HIV prevention [32, 35, 41–44]. For example, Wulfert and Wan examined heterosexual sexual risk taking behaviors from a social cognitive perspective [42]. Ford et al. (1996) applied SCT while assessing an STI/HIV transmission reduction program among FSW and their client in Indonesia [43]. SCT-based behavioral intervention was successful in promoting condom use among FSW in Tijuana and Ciudad Juarez, Mexico [44]. As an interpersonal level theory, SCT explores reciprocal interactions between people and their environments which includes family, friends, and health professionals [35]. Although self-efficacy has been considered as an important psychosocial determinant of behaviors [32, 35, 37, 41–44]. There is no existing literature applying SCT to explain condom use behavior among CFSW in China.

The goal of the current study was to explore CFSW's condom use behavior. We applied SCT as a theoretical framework to examine CFSW's condom use with FSW. We also focused on peer norms [46], as well as interpersonal as well as venue-level factors [47] to explain condom use behaviors among CFSW.

Methods

Recruitment and Selection Criteria

The research design for this cross-sectional study was previously reported [46, 47], and institutional review board (IRB)s from Johns Hopkins Bloomberg School of Public Health (JHSPH) and from West China School of Public Health (WCSPH) approved the protocol. Snowball sampling was used to recruit eligible respondents. The selection criteria included (1) male; (2) at least 18 years of age; (3) had provided money or valuable gifts in exchange for heterosexual intercourse at least once in the previous 12 months. After eligibility was determined and an oral informed consent was administered, a 30 min face-to-face structured interview was conducted in a private room by a trained male Chinese interviewer. All participants were paid 50 yuan (approximately 7 USD) for participation. Condoms were also provided if needed. From October to November 2008, 600 respondents from three cities in Sichuan Province, China were recruited.

Measures

The questionnaire included items on demographic characteristics and social cognitive factors [32–41]: HIV-related knowledge, self-efficacy, outcome expectation (with four subdimensions), severity expectation of HIV infection, perceived facilitators (with two subdimensions), and social/structural impediments (with three subdimensions). Factor analysis and reliability analysis [18] were both applied for the dimensions/subdimensions of social cognitive factors.

HIV-Related Knowledge

Five items were used to assess HIV-related knowledge. The questions were (1) "In order to prevent HIV, condoms should be put on before sexual intercourse;" (2) "HIV is transmitted only through blood;" (3) "Before using a condom, you need to check whether the condom has expired;" (4) "If not using a condom, genital cleaning after sex can prevent HIV;" (5) "An STI can be recognized through checking partners' genitals". Respondents received one point for each correctly answered question. The sum of the five question (range 0–5) represented respondents' HIV-related knowledge level. The median score was 3. We were curious as to whether the respondents who correctly

answered all the questions would use condoms consistently. HIV-related knowledge level was dichotomized as high (5 as full score) versus low (0–4).

Self-Efficacy

Two items assessed self-efficacy: (1) "I am sure that I could use condoms every time I have sex"; (2) "even when I am fully aroused (such as drunk or using drug), I am sure that I could use condoms every time I have sex" (Cronbach's Alpha = 0.89), range of 2–8, and the median was 5. The self-efficacy level was dichotomized as high (6–8) versus low score (2–5).

Outcome Expectations

This dimension focuses on the expected costs and benefits of consistent condom use. Two items were used to assess the personal pleasure reduction due to condom use: (1) "It is uncomfortable to use condoms;" (2) "Using condom greatly reduce sexual pleasure" (Cronbach's Alpha = 0.82), range of 2–8, and the median was 6. The personal pleasure reduction level was dichotomized as high (score 7–8) versus low (score 2–6). Perceived embarrassment: "I feel embarrassed carrying a condom". (3) Perceived condom efficacy: "Consistent condom use can effectively prevent HIV infection". (4) Perceived HIV susceptibility: "How much of a chance is there of getting HIV infection by having sex with FSW without a condom". The answer options were "cannot", "somewhat likely", "likely", and "very likely" dichotomized as high ("likely", and "very likely") versus low ("cannot" and "somewhat likely").

