Published in final edited form as:

AIDS Care. 2011 March ; 23(3): 348–356. doi:10.1080/09540121.2010.507744.

HIV Awareness and Condom Use among Female Sex Workers in Afghanistan: Implications for Intervention

Catherine S. Todd¹, Abdul Nasir², Mohammad R. Stanekzai², Paul T. Scott³, Nicole C. Close⁴, Boulos A. Botros⁵, Steffanie A. Strathdee⁶, Jeffrey Tjaden⁵

¹Department of Obstetrics & Gynecology, Columbia University, New York, New York ²International Rescue Committee, Kabul, Afghanistan ³U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Rockville, Maryland ⁴Empiristat Corporation, Mount Airy, Maryland ⁵U.S. Naval Military Research Unit 3, Cairo, Egypt ⁶Division of International Health & Cross-cultural Medicine, University of California, San Diego, La Jolla, California

Abstract

There is little information about HIV awareness or condom use among female sex workers (FSWs) in Afghanistan. The purpose of this cross-sectional study was to assess HIV awareness and knowledge and condom use among FSWs in three Afghan cities. FSWs residing in Jalalabad, Kabul, and Mazar-i-Sharif were recruited through outreach programs and completed an interviewer-administered questionnaire and rapid tests for hepatitis B surface antigen, HIV, syphilis, and hepatitis C virus (HCV). Logistic regression identified factors associated with HIV awareness, comprehensive HIV knowledge (knowledge that HIV cannot be detected by sight, that condoms prevent HIV, and rejection of local misconceptions about HIV transmission), and consistent condom use (use with every sex act) with clients in the last 6 months. Of 520 participants, 76.9% had no formal education and 37.7% lived outside Afghanistan in the last 5 years. Nearly half (44.2%) were aware of HIV but, of these, only 17.4% (N=40) had comprehensive HIV knowledge. There were significant differences by site; FSWs in Jalalabad were more likely to be aware of HIV but FSWs in Kabul were more likely to have correct HIV knowledge and use condoms consistently with clients. Consistent client condom use was reported by 11.5% (N=60) and was independently associated with having more clients per month (AOR=1.99, 95% CI: 1.04 – 3.81). In conclusion, comprehensive HIV knowledge and consistent

Corresponding Author: Catherine S. Todd, M.D., MPH, 622 West 168th Street, New York, NY 10032, (T) +1-212-305-4805, (F) +1-212-305-6438, cst2121@columbia.edu.

Partial results have been presented at the International AIDS Conference in Mexico City, Mexico, in August 2008 and in the publication, SAR AIDS Human Development Sector, South Asia Region, The World Bank. Mapping and Situation Assessment of Key Populations at High Risk of HIV in Three Cities of Afghanistan. Available at: <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/EXTSAREGTOPHEANUT/EXTSAREGTOPHIVAIDS/0,,contentMDK:21763929~pagePK:34004173~piPK:34003707~theSitePK:496967,00.html>. For the latter publication, the data provided were at the mid-point in the collection process.

Disclaimer: The opinions and assertions made by the authors do not reflect the official position or opinion of the U.S. Department of the Navy or Army, or of the respective in-country National HIV/AIDS Control Programs and other Non-Governmental Organizations (NGOs).

Disclosure: The research study experienced a six-month lapse of NAMRU-3 IRB approval; this lapse occurred following completion of participant enrollment.

condom use with clients is low among Afghan FSWs in these cities. Efforts to reach this population should focus on relaying accurate information and expanding condom use with clients.

Introduction

Female sex workers (FSWs) are an important risk group for transmission of HIV and other sexually-transmitted infections (STIs) in South and Central Asia (Bokhari *et al.*, 2007; Evans & Lambert, 2008). Multiple factors, like sex work venue and legal status, drug use, gender, and economic opportunities, may modify likelihood of unprotected sex (Evans & Lambert, 2008; Choi & Holroyd, 2007). Thus, interventions to increase condom use must consider setting, culture, and deficits in knowledge and condom access to optimize behavior change.

Interventions utilizing various approaches have been successful in reducing HIV and/or STI incidence among FSWs in Asian settings (Rou *et al.*, 2007; Basu *et al.*, 2004; Ford & Koetsawang, 1999). Interventions integrating sexual risk reduction, condom promotion, and improved access to STI treatment or structural interventions like policy change are more likely to reduce STI incidence than interventions providing STI treatment alone (Shahmanesh, Patel, Mabey, & Cowan, 2008). Assessing baseline HIV knowledge and condom use frequency is necessary for measurement of sexual risk reduction and condom promotion programming.

