

Understanding STI Risk and Condom Use Patterns by Partner Type Among Female Sex Workers in Peru

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Abstract: While brothel-based sex work is regulated by the Peruvian government, there is little data on STI risk factors reported by female sex workers (FSW). This study compared high risk behaviors among 120 Peruvian FSW from government regulated brothels with both clients and non-commercial partners. Our study found that 12% of FSW reported unprotected vaginal sex with clients (compared to 75% with non-commercial partners), and 42% reported unprotected anal sex with clients (compared to 87% with non-commercial partners). Group differences were observed in the expectation to have oral sex (32% for partners vs 60% for clients; $p < 0.01$), and a history of anal sex (65% for partners vs 32% for clients; $p < 0.01$) and both vaginal and anal sex with the same partners (46% for partners vs 25% for clients; $p < 0.001$). These findings suggest that FSW constitute an important bridge population for STI/HIV transmission in Peru.

Keywords: Bridge population, condom use patterns, female sex workers, Peru, STI risk and transmission.

INTRODUCTION

Female sex workers (FSW) continue to be considered a core group for sexually transmitted infection (STI) transmission because of their high infection rate, large numbers of sexual partners, and frequency of high risk behaviors such as inconsistent condom use [1, 2]. Additionally, they are considered an important bridge population in transmitting STIs to the general population [3, 4] because they engage in sex with both potentially high risk partners (clients) and low risk (or non-commercial) partners such as husbands or steady boyfriends. STI/HIV prevention programs targeting FSW would not only protect the health of FSW, but would also prevent onward transmission to clients and other partners [1] thus, ultimately resulting in significant public health benefits for the general population.

In Peru, sex work is legal and strictly regulated by the government [4]. Under a national program organized by the Peruvian Ministry of Health's Program for the Control of STI/AIDS, medical services, information on preventing STI/HIV, and condoms are provided to FSW and other groups at high risk for acquiring STIs and HIV [4, 5]. Thus, high risk behaviors such as unprotected sex between FSW and clients might be expected to be low. While some studies have found that Peruvian men reported using condoms with

FSW 85.8%-87.8% of the time [5, 6], other studies have shown that 34%-59% of men in the general Peruvian population reported buying sex from a FSW at least once with infrequent condom use [2]. While the above mentioned studies have focused on clients of FSW as the key bridge population [2, 4], FSWs are also an important bridge population [4]. Yet, we are unaware of any published studies in Peru that have focused on FSW as a bridge population between high and low risk partners. To successfully reduce the transmission of STI from FSW to their clients and non-commercial partners, it is important to understand the high risk behaviors of FSW with both types of partners to assess whether FSW constitute an important bridge population. The present study compared high risk behaviors among FSW with both clients and non-commercial partners in Lima, Peru.

METHODS

Participants and Procedures

Data for this study were collected as part of a larger HPV4 vaccine trial that was conducted in 49 different brothels in Lima, Peru where FSW were randomized to receive an HPV4 vaccine using a standard schedule (0, 2, 6 months) or a modified schedule (0, 3, 6 months) which paired more closely with the three month clinic visits in which participants received STI testing, including HIV and syphilis rapid testing and syndromic treatment [7]. For this analysis, we examined data on 120 FSW from the HPV4 trial who were between the ages of 19-28 and who agreed to

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participate in an “extension study” which included four additional visits over a period of 12 months and a final face-to-face interview assessing condom use and other STI risk behaviors with clients and non-commercial partners. These additional study visits included counseling on safe sex practices, HIV and syphilis testing, syndromic treatment for STIs, family planning, a blood draw, distribution of contraceptives (oral and condoms), and a Pap smear. The results presented below are based on the final face-to-face interview. This study was approved by Institutional Review Boards (IRB) at the Johns Hopkins Bloomberg School of Public Health in Baltimore, MD, the Universidad Peruana Cayetano Heredia in Lima, Peru, and *via Libre* in Lima, Peru.

Measures

Sociodemographics and Alcohol Consumption

Sociodemographic information included age and current marital status (single, separated/divorced, married, living together). For purposes of analyses, single and separated/divorced were combined. Participants were asked whether they currently lived in Lima (yes/no) and whether they lived in the same city where they worked (yes/no).

Participants were also asked whether they consumed any alcoholic beverages before working (yes/no) and while working (yes/no).

HIV Risk Questions

STI/HIV risk questions are presented in Table 1. Participants were asked the same set of STI/HIV risk questions for both clients and non-commercial partners. Response categories included yes/no and never/sometimes/half the time/most of the time/all of the time. For purposes of analyses and due to inadequate sample sizes in some of the cells, we combined never/sometimes/half the time and most of the time/all of the time. Questions 4, 7, and 10 were open-ended, and thus treated as a continuous variable. Because of the high risk of never using condoms, we dichotomized the variable for these three questions as 0 times vs 1 or more times.

Data Analysis

We examined the distributions of all variables. Chi-square tests were then used to assess differences in STI/HIV risk behaviors between partners and clients. All analyses were conducted using STATA Version 11.0 (College Station, TX).