Severity Expectation for HIV Infection

Three individual items were taken to reflect respondents' severity expectation: (1) "AIDS is a severe disease"; (2) "My family would feel shame if I got AIDS"; (3) "Most people discriminate against HIV infected people" (Cronbach's Alpha = 0.67) range 3–12, and the median was 9. The severity expectation level was dichotomized as high (10–12) versus low (3–9). The response options for self-efficacy, personal pleasure reduction, perceived embarrassment, perceived condom efficacy and severity expectation for HIV Infection were ordinal: "strongly disagree", "disagree", "agree", and "strongly agree" (coded 1–4). The sum of the items was dichotomized as high versus low based on the cut point.

Perceived Facilitators

Access to condoms was measured by two questions. For one question "where do you usually get condoms?" the response options included: stores, clinics, center for disease control (CDC), FSW, and commercial sexual venues (venues). Numbers of sources were counted; the range was 0–5 with median 4. The item "It is easy to buy a condom" was asked to assess perceived accessibility of condoms with response categories of "strongly disagree", "disagree", "agree" and "strongly agree". Factor scores were drawn from the above two questions (Eigenvalue 1.19), and used as "covariates" into logistic regression analyses. Two individual items were used to assess venues influence on condom use (1) "Owners/managers say condoms must be used in their places"; (2) "Condoms were provided at their places" (Cronbach's Alpha = 0.60). The option responses were ordinal: "never", "rarely", "occasionally", "half of the time", "most of the time", or "every time" (coded 1–5). Sum of the two items ranged 0 (missing data were taken as 0) to 10, and the median was 4, and self-efficacy level was dichotomized as high (5–10) vs. low (0–4).

Social/Structural Impediments

Peer disapproval of condom use was based on the question "if my friends know that I use condoms when having sex with FSW, they will laugh at me". Perceived high cost for condom: was asked with the question "A condom is expensive". For these two questions responses were dichotomized as high ("strongly agree" and "agree") vs. low ("strongly disagree" and "disagree"). Intimate relationship with FSW is a barrier to condom use [10, 15–24]. Six items were used to assess intimate relationship with FSW: (1) "I feel I know about the FSW whom I have sex with"; (2) "I talk with FSW whom I have sex with about private issues"; (3) "I care about FSW whom I have sex with deeply in my heart"; (4) "I revisit a FSW whom I have visited before"; (5) "I feel that I fall in love with FSW with whom I have sex"; (6) "I would like to stay in a relationship with a FSW for more than one month" (Cronbach's Alpha = 0.66). The response options were "never", "rarely", "occasionally", "half of the time", "most of the time", or "every time" (coded 1–5), range 5–26, and the median was 9. Intimate relationship with FSW level was dichotomized as high (10–26) versus low (5–9).

Data Analysis

A total of 584 (97.3 %) respondents who reported that they had heard of HIV/AIDS were included in the current analyses. For univariate analysis, frequencies of nominal variables, range and median for ordinal and interval variables were assessed. The median was used as a cut point (median and below as "low", above to maximum as "high") for ordinal and interval variables (except HIV-related knowledge). The dependent variable "condom use" was dichotomized into consistent (always) versus inconsistent (less than always). T test and χ^2 tests were used to examine the relationships between consistent condom use and independent variables. Binary logistic regression was applied to examine factors associated with consistent condom use, including all social cognitive factors and demographic factors with $p < 0.10$ in bivariate analyses. Adjusted odds ratio (AOR) (95 % CI) were then modeled. Collinearity was checked in the models, and the results showed no collinearity. The partial correlation coefficients between influential factors for consistent condom use ranged from −0.20 to 0.24 (Table 1). Among these associations, the strongest positive association was between education and HIV-related knowledge, correlation coefficient was 0.24; therefore, the coefficient of determination [48] was $0.24 \times 0.24 = 0.0576$, which suggested that only 5.76 % of the total variation in HIV-related knowledge was explained by education. The strongest negative association was between age and education. The correlation coefficient was −0.202; the coefficient of determination was $(-0.202) \times (-0.202) = 0.0408$, indicating that only 4.08 % of the total variation in education level was explained by age. Because the prevalence of consistent condom use in this study was more than 10 %, and there were OR greater than 2.5 and less than 0.5, adjusted prevalence ratios (APR) were calculated based on the following formula [49].