Afghanistan is slowly emerging from three decades of conflict and isolation (Waldman, Strong, & Wali, 2006). Due to these hardships, HIV awareness among Afghans living both within and outside Afghanistan has been low. In 2001, Afghan drug users in Quetta, Pakistan, a city bordering southern Afghanistan, were significantly less likely to be aware of HIV than their Pakistani counterparts (4.3% vs. 18.3%, $p<0.001$) (Zafar, Brahmbhatt, Imam, ul Hassan, & Strathdee, 2003). In 2006, 46.1% of injecting drug users (IDUs) in Kabul were aware of HIV (Todd *et al.*, 2007). By comparison, in 2003, 84.9% of IDUs in Pakistan were aware of HIV and 85.4% of drug users seeking treatment in Tehran, Iran scored greater than 50% on an HIV knowledge assessment (Kuo *et al.*, 2006; Zamani *et al.*, 2005).

Though modern Afghan society remains deeply conservative, sex work has been described in several cities (Foran, 2006; Bazger & Young, 2005; SAR AIDS Human Development Sector, South Asia Region, The World Bank, 2007; Qadiry, 2008). In 2004, only 4% of FSWs in Kabul were aware of HIV; condom use was rare (Foran, 2006; Bazger & Young, 2005). A 2006 social mapping report estimated FSWs in three Afghan cities numbered 1160 (Kabul, Jalalabad, and Mazar-i-Sharif), with the greatest concentration in Kabul (SAR AIDS Human Development Sector, 2007). However, numbers may increase due to growing economic hardship and cultural and educational constraints (Qadiry, 2008). Our objective was to describe the level of HIV awareness, knowledge, and condom use among FSWs in three Afghan cities. This information will be instrumental in developing focused, relevant prevention programming for FSWs and their clients in Afghanistan.

Methods

Setting

This study surveyed sex workers from Jalalabad, Kabul, and Mazar-i-Sharif, Afghanistan. Jalalabad, near the Pakistan border, is the largest city in eastern Afghanistan, with an estimated population of 97,900. Kabul, the capital, is an ethnically diverse metropolis with an estimated population of 4 million. Mazar-i-Sharif is the largest urban area in northern Afghanistan (population: 187,700) and is near the Uzbek and Tajik borders. At the time of this cross-sectional study (September 2006 – January 2008), each city had a Ministry of Public Health Voluntary Counseling and Testing Center (VCTs) and sex worker-focused programs.

Study Design and Participants

The study was conducted through outreach and study programs implemented by non-governmental organizations and International Rescue Committee (IRC) offices in each location. Eligible participants were individuals aged 18 years or greater previously self-identifying as sex workers and able to provide informed consent. Prior to data collection, this study was approved by domestic and international institutional review boards.

Procedures

Potential participants were recruited in their usual places of congregation or at the program office by outreach workers. In a private setting, participants met a trained gender-matched study representative for informed consent, questionnaire administration, pre-test counseling, and whole blood rapid testing. Positive rapid tests were visually verified by the study manager and peripheral venipuncture performed for confirmatory testing. Confirmed positive tests results were provided to participants at a follow-up appointment, with appropriate post-test counseling and medical referrals.

Participants received condoms and a non-monetary gift (e.g. shampoo, toothpaste) of U.S.\$8 value. No data were recorded on those declining or ineligible for study entry.

Measures

The questionnaire was translated and administered in the local languages of Dari (Kabul, Mazar-i-Sharif) and Pashto (Jalalabad). The instrument included sociodemographics, travel, sex work history, drug and alcohol use, past and current STI symptoms, condom utilization, and knowledge about HIV. Time outside the country was assessed with a general question: “Have you lived/worked outside Afghanistan for any period of time in the last 5 years?” Sex work history and sexual behaviors were assessed, with several variables selected for analysis. Sex work duration, services performed, STI treatment in the last 3 months, and median number of monthly clients were assessed for estimation of risk exposure. Condom use was assessed for both lifetime and the last 6 months and separately for clients and non-commercial partners. Participants reporting prior condom use were asked about frequency with each type of partner, ranging from “Always (100% of the time)” to “Never (0%)”.