Table 1. STI risk by partner type (non-commercial partners vs clients) and group differences among female sex workers (FSW) in Peru (N = 120).

HIV Risk Questions	Partners N (%)	Clients N (%)	Chi ² p Value for Group Differences
Do you use condoms with partners/clients?			N/A
Yes	38 (32)	120 (100)	
Have you ever had vaginal sex with partners/clients?			0.927
Yes	119 (99)	119 (99)	
How often do your partners/clients expect you to have vaginal sex with them?			0.151
All of the time/most of the time	81 (68)	113 (94)	
How many times did you use a condom for vaginal sex in the past 30 days with partners/clients?			0.358
0 times	89 (75)	14 (12)	
How often do your partners/clients expect you to have oral sex with them?			0.004
All of the time/most of the time	38 (32)	72 (60)	
Have you ever had anal sex with partners/clients?			0.003
Yes	78 (65)	38 (32)	
How often do your partners/clients expect you to have anal sex with them?			0.251
All of time/most of the time	6 (8)	37 (31)	
How many times did you use a condom for anal sex in the past 30 days with partners/clients?			0.278
0 times	67 (87)	16 (42)	
How often do you have vaginal and anal sex with the same partners/clients?			0.000
All of the time/most of the time	55 (46)	30 (25)	
Do you change condoms between vaginal and anal sex?			0.315
Yes	8 (15)	15 (50)	

RESULTS

Sociodemographics and Alcohol Consumption

Participants were between the ages of 19-28 years. 68% were single and 32% were either married or living with their partner. While 96% of women were currently living in Lima, only 18% reported working in Lima. Approximately half of the women reported drinking alcoholic beverages before working (49%) and while working (50%).

HIV Risk by Partner Type (Clients vs Non-Commercial Partners) and Group Differences

Table 1 presents STI/HIV risk by partner type and groups differences. While all FSW (100%) reported a history of using condoms with clients, 12% reported not using condoms for vaginal sex with their clients in the past 30 days and 42% reported not using condoms for anal sex with their clients in the past 30 days. Conversely, only 32% of FSW reported a history of using condoms with their non-commercial partners. 75% reported unprotected vaginal sex with their partners in the past 30 days and 87% reported unprotected anal sex with their partners in the past 30 days. Among those FSW reporting both vaginal and anal sex with the same client/partner, 50% changed condoms between vaginal and anal sex with a client while 15% changed condoms between vaginal and anal sex with a partner.

Group differences were observed in the expectation to have oral sex (32% for partners vs 60% for clients; $p < 0.01$), history of anal sex (65% for partners vs 32% for clients; $p < 0.01$), and history of vaginal and anal sex with the same partners (46% for partners vs 25% for clients; $p < 0.001$).

DISCUSSION

12% of FSW reported vaginal sex without condoms with clients (compared to 75% with non-commercial partners), and 42% reported unprotected anal sex with clients (compared to 87% with non-commercial partners) suggesting that FSW are an important bridge population for STI and HIV transmission in Peru. These findings are similar to other studies in India, Africa, and the Caribbean where condom use was found to be higher among commercial partners or clients compared with non-commercial partners [8-10]. The low use of condoms for anal sex with both clients and non-commercial partners in our study is especially concerning given that receptive anal intercourse is estimated to put people at 10-20% greater risk for HIV infection compared to unprotected vaginal intercourse [11]. Future intervention programs should stress the importance of consistent condom use for both vaginal and anal sex with clients and non-commercial partners and discuss the negative implications (i.e., reduced condom use) of alcohol consumption as approximately half of FSW in our sample reported consuming alcohol either before or while working.

Given the well regulated work environment in brothels under Peru's national STI/HIV program, incorporating more targeted prevention interventions would most likely be feasible. However, intervention programs targeting FSW and their non-commercial partners are currently lacking [8], and may be less feasible than programs targeting FSW and their clients due to a variety of social, cultural, economic, and

interpersonal factors that might influence condom use and other risky behaviors (e.g., trust issues, desire for reproduction, decision-making power/control, domestic violence). Given the low use of condoms with non-commercial partners in our study, interventions targeting FSW and their partners should be an important public health priority.

There were limitations to our study. FSW were recruited from brothel-based venues (vs street-based venues), thus our findings may not be generalizable to all FSW in Peru. While the HIV prevalence among legal sex workers ranges from <1%-2%, the prevalence among non-legal FSW is estimated at 10% [12]. All measures were based on self-reported data and may be subject to reporting and recall biases. Finally, the small sample size may have limited our ability to detect significant differences between groups.

In conclusion, FSW are an important bridge population for STI/HIV transmission. More in-depth studies are needed on the sexual behaviors of FSW non-commercial partners as well as the sociocultural and interpersonal factors that influence condom use to better inform the development of more targeted interventions. Research is also needed on the risk behaviors of FSW from non-regulated sex work establishments. Comprehensive prevention programs targeting FSW and their clients and non-commercial partners will not only help to decrease the disease burden among FSW, but will also have significant public health implications by decreasing disease transmission in the general population.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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