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Does the use of HIV testing and counseling services influence condom use among low-paid female sex workers in Guangxi, China?

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Abstract

HIV testing and counseling (HTC) are increasingly used in China during routine medical care visits to health facilities. However, limited data are available regarding the association between the utilization of HTC services and condom use among low-paid female sex workers (FSWs) who are at high risk of HIV infection but are hard to reach. A cross-sectional study was conducted among 794 low-paid FSWs in a city of Guangxi Zhuang Autonomous Region in 2011. Results showed that 71.7% of low-paid FSWs had utilized HTC services in the previous year and 65.7% reported having used a condom during the last sexual intercourse with their clients. Multivariate logistic regression analysis showed that utilizing HTC services was significantly and positively associated with the condom use. It also indicated that low-paid FSWs who were older, married, had higher education, earned less money, had high number of clients, had a history of STD, or had little or no HIV knowledge were less likely to use a condom during the last sexual encounter. The study

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suggests that HTC services need to be scaled up and made more accessible for this vulnerable population.

Keywords

HIV testing and counseling (HTC); Female sex worker; Condom use; China

Introduction

The importance of HIV testing and counseling (HTC) in HIV-related risk reduction behavior has been discussed in several previous studies (Brick, 2013; Denison, OReilly, Schmid, Kenedy, & Sweat, 2008). The results for FSWs are however mixed, ranging from positive association between HTC and the condom use in Gambia (Grosso et al., 2015) and among Filipina FSWs in southern Philippines (Chiao, Morisky, Ksobiech, & Malow, 2009) to no association among FSWs in Senegal where having HIV test was negatively associated with condom use with regular partners (Wang et al., 2007). Limited data are available regarding the linkage of HIV testing practices and condom use among low-paid FSWs in China.

Commencial sex venues in China are categorized into three tiers: high-tier venues (e.g., karaoke bars, or hotels); middle-tier venues (e.g., hair salons or barber shops, massage parlors, foot bathing shops, roadside shops, guesthouses, or roadside restaurants) and low-tier venues (e.g, street, or other public outdoor places) (Chen, Liang, et al., 2012). In general, FSWs working in the low-tier commercial venues receive low payments (Huang, Henderson, Pan, & Cohen, 2004). A recent study show that FSWs in low-tier venues had a higher prevalence of HIV (1.37%) than FSWs in middle-tier venues (0.28%) and high-tier venues (0.07%) (Chen, Liang, et al., 2012). A review indicated that the consistent condom use with clients among FSWs was 63.2% in China (Chow et al., 2015) although no results were shown by type of venues. The current study aims to fill this gap by examining the association between utilization of HTC services and condom use among low-paid FSWs in a high HIV prevalence setting in China.

Methods

Participants and data collection

Data used in this study come from a survey conducted in Beihai city of Guangxi Zhuang Autonomous Region from January to December in 2011. The sampling and recruitment processes of respondents have been described elsewhere (Zhang et al., 2012). In brief, low-cost venues including roadside restaurants, mini-hotels, hair salons, foot-massage salons, streets, and karaoke/night clubs were mapped ethnographically by the local research team. Permission for the study was sought and granted by owners or gatekeepers of 76 venues. Eligible FSWs working in these venues were recruited by trained health workers from the local Center for Disease Control and Prevention (CDC) using convenience sampling. The refusal rate was 30%. Participants were informed about the purpose of the study, potential benefits, risks and confidentiality. Self-administered questionnaires were completed by 794 FSWs who agreed to participate voluntarily and provided a written informed consent. The

final sample size for the present analyses was 766. The protocol of this study was approved by the institutional Review Board of Guangxi CDC.

Measures

Utilization of HTC services.—The utilization of HTC services was measured through a question with no/yes response: “Have you used the HTC service in the year prior to the survey?”

Condom use.—Participants were asked: “Did you use a condom during the last sexual intercourse with your client?” The response option was yes/no. Condoms in this study were defined either male or female condoms.

HIV knowledge.—HIV knowledge was assessed using eight items including knowledge on possible transmission routes on non-transmission routes such as having meals together, mosquito bites, and on HIV prevention (e.g., consistent condom use, having only one HIV negative infected sexual partner). FSWs were also asked if a person can be identified as HIV + by his/her appearance. The response option for each item was 1=possible or 0=impossible. These responses were coded as “1” if it is a correct answer otherwise coded as “0”. The sum of the correct answers to these eight items was used as a composite index ranging from 0 to 8 with a higher score indicating a higher level of HIV knowledge. These eight items had an adequate reliability (Cronbach’s alpha=0.79).

History of STDs and drug use.—Participants were asked about their history of STDs: “Have you ever had any diagnosed sexually transmitted disease in the previous year?” and drug use: “Have you ever used any drugs (e.g., opioids, injectable drugs, methyl amphetamine, ketamine, methamphetamine, others)?” with the response option of yes/no.