HIV awareness was assessed with the question: “Have you ever heard of HIV?” Comprehensive HIV knowledge was assessed through identification of transmission routes and popular misconceptions about HIV infection.

Statistical Analysis

Outcomes of interest were HIV awareness, comprehensive HIV knowledge, and consistent (always, 100%) condom use with clients in the last 6 months. Continuous variables, such as age, sex work duration, monthly client number, and client service charges were dichotomized at the median. Descriptive statistics were employed to characterize participants. Correlates of the outcomes of interest were individually assessed with univariable logistic regression. Simultaneous multivariable logistic regression identified variables independently associated with the outcomes of interest in separate models. Inclusion of variables was determined by likelihood ratio test with significant variables of $p < 0.05$ retained in the final model.

Results

Demographics

A total of 543 participants were recruited; 23 male participants were excluded from further analysis. Of the 520 female participants, mean age was 28.5 years (Interquartile Range [IQR] = 23 – 34). Most participants were currently or previously married (86.5%) and had no formal education (76.9%). Approximately one-third (37.7%) had lived outside Afghanistan in the last five years, though most (82.1%) had never engaged in sex work outside their current city of residence. Half ($N=269$, 51.7%) reported STI treatment in the last 3 months and 29.8% ($N=155$) reported current symptoms. There were significant differences in demographics by site (Table 1). Generally, participants in Jalalabad were younger and less likely to be married, while those in Mazar-i-Sharif were more likely to be educated.

HIV Awareness

HIV (44.2%) and condom (63.3%) awareness were fairly common. Television (42.1%, $N=138$) was the most common source of HIV information, with friends (20.4%, $N=67$), medical providers (17.7%, $N=58$), and radio (12.8%, $N=42$) also mentioned. There were significant differences in HIV awareness by site, with Jalalabad participants having the highest levels (Table 1).

In site-controlled univariable analysis, FSWs who had any education, lived outside the country in the last 5 years, provided anal sex, or ever used drugs or alcohol were more likely to be aware of HIV. Odds of HIV awareness was lower for older or married FSWs or those engaging in sex work for more than 5 years (Table 2).

HIV awareness was independently associated with living outside the country in the last 5 years, ever using alcohol, and higher monthly client volume, while ever having been married was negatively associated in site-controlled multivariate analysis (Table 3).

Comprehensive HIV Knowledge

Among FSWs aware of HIV, comprehensive HIV knowledge was relatively rare (17.4%, N=40), though more likely for Kabul participants (Table 1). In site-controlled univariable analysis of participants aware of HIV, FSWs with comprehensive knowledge charged higher fees and engaged in sex work for more than 5 years (Table 2). Odds of comprehensive knowledge was lower for FSWs who reported 12 clients/month or provided anal sex (Table 2). Charging >450 Afs/service (AOR=9.82, 95% CI: 2.89 – 33.34) remained positively associated, while providing anal sex (AOR=0.25, 95% CI: 0.10 – 0.59) was negatively associated with comprehensive knowledge in site-controlled multivariable analysis.

Condom Use

Of FSWs aware of condoms (63.3%, N=329), half (51.7%, N=170) reported prior condom use. The majority (90%, N=153) reported condom use was their choice. Frequency of condom use with clients in the last 6 months was variable, with 38.9% reporting consistent use with all clients; 42.0% reported use most (50–99%) and 10.2% some (<50%) of the time with regular clients, but at all times with non-regular clients. Condom use with clients was reported more frequently than with non-client partners in the last 6 months (92.4% vs. 62.9%). Among FSWs who had used condoms (N=170), consistent (100%) use with clients in the last 6 months was negatively associated with prior drug use and (marginally) providing anal sex, while marginally positively associated with 12 clients/month (Table 4). In multivariable site-controlled logistic regression, consistent condom use with clients was independently associated with having 12 clients per month (AOR=1.99, 95% CI: 1.04 – 3.81).

Discussion

Our findings indicate HIV awareness among Afghan FSWs appears higher than reported previously, potentially suggesting improvements in HIV education (Bazger & Young, 2005; Foran, 2006). However, comprehensive HIV knowledge and consistent condom use with clients remained suboptimal in all three cities and is in need of improvement.

