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Condom Use during Commercial Sex among Male Clients of Female Sex Workers in Sichuan China: A social cognitive theory analysis

Yi Yang^{a,b}, Cui Yang^c, Carl Latkin^d, Rongsheng Luan^e, and Kenrad E Nelson^f

^aDepartment of Social Medicine and Health Administration, School of Administration, Chengdu University of Traditional Chinese Medicine, 1166 Liutai Avenue, Wenjiang District, Chengdu, China, 611137, thehanyang@163.com

^bDepartment of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, 2213 McElderry St. 2nd FL, Baltimore, MD 21205, yyang96@jhu.edu

^c Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, 2213 McElderry St. 2nd FL, Baltimore, MD 21205, cyang29@jhu.edu

^d Department of Health, Behavior and Society, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, 624 North Broadway, Baltimore, Maryland 21205, 410-955-3972

^eDepartment of Epidemiology and Biostatistics, West China School of Public Health, Sichuan University, Chengdu, Sichuan Province, China, 610041, luan_rs@scu.edu.cn

^fDepartment of Epidemiology, Johns Hopkins Bloomberg School of Public Health, 615 N Wolfe St, E7638, Baltimore, MD 21205, knelson3@jhu.edu

Abstract

There has been very 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 (SCT) to understanding condom use behavior during commercial sex among 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, 7 of 12 social cognitive dimensions/sub-dimensions were significantly influential. The most significant protective and risk factors were self-efficacy (APR: 2.11, 95%CI: 1.74-2.43) and high personal pleasure reduction (APR: 0.3, 95%CI: 0.15-0.6). HIV-related knowledge, perceived HIV susceptibility, condom cost, condom efficacy, and embarrassment for carrying condom were not associated with 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 could focus on both knowledge education and

peer norms, and knowledge education should include information on HIV infection severity, and address how to increase pleasure with condom use.

Keywords

male clients; commercial sex; social cognitive theory; condom use; HIV; China

INTRODUCTION

Since 2007, the human immunodeficiency virus (HIV)/ acquired immunodeficiency syndrome (AIDS) 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% men from Hong Kong and 4.2% to 10.0% men from mainland China have been reported to patronizing FSW in the past 12 months ^[4-9]. The level of consistent condom use by FSW is not high (13.9% to 33.7%). Several studies report that the major barrier is “refusal by clients”. Sexually transmitted infections (STIs) are also common (14%-73.2%) ^[10-14], and HIV prevalence among FSW from some areas of Yunnan and Sichuan province is over 1%, much higher than the general population (0.058%) ^[1]. Male clients of FSW (CFSW) had been considered as “bridge population” who may transmit HIV from high risk group (FSW) to general population (noncommercial sexual partners of CFSW) ^[9, 15-24].

Consistent condom use is highly effective in preventing sexual transmitted HIV ^[25-27]. To improve condom use among FSW and CFSW, availability of condoms is critical ^[28-31]. Health educations 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 influencing condom use. Social cognitive theory (SCT) had been widely applied ^[38-40] in HIV prevention ^[32, 35, 41-44]. For example, Wulfert and Wan (1995) examined heterosexual sexual risk taking behaviors from a social cognitive perspective ^[42]. Ford, et al (1996) applied SCT to assessing a 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 of people and their environments which include family, friends, health professionals and others, and the psychosocial determinants of health behavior ^[35]. 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 and related influential factors. We applied SCT as a theoretical framework to examine CFSW's condom use with FSW. We also focused on peer norms ^[46], and interpersonal and venue-level factors ^[47] to explain condom use behavior among CFSW.

METHODS

Recruitment and Selection Criteria

The research design for this cross-sectional study were previously reported [46, 47], and both 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) have given 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 minute 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 the participation. Condoms were also provided if needed. From October to November 2008, 600 respondents from 3 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 sub-dimensions), high severity expectation of HIV infection, perceived facilitators (with two sub dimensions), and social/structural impediments (with three sub dimensions). Factor analysis and reliability analysis [18] were both applied for the dimensions/sub-dimensions of social cognitive factors.