Statistical analysis

Multivariate logistic regression analysis was employed to examine the association between utilization of HTC (independent variable) and condom use (dependent variable) after controlling for other relevant factors. The relevant variables with p-value less than 0.05 in the bivariate analysis were included in the regression (age, marital status, level of education, monthly income, number of clients in the previous work-day, HIV knowledge, and STD history). In addition, we considered a number of variables included in other studies which are shown to reinforce or weaken the association between use of HTC services and the condom use (e.g. drug use). Adjusted odds ratio (OR) and their 95% confidence intervals (95% C.I.) were calculated.

Results

Table 1 shows the socio-demographic background characteristics and Table 2 shows the use of the condom by these characteristics.

Of the 766 participants, 71.7% reported having utilized HTC services in the year prior to the survey. FSWs who were older, who were currently married, who earned more money, and who had high level of HIV knowledge were more likely to utilize HTC services.

About 64.8% of FSWs reported using a condom during the last sexual intercourse with their clients. Multivariate analysis (Table 3) showed that after controlling for other factors, utilization of HTC services is significantly associated with condom use (OR = 1.701, 95% CI: 1.136~2.545). Results also showed that condom use with a client was significantly associated with age (OR = 0.948, 95% CI: 0.925~0.973), marital status (OR = 0.642, 95% CI: 0.426~0.966), education (OR = 0.721, 95% CI: 0.535~0.972), income (OR = 1.510, 95% CI: 1.214~1.879), the number of clients in the previous work-day (OR = 0.729, 95% CI: 0.653~0.815), a history of STDs (OR = 0.543, 95% CI: 0.324~0.908), and HIV knowledge (OR = 1.215, 95% CI: 1.108~1.333).

Discussion

Our results indicate that the utilization of HTC service was significantly and positively associated with the condom use among low-paid FSWs in China. We found that over 35% of low-paid FSWs did not use a condom during the last sex with a client. Older FSWs are less likely to use the condom compared to younger FSWs. This may be because of: (1) poor knowledge of HIV transmission; (2) perception that the condom is only for pregnancy prevention, or (3) they may feel embarrassed to use a condom. They may also lack self-efficacy to condom use with a client. Future research is needed to explore the barriers to use of the condoms by married and older FSWs. Most existing HIV/AIDS prevention programs mainly target young and unmarried people to promote condom use. This division in the focus (married vs. unmarried) and on the method (IUDs vs. the condoms) by different programs ignores the need for dual protection for groups that cross-over (for example, married FSWs). The Chinese gender-specific cultural norms on issues of control and authority in sex and condom use may also influence more the older than the younger FSWs (Tang, Wong, & Lee, 2001; Yang, Xia, Li, Latkin, & Celentano, 2010). Although older and married FSWs were more likely have accessed HTC, the quality of the counseling for them may be poor. Future HIV intervention programs need to promote condom use and to pay more attention to older and married low-paid FSWs.

There were some potential limitations in this study. First, the study used a convenient sample which may result in selection bias with some FSWs who had STDs or HIV infection refusing to participate in the survey. In addition, FSWs not tested for STDs may give incorrect answers. In future studies, a question regarding whether FSWs had tested for STDs need to be added before asking their STD status. Second, data used in this study were collected through self-reports and, therefore, recall bias may exist. Third, as this study is based on cross-sectional data, a causal relationship between utilization of HTC service and condom use could not be established.

Despite these potential limitations, the current study provides critical information about the role of HTC in prevention behavior through use of the condom among low-paid FSWs in China. The findings have several implications for the HIV prevention programs among low-paid FSWs in China. First, expanding access to HTC services among low-paid FSWs, particularly among the older and married FSWs is urgently needed. HIV prevention program need to be integrated with the family planning programs that need to adapt its focus to promote a consistent and correct use of the condom. Second, to increase the HTC uptake

among low-paid FSWs, the evaluation of accessibility and acceptability of HTC service to FSWs is needed. Data for the evaluation from both FSWs and HTC providers can provide a more complete picture of HTC services in China, including barriers to its access. Third, most low-paid FSWs are poor and may compromise their health for the sake of money by not negotiating condom use with the client. Information and counselling to impart self-efficacy and empowerment are urgently needed. To increase the number of low-paid FSWs accessing free condoms, HIV prevention programs need to enhance their efforts to reach low-tier venues. Combining with venue-based intervention, health care providers in both governmental and non-governmental health care settings at all levels need to provide free condoms to low-paid FSWs after the HTC services.