We observed significant differences in all outcomes between the three cities. HIV awareness was greatest in Jalalabad, a city close to the Pakistan border and situated on a major trucking route from Pakistan to Kabul. We hypothesize that FSWs residing in this city or their clients may be more mobile, thus having greater exposure to HIV information through media or other sources in Pakistan. The Afghan-Pakistan border has historically been the most accommodating to Afghan citizens and the region has a common language, Pashto. We did not query travel frequency between Afghanistan and bordering countries, though suspect it was common at the time of the study, particularly for clients, as seen in other settings (Pickering, Okongo, Nnalusiba, Bwanika, & Whitworth, 1997; Lau & Wong, 2000). Current military action may have altered prior migration and transportation patterns.

Comprehensive HIV knowledge and consistent condom use with clients were more common in Kabul, possibly due to greater access to accurate information and condom distribution. At time of the study, there was one functioning outreach program in Kabul and its limited reach

may have contributed to relatively lower HIV awareness among FSWs in that city. This program provides condoms and instruction in risks of STIs and HIV from unprotected sex and proper condom use. We did not ask FSWs whether they use condoms for prevention of infection or pregnancy; further contextual study is indicated to determine whether condom use reflects HIV knowledge.

Having greater numbers of clients was positively associated with HIV awareness and consistent condom use with clients; sex work venue may contribute to this observation. We did not collect data regarding site of service provision or whether FSWs worked in groups, but it is plausible that FSWs with more clients may work for a pimp or madam, a potential conduit for HIV information and condom negotiation. Brothel owners and pimp/madams have been mobilized to disseminate HIV information in several settings and this route may be an additional means of conveying accurate information in Afghanistan (Ford *et al.*, 1996; Bhawe *et al.*, 1995).

Alternately, HIV awareness and condom use may have come from clients. Condom negotiation in this setting would be particularly challenging as Afghan women have little autonomy, despite participant report that condom use was their own decision. Clients electing to use condoms may state that protection from HIV is the reason, thus imparting awareness. Further study is indicated to determine dynamics of condom negotiation, whether clients informally serve as educators, and whether clients might be a receptive audience for educational interventions.

The association between HIV awareness and expatriation likely stems from exposure to public HIV education efforts in neighboring Iran and Pakistan, as theorized for IDUs in Kabul (Todd, et al., 2007). However, living outside the country in the last 5 years was not independently associated with either comprehensive HIV knowledge or consistent condom use with clients. This observation may reflect incomplete absorption or inadequate access to educational programming while living as a refugee, as seen among African expatriates in North America and Europe (Tompkins, Smith, Jones, & Swindells, 2006; Lazarus, Himedan, Ostergaard, & Liljestrand, 2006)

HIV awareness was associated with alcohol use and negatively associated with prior or current marriage. Alcohol is illegal in Afghanistan and more commonly used by those who spent time outside the country (United Nations Office on Drugs and Crime [UNODC], 2005). We only assessed whether participants had been expatriates in the last 5 years; alcohol use habits and HIV awareness may have been acquired during a less recent period of expatriation. Similarly, alcohol use may occur with clients and reflect HIV information from a client source. Married FSWs may have lower HIV awareness secondary to constraints in seeking care from outreach programs or medical providers. Cultural proscriptions prevent women from traveling outside the house without an accompanying male family member, thus limiting access to services (van Egmond *et al.*, 2004). While unmarried women residing in male-headed households are subject to this practice, we believe unmarried FSWs represent female-headed households and have fewer mobility constraints. Further contextual assessment of sex work in Afghanistan should explore household composition and decision-making dynamics.

The association between higher service charges and comprehensive knowledge may reflect adjusting fees in response to risk perception, where unprotected sex is a higher value commodity (Rou et al, 2007; Ntumbanzondo, Dubrow, Niccolai, Mwandagaliwa, & Merson, 2006). However, in the Afghan context, we believe that condom negotiation skills are insufficient to translate knowledge into behavior change due to women's low status. The assessment of comprehensive knowledge included women who had never used condoms while the assessment of consistent condom use was restricted to those reporting any lifetime condom use. We did not discriminate between client and non-client partners when we queried whether the partner determined condom use. Further study is needed to assess specific determinants of condom use decision-making with clients and what negotiation skills, if any, are present. However, the negative association between providing anal sex and comprehensive knowledge potentially reflects some behavior modification with comprehensive HIV knowledge. This effect has been observed among male sex workers in the United States, who increased condom use during receptive anal sex with clients following an educational intervention (Williams, Bowen, Timpson, Ross, & Atkinson, 2006).