$$\mathrm{PR} = \frac{\mathrm{OR}}{(1 - P_0) + (P_0 \times \mathrm{OR})}$$

P_{0} indicates the prevalence of consistent condom use which was 30.65 % in this study. Factors with APR greater than one were categorized as protective factors, less than 1 as risk factors for consistent condom use. In order to compare the effects of these factors contributing to consistent condom use, reciprocals of APR (RAPR) were calculated.

Results

Demographic Characteristics

Demographic characteristics are showed in Table 2; the median age was 37.24 (range 18–72). Most of respondents were Han ethnicity (95.55 %), had a local household registration (91.27 %), employed (79.45 %), less than a senior high school education (79.11 %), married (58.56 %), and a monthly income >1000 Chinese Yuan (∼USD 160) (60.62 %).

Consistent Condom Use and Demographic Factors

One hundred and seventy nine (30.65 %) respondents reported using condom consistently with FSW; 91.61 % primarily obtained condoms from sex venues, and 28.94 % obtained condoms from FSW. The average age of CFSW who used condoms consistently was 34.13 years old, which was younger than inconsistent users (38.62) ($p < 0.01$); 45.90 % of the CFSW who had senior high school or higher education used condoms consistently, which was higher than participants with a lower level of education (26.62 %) ($p < 0.01$) (Table 2). There were no statistical significant differences in condom use among CFSW by ethnicity, household registration, employment status, marital status, and monthly income ($p > 0.05$) (Table 2).

Consistent Condom Use and Related Social Cognitive Factors

In bivariate analysis, all social cognitive factors except perceived condom efficacy were related to consistent condom use ($p < 0.05$). In multivariate analysis, 7 of 12 social cognitive dimension or subdimensions were related with CFSW's consistent condom use. The greatest magnitude of a protective factor was self-efficacy (APR = 2.11, 95 % CI = 1.74–2.43), and the greatest risk factor was high personal pleasure reduction (APR = 0.3, 95 % CI = 0.15–0.6) (Table 3).

Discussion

Since heterosexual transmission has become the major route of HIV infection in China, more and more prevention programs have focused on FSW. It was reported that in

Table 1 Partial correlation coefficient matrix for factors influencing consistent condom use with FSW among CFSW from Sichuan China, 2008 (n = 584)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000													
2	−0.202**	1.000												
3	−0.091*	0.24**	1.000											
4	−0.035	−0.07	0.018	1.000										
5	0.067	0.016	−0.081	−0.015	1.000									
6	0.148**	−0.055	0.011	−0.013	0.038	1.000								
7	−0.001	0.03	0.05	0.139**	−0.048	−0.079	1.000							
8	0.094*	0.025	0.028	0.051	−0.058	−0.002	0.101*	1.000						
9	0.019	0.026	−0.016	0.046	0.145**	0.053	−0.003	0.07	1.000					
10	−0.084	0.036	0.032	0.082	0.166**	−0.051	0.108*	0.046	0.159**	1.000				
11	−0.118**	0.023	0.036	0.025	0.017	−0.035	−0.06	−0.055	−0.108*	0.043	1.000			
12	0.076	−0.113*	−0.017	0.001	0.075	0.097*	−0.083	−0.05	−0.035	0.001	0.019	1.000		
13	0.035	0.14**	0.055	−0.05	−0.011	−0.026	0.051	0.062	−0.005	0.054	0.065	0.029	1.000	
14	0.139**	−0.113*	−0.063	0.081	−0.029	0.078	−0.043	0.049	0.084	0.023	−0.037	0.058	0.077	1.000