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Table 1

Sociodemographic characteristics and HIV related factors, by the use of HTC services

		Utilization of HTC service, n (%)		
Variables	**Total (%)**	**no**	**Yes**	**p-value**
N	766	216 (28.3)	548 (71.7)	
Age, mean (SD)	31.89 (8.29)	30.82 (8.45)	32.31 (8.18) *	0.026
Ethnicity				
Minority	114 (14.9)	39 (34.5)	74 (65.5)	0.110
Han	652 (85.1)	177 (27.2)	474 (72.8)	
Residence of origin				
Within the province	227 (29.8)	65 (28.6)	162 (71.4)	0.932
Out of the province	535 (70.2)	151 (28.3)	382 (71.7)	
Marital status				
Single/divorced/widowed	304 (39.8)	104 (34.4)	198 (65.6) **	0.003
Married	460 (60.2)	112 (24.3)	348 (75.7)	
Education				
≤ No schooling	59 (7.7)	21 (35.6)	38 (64.4)	0.395
Elementary school	259 (33.8)	69 (26.7)	189 (73.3)	
≥ Middle school	448 (58.5)	126 (28.2)	321 (71.8)	
Monthly income (Yuan)				
< 999	200 (26.1)	87 (43.9)	111 (56.1) ***	0.000
> 1000	331 (43.2)	74 (22.4)	257 (77.6)	
> 2000	139 (18.1)	37 (26.6)	102 (73.4)	
≥ 3000	96 (12.5)	18 (18.8)	78 (81.3)	
Number of clients in the previous work-day				
0	68 (8.9)	38 (55.9)	30 (44.1) ***	0.000
1	91 (11.9)	20 (22.0)	71 (78.0)	
2	121 (15.8)	31 (25.6)	90 (74.4)	
3	160 (20.9)	48 (30.2)	111 (69.8)	
4	89 (11.6)	25 (28.1)	64 (71.9)	
5	152 (19.9)	39 (25.7)	113 (74.3)	
≥6	84 (11.0)	15 (8.1)	68 (81.9)	
Drug use				
No	710 (97.4)	198 (27.9)	511 (72.1)	0.176
Yes	19 (2.6)	8 (42.1)	11 (57.9)	
A history of STD				
No	683 (89.2)	195 (28.6)	486 (71.4)	0.524
Yes	83 (10.8)	21 (25.3)	62 (74.7)	
HIV knowledge, mean (SD)	4.85 (2.20)	3.87 (2.58)	5.26 (1.87) ***	0.000

* p<0.05

** p<0.01

*** p<0.001.

Table 2

Sociodemographic characteristics and HIV related factors, by condom use during the last sexual intercourse with a client

	Condom use in the last sex, n (%)		
Variables	**Not used**	**Used**	**p-value**
N (%)	267 (35.2)	492 (64.8)	
Age, mean (SD)	33.86 (8.14)	30.84 (8.18) ***	0.000
Ethnicity			
Minority	44 (38.6)	70 (61.4)	0.407
Han	223 (34.6)	422 (65.4)	
Residence of origin			
Within the province	74 (33.0)	150 (67.0)	0.451
Out of the province	191 (35.9)	341 (64.1)	
Marital status			
Single/divorced/widowed	84 (28.0)	216 (72.0) **	0.001
Married	182 (39.8)	275 (60.2)	
Education			
≤ Primary school	21 (35.6)	38 (64.4) *	0.039
Elementary school	107 (41.5)	151 (58.5)	
≥ Middle school	139 (31.4)	303 (68.6)	
Monthly income (Yuan)			
< 999	76 (38.4)	122 (61.6) ***	0.000
> 1000	140 (42.8)	187 (57.2)	
> 2000	35 (25.4)	103 (74.6)	
≥ 3000	16 (16.7)	80 (83.3)	
Number of clients in the previous work-day			
0	38 (55.9)	30 (44.1) ***	0.000
1	20 (22.0)	71 (78.0)	
2	31 (25.6)	90 (74.4)	
3	73 (45.9)	86 (54.1)	
4	43 (48.9)	45 (51.1)	
5	58 (38.7)	92 (61.3)	
≥6	36 (43.9)	46 (56.1)	
Drug use			
No	229 (32.5)	475 (67.5)	0.692
Yes	7 (36.8)	12 (63.2)	
A history of STD			
No	230 (33.9)	449 (66.1) *	0.028
Yes	37 (46.2)	43 (53.8)	
HIV knowledge, mean (SD)	3.91 (2.69)	5.37 (1.66) ***	0.000
Utilization of HTC service			

	Condom use in the last sex, n (%)		
Variables	**Not used**	**Used**	**p-value**
No	95 (44.2)	120 (55.8) **	0.001
Yes	171 (31.5)	371 (68.5)	

* p<0.05

** p<0.01

*** p<0.001.

Table 3

Multivariate logistic regression analysis of condom use during the last sex

	B	S.E.	Sig.	OR	95% C.I.	
					Lower	Upper
Age	−0.053	0.013	0.000***	0.948	0.925	0.973
Marital Status (r: Single)	−0.443	0.209	0.034*	0.642	0.426	0.966
Education	−0.327	0.152	0.032*	0.721	0.535	0.972
Income	0.412	0.111	0.000***	1.510	1.214	1.879
Number of clients	−0.315	0.056	0.000***	0.729	0.653	0.815
Drug use (r: not use)	0.171	0.577	0.767	1.187	0.383	3.678
A history of STD (r: No history)	−0.612	0.263	0.020*	0.543	0.324	0.908
HIV knowledge	0.195	0.047	0.000***	1.215	1.108	1.333
Utilization of HTC service (r: no use)	0.531	0.206	0.010**	1.701	1.136	2.545

Note. r: reference group.

* p<0.05

** p<0.01

*** p<0.001.