This study has several important limitations. First, due to convenience sampling, results may not be generalized. Our efforts to safely access this hidden population through outreach programs, as mandated by the domestic IRB, likely prevented complete representation of FSWs in these cities. Our recruitment strategy may also have resulted in a sample with greater awareness and knowledge than that existing in the FSW population at large. Next, the interview format may have resulted in socially-desirable responding on HIV awareness and various high-risk behaviors. We attempted to minimize this by having same-sex interviewers; self-administered questionnaires were not feasible due to low literacy and the cost of ACASI or similar technology was prohibitive. Last, participants were enrolled based on self-report of engaging in sex work. As there are no objective means of determining FSW status, some individuals may not have been sex workers. Non-monetary incentives and monitoring of interviews and intensive staff training were employed to minimize this occurrence.

Currently, FSWs in Afghanistan report low levels of comprehensive HIV knowledge and consistent condom use with clients, particularly those residing outside Kabul. Efforts are underway to expand services to this population; however, this activity is highly stigmatized and access to FSW networks will remain a challenge. Further study of the context of sex work in this culture, particularly client characteristics, is needed to inform and potentially improve prevention programming.

Acknowledgments

We thank the Ministry of Public Health, the Action Aid/University of Manitoba study team, and ORA/KOR program for their assistance. We thank our participants for their time and trust and Ms. Kathy Fiekert for assistance with data entry. This study was funded by the Walter Reed Army Institute of Research. CT appreciates support from the Fogarty International Center of the National Institutes of Health (K01TW007408).