CFSW male clients of female sex workers, *FSW* female sex workers

(1) Age (>38 vs. ≤38). (2) Education (senior high school and above vs. lower). (3) High HIV-related knowledge. (4) High self-efficacy. (5) High personal pleasure reduction. (6) Highly perceived embarrassment for carrying condom. (7) Highly perceived HIV susceptibility. (8) Highly perceived condom efficacy. (9) High perceived severity of HIV infection. (10) Easier access to condom. (11) High venues influence. (12) High peer disapproval of condom use. (13) High intimate relationship with FSW. (14) Highly perceived high cost for condom

* $p < 0.05$; ** $p < 0.01$

Table 2 Bivariate relationship between demographic characteristics and consistent condom use among CFSW from Sichuan China, 2008 (n = 584)

	Total (n = 584)	Condom use		t	χ^2	p
		Consistent (n = 179)	Inconsistent (n = 405)			
	Mean (SD)					
Age	37.24 (9.79)	34.13 (8.94)	38.62 (9.84)	5.23		<0.01
	No. (%)					
Han ethnicity						
Yes	558 (95.55)	171 (30.65)	387 (69.35)		0.00	1.00
No	26 (4.45)	8 (30.77)	18 (69.23)			
Local household registration						
Yes	533 (91.27)	161 (30.21)	372 (69.79)		0.57	0.45
No	51 (8.73)	18 (35.29)	33 (64.71)			
Employed						
Yes	464 (79.45)	144 (31.03)	320 (68.97)		0.06	0.81
No	96 (16.44)	31 (32.29)	65 (67.71)			
Senior high school education or higher						
Yes	122 (20.89)	56 (45.90)	66 (54.10)		16.88	<0.01
No	462 (79.11)	123 (26.62)	339 (73.38)			
Married						
Yes	342 (58.56)	112 (32.75)	230 (67.25)		1.71	0.19
No	242 (41.44)	67 (27.69)	175 (72.31)			
Monthly income >1000 Chinese Yuan (~USD 160)						
Yes	354 (60.62)	116 (32.77)	238 (67.23)		2.17	0.14
No	226 (38.70)	61 (26.99)	165 (73.01)			

CFSW male clients of female sex workers

2009, prevention programs covered 42.7 % of the estimated number of FSW in China, and increased to cover 53.4 % in 2010. However, condom use rates among CFSW was not mentioned in this governmental report. Similarly, health education and behavior interventions have been reported to be strengthened in China, but the contents of these programs are unclear [1].

Consistent condom use rate from the current study is comparable with studies among CFSW in mainland China ranging from 13.9 to 33.7 % [4, 7, 9, 28]. In this study, the consistent condom use rate in the past 12 months was 30.7 %. Younger and higher educated CFSW were more likely to use condoms consistently with FSW. Between 2000 and 2011, the proportion of the 65 years and older group in new reported HIV infection in China increased by 20 times. The reasons for this increase have not been well studied [1]. One of the explanations is that older men become infected through commercial sex, and bring HIV home to their wives or other non-commercial partners, similar to other bridge populations [9, 15–24].