HIV-Related Knowledge—Five individual items were used to test the HIV-related knowledge level of respondents. The questions were 1) “In order to prevent HIV, condom 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 is expired or not”; 4) “If not using a condom, genital cleaning after sex could still prevent HIV”; 5) “STI could be recognized through checking partners’ genital appearance”. Respondents got one score for each correctly answered question. The sum of the five question (range: 0-5) represent respondents’ HIV-related knowledge level. The median score was 3. We were curious about whether the ones who correctly answered all the questions would use condom consistently. HIV-related knowledge level was dichotomized as high (5 as full score) vs. low (score 0-4).

Self-Efficacy—Two items assessed self-efficacy: 1) “I am sure that I could use condom 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 condom every time I have sex” (Cranach's Alpha 0.89). Sum of the two items ranged 2 to 8, and the median was 5. The self-efficacy level was dichotomized as high (score 6-8) vs. low (score 2-5)

Outcome Expectations—This dimension focuses about the expected costs and benefits of consistent condom use. (1) **Personal Pleasure Reduction**: 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” (Cranach's Alpha 0.82). Sum of the two items ranged 2 to 8, and the median was 6. The personal pleasure reduction level was

dichotomized as high (score 7-8) vs. low (score 2-6). **(2) Perceived Embarrassment:** item “I feel embarrassed carrying a condom”. **(3) Perceived Condom Efficacy:** “Consistent condom use could prevent HIV infection effectively”. **(4) Perceived HIV Susceptibility:** Respondents were asked “how much do you think is the chance to get HIV infection if having sex with FSW without a condom”. The answer options are “cannot”, “somewhat likely”, “likely”, and “most likely” dichotomized as high (“likely”, and “most likely”) vs. 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 shamed if I got AIDS”; 3) “Most people discriminate HIV infected people” (Cronbach’s Alpha 0.67). Sum of the two items ranged 3 to 12, and the median was 9, so that severity expectation level was dichotomized as high (score 10-12) vs. low (score 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). Sum of the items was dichotomized as high vs. low based on the cut point.

Perceived Facilitators—**(1) Access to Condom:** access to condom was measured by two questions. One question “where do you usually get condoms” was asked to find out the sources of condoms, the response options include: 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. “It is easy to buy a condom” was asked to assess perceived accessibility to condom with responses as “strongly disagree”, “disagree”, “agree” and “strongly agree”. Factor scores were drawn from the above two questions (Eigenvalue 1.19), and taken as “covariate” into logistic regression analyses. **(2) Venues influence:** Two individual items were used to assess venues influence on condom use 1) “Owners/managers say condom must be used in their places”; 2) “Condom was 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, so that self-efficacy level was dichotomized as high (score 5-10) vs. low (score 0-4).

Social/Structural Impediments—**(1) Peer Disapproval against Condom Use:** The question “if my friends know that I use condom when having sex with FSW, they will laugh at me” reflects peer disapproval of condom use. **(2) Perceived high cost for condom:** was asked with the question “A condom is expensive”. For these two questions “agree” and “strongly agree” responses were dichotomized as high vs. low (“strongly disagree” and “disagree”). **(3) Intimate Relationship with FSW:** Intimate relationships with FSW are found out as barrier of condom use^[10,15-24], six individual 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 visit before”; 5) “I feel that I fall in love with FSW who I have sex with”; 6) “I would like to stay in a relationship with a FSW for more than one month” (Cronbach’s Alpha 0.66). 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 six items ranged 5 to 26, and the median was 9, so that intimate relationship with FSW level was dichotomized as high (score 10-26) vs. low (score 5-9).

Data analysis

A total of 584(97.3%) 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) vs. inconsistent(less than always). T-test and chi-square tests were used to examine the relationships between consistent condom use and interval variables and binary variables. Logistic regression was conducted for bivariate analysis, unadjusted odds ratio (UAOR) (95% confidence interval, 95% CI) was obtained for each dimension or sub-dimension of social cognitive factors. 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 (table1). Among these associations, the strongest positive association was between education (senior high school and above vs. lower) and HIV-related knowledge (high vs. low), correlation coefficient was 0.24 ; therefore, the coefficient of determination ^[48] was $0.24 * 0.24 = 0.0576$, 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 (>38 vs. ≤ 38) and education (senior high school and above vs. lower), correlation coefficient was -0.202 ; the coefficient of determination was $(-0.202) * (-0.202) = 0.0408$, indicating that only 4.08% of the total variation in education level was explained by age, with age increasing, the education level decreased. Because the prevalence of consistent condom use in this study was more than 10%, and there were OR more than 2.5 and less than 0.5, adjusted prevalence ratio (APR) was calculated based on the following formula ^[49]