References

- Basu I, Jana S, Rotheram-Borus MJ, Swendeman D, Lee SJ, Newman P, Weiss R. 2004; HIV prevention among sex workers in India. *Journal of Acquired Immune Deficiency Syndrome*. 36:845–52.
- Bazger, F, Young, AT. Survey of groups at high risk of contracting sexually transmitted infections and HIV/AIDS in Kabul. ORA International; Kabul, Afghanistan: 2005.
- Bhave G, Lindan CP, Hudes ES, Desai S, Wagle U, Tripathi SP, Mandel JS. 1995; Impact of an intervention on HIV, sexually transmitted diseases, and condom use among sex workers in Bombay, India. *AIDS*. 9(Suppl 1):S21–30.
- Bokhari A, Nizamani NM, Jackson DJ, Rehan NE, Rahman M, Muzaffar R, Mansoor S, Raza H, Qayum K, Girault P, Pisani E, Thaver I. 2007; HIV risk in Karachi and Lahore, Pakistan: an emerging epidemic in injecting and commercial sex networks. *International Journal of STDs & AIDS*. 18:486–92. DOI: 10.1258/095646207781147201
- Choi SY, Holroyd E. 2007; The influence of power, poverty and agency in the negotiation of condom use for female sex workers in mainland China. *Culture, Health, & Sexuality*. 9:489–503. DOI: 10.1080/13691050701220446
- Evans C, Lambert H. 2008; The limits of behaviour change theory: condom use and contexts of HIV risk in the Kolkata sex industry. *Culture, Health, & Sexuality*. 10:27–42. DOI: 10.1080/13691050701561393
- Foran, J. Knowledge, attitudes, behaviour, and practices: HIV/AIDS study in Afghanistan. Action Aid; Kabul Afghanistan: 2006.
- Ford K, Wirawan DN, Fajans P, Meliawan P, MacDonald K, Thorpe L. 1996; Behavioral interventions for reduction of sexually transmitted disease/HIV transmission among female commercial sex workers and clients in Bali, Indonesia. *AIDS*. 10:213–22. [PubMed: 8838711]
- Ford N, Koetsawang S. 1999; A pragmatic intervention to promote condom use by female sex workers in Thailand. *Bulletin of the World Health Organization*. 77:888–94. [PubMed: 10612884]
- Kuo I, ul-Hasan S, Galai N, Thomas DL, Zafar T, Ahmed MA, Strathdee SA. 2006; High HCV seroprevalence and HIV drug use risk behaviors among injection drug users in Pakistan. *Harm Reduction Journal*. 3:26.doi: 10.1186/1477-7517-3-26 [PubMed: 16914042]
- Lau JT, Wong WS. 2000; Behavioural surveillance of sexually-related risk behaviours for the cross-border traveller population in Hong Kong: the evaluation of the overall effectiveness of relevant prevention programmes by comparing the results of two surveillance surveys. *International Journal of STD & AIDS*. 11:719–27. [PubMed: 11089785]
- Lazarus JV, Himedan HM, Ostergaard LR, Liljestrand J. 2006; HIV/AIDS knowledge and condom use among Somali and Sudanese immigrants in Denmark. *Scandinavian Journal of Public Health*. 34:92–9. DOI: 10.1080/14034940510032211 [PubMed: 16449049]
- Ntumbanzondo M, Dubrow R, Niccolai LM, Mwandagilirwa K, Merson MH. 2006; Unprotected intercourse for extra money among commercial sex workers in Kinshasa, Democratic Republic of Congo. *AIDS Care*. 18:777–85. DOI: 10.1080/09540120500412824 [PubMed: 16971288]
- Pickering H, Okongo M, Nnalusiba B, Bwanika K, Whitworth J. 1997; Sexual networks in Uganda: casual and commercial sex in a trading town. *AIDS Care*. 9:199–207. DOI: 10.1080/09540129750125217 [PubMed: 9135633]
- Qadiry, T. Under wraps, prostitution rife in north Afghanistan. Reuters News Service; May 20, 2008. Accessed at: <http://www.reuters.com/article/worldNews/idUSISL17365820080519>
- Rou K, Wu Z, Sullivan SG, Li F, Guan J, Xu C, Liu W, Liu D, Yin Y. 2007; A five-city trial of a behavioural intervention to reduce sexually transmitted disease/HIV risk among sex workers in China. *AIDS*. 21(Suppl 8):S95–101. DOI: 10.1097/01.aids.0000304703.77755.c7
- Shahmanesh M, Patel V, Mabey D, Cowan F. 2008; Effectiveness of interventions for the prevention of HIV and other sexually transmitted infections in female sex workers in resource poor setting: a systematic review. *Tropical Medicine and International Health*. 13:659–79. DOI: 10.1111/j.1365-3156.2008.02040 [PubMed: 18266784]
- SAR AIDS Human Development Sector, South Asia Region, The World Bank. Mapping and Situation Assessment of Key Populations at High Risk of HIV in Three Cities of Afghanistan. 2007.

Available at: <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/SOUTHASIAEXT/EXTSAREGTOPHEANUT/EXTSAREGTOPHIVAIDS/0,,contentMDK:21763929~pagePK:34004173~piPK:34003707~theSitePK:496967,00.html>

- Todd CS, Abed A, Strathdee SA, Scott PT, Botros BA, Safi N, Earhart KC. 2007; Association between expatriation and HIV awareness and knowledge among injecting drug users in Kabul, Afghanistan: A cross-sectional comparison of former refugees to those remaining during conflict. *Conflict and Health*. 1:5.doi: 10.1186/1752-1505-1-5 [PubMed: 17411457]
- Waldman, R, Strong, L, Wali, A. Afghanistan's Health System Since 2001: Condition improved, prognosis cautiously optimistic. Afghanistan Research and Evaluation Unit; Kabul, Afghanistan: 2006.
- Tompkins M, Smith L, Jones K, Swindells S. 2006; HIV education needs among Sudanese immigrants and refugees in the Midwestern United States. *AIDS Behavior*. 10:319–23. [PubMed: 16479412]
- United Nations Office on Drugs and Crime (UNODC). Afghanistan Drug Use Survey 2005. Kabul, Afghanistan: 2005.
- van Egmond K, Naeem AJ, Verstraelen H, Bosmans M, Claeys P, Temmerman M. 2004; Reproductive health in Afghanistan: results of a knowledge, attitudes and practices survey among Afghan women in Kabul. *Disasters*. 28:269–82. DOI: 10.1111/j.0361-3666.2004.00258 [PubMed: 15344941]
- Williams ML, Bowen AM, Timpson SC, Ross MW, Atkinson JS. 2006; HIV prevention and street-based male sex workers: an evaluation of brief interventions. *AIDS Education and Prevention*. 18:204–215. DOI: 10.1521/aeap.2006.18.3.204 [PubMed: 16774463]
- Zafar T, Brahmabhatt H, Imam G, ul Hassan S, Strathdee SA. 2003; HIV knowledge and risk behaviors among Pakistani and Afghani drug users in Quetta, Pakistan. *Journal of Acquired Immune Deficiency Syndrome*. 32:394–398.
- Zamani S, Kihara M, Gouya MM, Vazirian M, Ono-Kihara M, Razzaghi EM, Ichikawa S. 2005; Prevalence of and factors associated with HIV-1 infection among drug users visiting treatment centers in Tehran, Iran. *AIDS*. 19:709–716. DOI: 10.1097/01.aids.0000166094.24069.72 [PubMed: 15821397]