HIV-related knowledge among CFSW in this study was also low. A common HIV prevention strategy is knowledge education [1, 9, 10, 19, 20, 29, 30]. However, knowledge education alone has not been successful to change behaviors [32]. In the current study, the HIV-related knowledge level was not independently related to consistent condom use in the multivariate model. Though previous studies have showed that CFSW's decisions about condom use are influenced by perceived HIV susceptibility [7, 14, 45, 46, 50], the perceived HIV susceptibility in this study was already high (83.05 %). Controlling other factors, perceived HIV susceptibility was not statistically significant ($p = 0.26$). The results also showed that perceived condom cost, condom efficacy, being embarrassed for carrying condoms were not associated with condom use with FSW. Additionally, CFSW reported easy access to condom. In contrast to the cost for buying sex, the cost of condom was relatively low, and some CFSW pay more for not using condoms when purchasing sex [9, 19, 20, 24, 45] and most of the respondents disagreed that condoms were expensive. The majority of respondents (93.15 %) had high perceived condom efficacy, which suggests that previous prevention programs in Sichuan probably had addressed condom use as a prevention strategy [1]; however, the HIV-related knowledge level was low. There may have been a lack of understanding about the details of effective condom use. It is likely that CFSW did not have sufficient information about condom efficacy [9, 19, 20] which may be why perceived condom efficacy did not affect condom use. Perceived embarrassment for carrying condom (72.1 %) was not a major barrier to consistent condom use. CFSW may have felt embarrassed to carry a condom, but as they

Table 3 Associations between social cognitive factors and consistent condom use with FSW among CFSW from Sichuan China, 2008, bivariate and multivariate analyses (n = 584)

	Higher value (%)	Consistent condom use					
		UAOR (95 % CI)	*p*	AOR (95 % CI)	*p*	APR (95 % CI)	RAPR (95 % CI)
Age (>38 vs. ≤38)	43.15	0.32 (0.22–0.47)	<0.01	0.45 (0.26–0.76)	<0.01	0.54 (0.34–0.82)	1.85 (1.22–2.97)
Education (senior high school and above vs. lower)	20.89	2.34 (1.55–3.53)	<0.01	1.87 (1.07–3.28)	0.03	1.48 (1.05–1.93)	–
Dimension							
Subdimensions							
High HIV-related knowledge	16.10	1.15 (1.05–1.25)	<0.01	1.04 (0.93–1.17)	0.45	–	–
High self-efficacy	44.52	4.3 (2.95–6.26)	<0.01	4.15 (2.59–6.65)	<0.01	2.11 (1.74–2.43)	–
Outcome expectation for condom use							
High personal pleasure reduction	17.12	0.31 (0.17–0.57)	<0.01	0.23 (0.11–0.51)	<0.01	0.3 (0.15–0.60)	3.33 (1.67–6.67)
Highly perceived embarrassment for carrying condoms	72.09	0.46 (0.31–0.68)	<0.01	0.62 (0.38–1.02)	0.06	–	–
Highly perceived HIV susceptibility	83.05	2.89 (1.56–5.37)	<0.01	1.56 (0.72–3.34)	0.26	–	–
Highly perceived condom efficacy	93.15	2.31 (0.87–6.14)	0.09	2.46 (0.69–8.85)	0.17	–	–
High perceived severity of HIV infection	41.44	1.43 (1.01–2.04)	0.049	1.69 (1.04–2.73)	0.03	1.39 (1.03–1.78)	–
Perceived facilitators							
Easier access to condoms	–	1.59 (1.31–1.93)	<0.01	1.59 (1.22–2.08)	<0.01	1.35 (1.14–1.56)	–
High venues influence	46.06	2.02 (1.41–2.88)	<0.01	2.22 (1.39–3.55)	<0.01	1.62 (1.24–1.99)	–
Social/structural impediments							
High peer disapproval of condom use	21.23	0.43 (0.26–0.71)	<0.01	0.48 (0.25–0.93)	0.03	0.57 (0.32–0.95)	1.75 (1.05–1.12)
High intimate relationship with FSW	45.38	0.58 (0.41–0.84)	<0.01	0.52 (0.32–0.83)	0.01	0.61 (0.4–0.88)	1.64 (1.14–2.5)
High perceived cost for condoms	13.36	0.52 (0.29–0.92)	0.03	0.56 (0.27–1.17)	0.12	–	–

CFSW male clients of female sex workers, *FSW* female sex workers, *CI* confidence interval, *UAOR* unadjusted odds ratio, *AOR* adjusted odds ratio, *APR* adjusted prevalence ratio, *RAPR* reciprocals of adjusted prevalence ratio

– not calculated

obtained condoms mainly from the sex venues (91.61 %); they did not need to carry condoms outside the venues.