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

P_0 indicates the prevalence of consistent condom use which was 30.65% in this study, OR is the AOR. APR and 95% CI were obtained. 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 table2; the median age was 37.24 with 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

179(30.65%) respondents reported using condom consistently with FSW, and 91.61% of respondents primarily obtained condoms from the sex venues, and 28.94% obtained condoms from FSW. The average age of CFSW who used condom 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 condom consistently, which was higher than participants with a lower level of education (26.62%) ($p < 0.01$) (table2). There were no statistical significant differences of condom use during commercial sex among CFSW by ethnicities, household registrations, employments, marital statuses, and monthly incomes ($p > 0.05$) (table2).

Consistent Condom Use and Related Social Cognitive Factors

In bivariate analysis, all social cognitive factors except perceived condom efficacy were related with consistent condom use ($p < 0.05$). In multivariate analysis, 7 of 12 social cognitive dimension or sub-dimensions were related with CFSW's consistent condom use. The largest magnitude of a protective factor was self-efficacy (APR: 2.11, 95%CI: 1.74-2.43), and the riskiest factor was high personal pleasure reduction (APR: 0.3, 95%CI: 0.15-0.6) (table3).

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 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 rate among CFSW was not mentioned in the same 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 that have reported consistent condom use rate among CFSW in mainland China ranging from 13.9% to 33.7% ^[4, 7, 9, 28]. In this study, the overall consistent condom use rate in the past 12 months was 30.65%. Younger and higher educated CFSW were more likely to use condom consistently with FSW than older and less educated participants. Between 2000 and 2011, the proportion of the 65 years and older group in new reported HIV infection in China increased by 20 times, and the reasons for this increase have not been well researched ^[1].

One of the explanations is that older men become infected through commercial sex, and bring HIV home to their wives or non-commercial partners, similar to other bridge populations [9, 15-24].

HIV-related knowledge among CFSW in this study was also low (3 as median with 5 as the highest possibility). 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 behavior [32]. In the current study, HIV-related knowledge level was not independently related with consistent condom use in the multivariate model. Though studies showed that CFSW's decisions of condom use were influenced by perceived HIV susceptibility [7, 14, 45, 46, 50], the proportion of perceived HIV susceptibility in this study was already high (83.05%), controlling other factors, perceived HIV susceptibility was not statistically significant in this study ($p=0.26$). The results also showed that perceived condom cost, condom efficacy, being embarrassed for carrying condom were not associated with condom uses with FSW. In this study, CFSW reported easy access to condom (4 as median source of condom with 5 as the highest possibility). In contrast to the cost for buying sex, the cost of condom was relatively low, some CFSW pay more for non-condom use when buying sex [9, 19, 20, 24, 45], most of the respondents in this study disagreed that condoms are expensive. Their consistent condom use was not influenced by perceived condom cost. Most of the respondents (93.15%) had high perceived condom efficacy, which implied previous prevention programs in Sichuan probably had been addressing condom use as an important prevention strategy [1]; however, the HIV-related knowledge level reflected by 5 questions, among which 3 were related with condom, 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. Under the background of easy access to condoms, perceived embarrassment for carrying condom (72.09%) was not a barrier against consistent condom use. Theoretically, CFSW may have felt embarrassed to carry a condom, but in reality they obtained condoms mainly from the venues (91.61%); hence, they did not need to carry a condom outside venues, and consistent condom use was not related with the embarrassment.

Among the seven social cognitive dimension or sub-dimensions influencing CFSW's consistent condom use, the most significant psychosocial determinant was personal pleasure reduction (APR: 0.3, 95%CI: 0.15-0.6) as a barrier to use 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 psychosocial determinant influencing individual behaviors [8, 10, 12, 16, 18, 32, 35, 37, 41, 46], but in this study, on average, the effect was moderate (5 as median comparing with 8 as the highest possibility). As observed in other populations, perceived personal pleasure reduction from condom use was negatively associated with using condom consistently [9, 19, 20, 24, 45]. Severity expectation for HIV infection in this study was high (9 as median with 12 as the highest possibility). Severity expectation of HIV infection was associated with greater condom use among CFSW [33-37] in this study (APR: 1.39, 95%CI: 1.03-1.78) [46]. Greater knowledge may have led to higher perceived severity of HIV infection [9, 10, 19, 20, 29, 30]. Through increasing the severity

expectation of HIV infection, HIV-related knowledge may be able to influence consistent condom use.