Select sociodemographic and sex work-related characteristics and HIV awareness and comprehensive HIV knowledge of female sex workers from three cities in Afghanistan (N=520).

Table 1

Feature	Kabul		Jalalabad		Mazar-i-Sharif		p-value
	N	%	N	%	N	%	
	173	100	114	100	233	100	-
Age groups (years)							
< 29	85	49.1	74	64.9	100	42.9	0.001
> 29	88	50.9	40	35.1	133	57.1	
Education							
Any formal education	28	16.2	18	15.8	74	31.8	<0.001
Marital status							
Ever married	164	94.8	75	65.8	211	90.6	<0.001
Lived outside of Afghanistan in last 5 years							
Yes	69	39.9	69	60.5	58	24.9	<0.001
Aware of HIV							
Yes	58	33.5	104	91.2	68	29.2	<0.001
Comprehensive HIV Knowledge [*]							
Yes	16	27.5	5	4.8	19	27.9	<0.001
Consistent Condom Use with Clients, Last 6 Months ^{**}							
Yes	37	21.4	16	14.0	7	3.0	<0.001
Consistent Condom Use with Non-Clients, Last 6 Months ^{**}							
Yes	19	11.0	15	13.2	6	2.6	<0.001

^{*} inclusive only of participants aware of HIV (N=230)

^{**} Inclusive only of participants aware of condoms (N=329)

N=number

Table 2

Variables associated with HIV awareness and comprehensive knowledge by site-controlled analysis among female sex workers from three cities in Afghanistan.

Variable	HIV Awareness (N=520)	HIV Comprehensive* (N=230)
	OR, 95% CI	OR, 95% CI
	N %	N %
Age:	0.51, 0.31 – 0.83	1.39, 0.60 – 3.18
30 years	136 (52.5%)	21 (15.4%)
31 years	94 (36.0%)	19 (20.2%)
Marital Status:	0.27, 0.22 – 0.33	2.88, 0.37–22.52
Never married	50 (71.4%)	4 (8.0%)
Ever married	180 (40.0%)	36 (20.0%)
Formal Education Level:	2.76, 1.05 – 7.28	3.98, 0.46 – 36.15
No education	154 (38.5%)	16 (10.4%)
Any education	76 (63.3%)	24 (31.6%)
Lived outside country		
in last 5 years:	3.95, 3.11 – 5.01	1.12, 0.43–2.92
No	103 (31.8%)	17 (16.5%)
Yes	127 (64.8%)	23 (18.1%)
Sold Sex Outside		
City of Residence:	3.07, 0.96 – 9.79	1.59, 0.50 – 5.05
No	168 (39.4%)	26 (15.5%)
Yes	62 (66.7%)	14 (22.6%)
Duration as Sex Worker:	0.45, 0.28 – 0.73	1.57, 1.03 – 2.40
5 years	182 (49.9%)	29 (15.9%)
>5 years	48 (31.0%)	11 (22.9%)
Number of Clients per Month:	3.77, 0.91 – 15.62	0.22, 0.11 – 0.43
<12 clients/month	71 (28.1%)	24 (33.8%)
12 clients/month	159 (59.6%)	16 (10.1%)
Charge per Client:	0.75, 0.15 – 3.68	9.39, 2.74 – 32.21
450 Afs/service	101 (48.6%)	4 (4.0%)
>450 Afs/service	129 (41.2%)	36 (27.9%)
Consistent Condom Use with Clients,		
Last 6 Months **:;	1.51, 0.34 – 6.70	0.86, 0.26 – 2.84
Less than 100%	198 (43.0%)	35 (16.7%)
100% condom use	32 (53.0%)	5 (15.6%)
Consistent Condom Use with		
Non-Clients, Last 6 Months **:;	2.24, 0.56 – 8.96	0.62, 0.09 – 4.08
Less than 100%	205 (42.7%)	37 (18.0%)
100% condom use	25 (62.5%)	5 (12.0%)
Current STI Symptoms:	0.91, 0.32 – 2.58	1.64, 0.49 – 5.45
No current STI sx.	164 (44.9%)	25 (15.2%)