Among the seven social cognitive dimension and subdimensions influencing CFSW's consistent condom use, the greatest determinant was personal pleasure reduction (APR = 0.3, 95 % CI = 0.15–0.6) as a barrier to using condoms. Its effect was greater than for self-efficacy (APR = 2.11, 95 % CI = 1.74–2.43). Self-efficacy has been considered as an important influence on behaviors [8, 10, 12, 16, 18, 32, 35, 37, 41, 46], in this study, on average, the effect was moderate. As observed in other populations, perceived personal pleasure reduction from condom use was negatively associated with using condoms consistently [9, 19, 20, 24, 45]. Severity expectations for HIV infection in this study was high. Severity expectations of HIV infection, as has been found in other studies, was associated with greater condom use among CFSW [33–37]. Greater knowledge may have led to higher perceived severity of HIV infection [9, 10, 19, 20, 29, 30]. Through increasing the severity expectations of HIV infection, HIV-related knowledge may be able to influence condom use.

Among social environment factors, peer disapproval of condom use was a highly significant risk factor as was high intimate relationship with FSW. High venue influence and high access to condoms were protective factors. Peer pressure may not only imped CFSW from using condoms consistently, but also facilitate their visits to FSW [4–9, 46, 50]. Besides fulfilling sexual needs, seeking emotional

support was another reason for visiting FSW [9, 16, 18, 19, 50]. However, although CFSW reported on average that they were not emotionally close with FSW), which is similar to what has been found in other studies [9, 16, 18, 19, 50], high intimate relationship with FSW was a risk factor for lack of consistent condom use. CFSW's condom use decisions were also influenced by condom policy and availability at sex venues [9, 14, 45, 50]. In this study, venue influence was moderate and associated with consistent condom use among CFSW (APR = 1.62, 95 % CI = 1.24–1.99). As found in prior studies easier access to condoms was linked to increased consistent condom use [14, 29–31, 45].

Use of SCT in the current study provides a new perspective [4–9] to understand CFSW's consistent condom use behaviors in China. The roles of HIV-related knowledge, self-efficacy, outcome expectation, severity expectation of HIV infection, perceived facilitators, and social/structural impediments were examined in detail. Based on the study findings, in the future intervention programs, greater focus should be placed on older CFSW. Programs should include venues owners/managers for condom use promotion [30, 47, 51]. Both condom quality and quantity should be ensured [11, 26–31]. Condoms that do not reduce personal pleasure [52] should be available at venues, and information should be provided on how to increase pleasure with condoms. A 100 % condom use policy should be encouraged at venues [11]. Peer education [53] among CFSW could focus on a few goals. The first is to increase HIV-related knowledge of HIV infection severity and how to increase personal pleasure with condom use. Another goal is to alter the current peer norms against condom use [4–9] by forming 'no condom no sex' norms and alter the norm that condom use militates against intimate relationships. Condom use self-efficacy among CFSW also should be improved and strengthened [8, 10, 12, 16, 18, 32, 35, 37, 41–46].

The limitations of the current study should be noted including a cross-sectional study design and self-reports. Face-to-face interviews may heighten social desirable responses. Snowball sampling may limit the external validity. As the recruiters did not collect any information about potential participants, participation rates could not be calculated. However, this study is one of the few studies of CFSW, and many of the findings are consistent with other studies. Future research should not only examine risk behaviors of CFSW but also include multilevel analyses of CSW dyads, venue level factors, as well as local and national polices on HIV prevention for CSW and their clients.

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