Among social environment factors, peer disapproval of condom use was a highly significant risk factor (APR: 0.57, 95%CI: 0.32-0.95) as was high intimate relationship with FSW (APR: 0.61, 95%CI: 0.4-0.88). High venues influence and high access to condom were protective factors. Peer pressure not only impeded CFSW from using condom consistently, but also facilitated their visits to FSW [4-9, 46, 50]. Besides fulfilling sexual need, seeking for emotional support is another reason for visiting FSW [9, 16, 18, 19, 50]. However, although CFSW reported that they were not emotionally close with FSW (9 as median with 30 as the highest possibility), similar as in other studies [9, 16, 18, 19, 50], high intimate relationship with FSW was a risk factor for lack of consistent condom use in this study. CFSW's condom use decisions were also influenced by condom policy and availability at sexual venues [9, 14, 45, 50]. In this study, venue influence was moderate (4 as median with 8 as the highest possibility), and associated with increase condom use among CFSW (APR: 1.62, 95%CI: 1.24-1.99). Both theoretically and in reality, easier access to condom (APR: 1.35, 95%CI: 1.14-1.56) was linked to increase consistent condom use [14, 29-31, 45].

Use of SCT in the current study provides a new perspective [4-9] in understanding CFSW's consistent condom use behavior and related influential factors 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 program, greater focus should be on older CFSW. Programs should include venues owners/managers as cooperators for condom use promotion [30, 47, 51]. Both quality and quantity should be ensured for condom access [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 condom use. A 100% condom use policy should be encouraged at venues [11]. Peer education [53] among CFSW could be applied focusing on a few goals. The first is to improve HIV-related knowledge including HIV infection severity and address personal pleasure with condom use. Another goal is to address the current peer norms against condom use [4-9], to form 'no condom no sex' norms, and alter the norm that condom use militates against intimate relationships. Self-efficacy among CFSW should be continuously 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, and based on self-reports. Face-to-face interview may heighten social desirable responses. Snowball sampling may limit the external validity, and limited the generalization of findings. As the recruiters did not collect any information about potential participants and individuals who volunteered for the study came for the interviews at a separate location, 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, which bolsters the validity of the findings. 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 policies on HIV prevention for CSW and their clients.

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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	-.020**	1.000												
3	-.091*	.24**	1.000											
4	-.035	-.07	.018	1.000										
5	.067	.016	-.081	-.015	1.000									
6	.148**	-.055	.011	-.013	.038	1.000								
7	-.001	.03	.05	.139**	-.048	-.079	1.000							
8	.094*	.025	.028	.051	-.058	-.002	.101*	1.000						
9	.019	.026	-.016	.046	.145**	.053	-.003	.07	1.000					
10	-.084	.036	.032	.082	.166**	-.051	.108*	.046	.159**	1.000				
11	-.118**	.023	.036	.025	.017	-.035	-.06	-.055	-.108*	.043	1.000			
12	.076	-.113*	-.017	.001	.075	.097*	-.083	-.05	-.035	.001	.019	1.000		
13	.035	.14**	.055	-.05	-.011	-.026	.051	.062	-.005	.054	.065	.029	1.000	
14	.139**	-.113*	-.063	.081	-.029	.078	-.043	.049	.084	.023	-.037	.058	.077	1.000

Note: CFSW: male clients of female sexual workers; FSW: female sexual 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)

		Condom use			t	χ^2	p
		total (n=584)	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)			

Note: CFSW: male clients of female sexual workers

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	Sub-dimensions							
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 condom	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 condom	-	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)
	Highly perceived high cost for condom	13.36	0.52(0.29-0.92)	0.03	0.56(0.27-1.17)	0.12	-	-

Note: CFSW: male clients of female sexual workers; FSW: female sexual workers; CI: confidence interval; UAOR: unadjusted odds ratio; AOR: adjusted odds ratio; APR: adjusted prevalence ratio; RAPR: reciprocals of adjusted prevalence ratio.

-: not calculated.