Variable	HIV Awareness (N=520)	HIV Comprehensive* (N=230)
	OR, 95% CI	OR, 95% CI
	N %	N %
Current sores/warts	66 (42.6%)	15 (22.7%)
Recreational Drug Use:	2.60, 1.10 – 6.64	1.59, 0.37 – 6.78
Never used drugs	205 (42.5%)	34 (16.6%)
Ever used Drugs	25 (65.8%)	6 (24.0%)
Alcohol Use:	5.73, 2.31 – 14.21	1.13, 0.47 – 2.70
Never used alcohol	209 (42.3%)	36 (17.2%)
Ever used alcohol	21 (80.8%)	4 (19.0%)
Treatment for STI in		
Last 3 Months:	1.82, 0.79 – 4.18	1.00, 0.67 – 1.50
None	92 (36.7%)	16 (17.4%)
Any treatment	138 (51.3%)	24 (17.4%)
Anal Sex Provision:	2.31, 1.07 – 4.99	0.27, 0.09 – 0.79
Provide anal sex	159 (39.6%)	35 (22.0%)
Do not provide anal sex	71 (60.2%)	5 (7.0%)

Bold text denotes statistically significant values.

* Inclusive only of participants aware of HIV.

** Inclusive only of participants aware of condoms (N=329).

OR=odds ratio

CI= confidence interval

N= number

Table 3

Variables independently associated with HIV awareness among female sex workers in three Afghan cities (n=520).

Variable	Adjusted Odds Ratio	95% Confidence Interval
Alcohol use (ever)	4.95	2.83 – 8.66
Lived/worked outside Afghanistan in last 5 years	4.26	3.42 – 5.31
12 clients/month	3.39	1.11 – 10.33
Ever married	0.23	0.20 – 0.26

Table 4

Factors associated with consistent condom use with clients among sex workers in 3 Afghan cities in site-controlled univariate logistic regression analysis (N=170) *.

Variable	N, %	Odds Ratio	95% Confidence Interval
Age:		0.86	0.62 – 1.22
26 years	35, 36.8%		
27 years	25, 33.3%		
Marital Status:		0.67	0.22 – 2.04
Never married	10, 43.5%		
Ever married	50, 34.0%		
Formal Education Level:		0.66	0.22 – 1.97
No education	44, 38.3%		
Any education	16, 29.1%		
Lived outside country in last 5 years:		0.41	0.07 – 2.44
No	36, 46.2%		
Yes	24, 26.1%		
Sold Sex Outside City of Residence:		0.39	0.11 – 1.29
No	49, 41.2%		
Yes	11, 21.6%		
Duration as Sex Worker:		1.33	0.48 – 3.72
5 years	45, 33.8%		
>5 years	15, 40.5%		
Number of Clients per Month:		1.96	0.92 – 4.20
<12 clients/month	10, 24.4%		
12 clients/month	50, 38.8%		
Charge per Client:		0.65	0.29 – 1.45
450 Afs/service	31, 40.8%		
>450 Afs/service	29, 30.9%		
Current STI Symptoms:		1.08	0.60 – 1.86
No current STI sx.	41, 34.7%		
Current sores/warts/itching	19, 36.5%		
Recreational Drug Use:		0.53	0.37 – 0.77
Never used drugs	54, 37.2%		
Ever used drugs	6, 24.0%		
Alcohol Use		0.74	0.47 – 1.16
Never used alcohol	55, 35.9%		
Ever used alcohol	5, 29.4%		
Provide Anal Sex:		0.52	0.27 – 1.03
Provide vaginal/oral sex	47, 39.5%		
Provide anal sex	13, 25.5%		

* Inclusive of participants who reported any prior condom use.

N=number

Bold text indicates statistically significant associations.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript