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Identifying the HIV Transmission Bridge: Which Men Are Having Unsafe Sex with Female Sex Workers and with Their Own Wives or Steady Partners?

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Abstract

Objective—To gain insights into bridging behaviors and their correlates among male clients of female sex workers (FSWs).

Methods—Men aged 18 years who recently paid or traded for sex with FSWs were recruited in Tijuana in 2008–2009. Participants underwent interviews and testing for HIV, chlamydia, syphilis, and gonorrhea. Logistic regression compared “bridgers” (clients who had unprotected sex with FSWs and with a wife or steady partner) with men who did not.

Results—Of 383 men, 134 (35%) had a steady partner. Half (n = 70) of those had unprotected sex with both FSWs and the steady partner. Prevalence of any STI or HIV was 16.5% among bridgers and 2.3% among non-bridgers. Compared to other clients, bridgers were more likely to use drugs during sex with FSWs (81.4% versus 46.9%, $p < 0.0001$), had higher sensation-seeking ($p < 0.0001$) and misogyny scores ($p = 0.05$), and were more likely to offer FSWs extra money for unprotected sex (34.4% versus 1.6%, $p < 0.0001$). Factors independently associated with bridging were: using drugs during sex with FSWs (adjusted odds ratio (AOR): 3.4, $p = 0.007$), sensation-seeking (AOR: 4.3 per unit increase, $p = 0.05$), and offering FSWs more money for unprotected sex (AOR: 24.5, $p = 0.003$).

Conclusion—Sensation-seeking clients who use drugs during sex and coerce FSWs into unprotected sex may be less responsive to standard risk reduction interventions. Interventions are needed that target clients rather than rely on FSWs to change behaviors that may not be under their control.

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Keywords

male clients; bridging behavior; female sex workers; HIV transmission; prevention; Mexico

INTRODUCTION

The term “bridging” has been used to describe situations where HIV/STIs can be transmitted from high-risk core groups to noncore groups.¹ Knowing the frequency of bridging behavior is particularly important early in an epidemic, when the distribution of an STI is clustered in distinct subpopulations.^{2,3} A growing number of studies provides evidence that bridging behavior by female sex workers (FSWs) and their clients could be important drivers of local HIV epidemics.^{4–8} A study from Ghana, for instance, found that 84% of incident HIV infections in men were attributable to transactional sex.⁵

A series of linked bridges may begin with a male client or steady partner who infects an FSW, who then infects another male client, who in turn infects his wife or girlfriend. A few studies provide evidence for such sequences. In Thailand, Cambodia, and Myanmar, the generalization of HIV was driven primarily by clients of FSWs, whose social networks were the source of increased prevalence in the general community.⁹ Indonesia experienced its initial rise in HIV prevalence among IDUs, from whom the virus then spread to FSWs. Clients of FSWs then transmitted HIV to their female sexual partners, and finally, HIV rates escalated in the general population.^{10–12} A similar pathway from a core group into the general population has been suggested in Russia between drug users and non-users.^{13,14}

While male clients have been recognized as possible “bridgers” of STIs,^{12,15} few in-depth studies have documented correlates of this behavior. We recently reported that male clients of FSWs in Tijuana, Mexico have an HIV prevalence comparable to FSWs in the same region (~5%) and that they report frequently engaging in unprotected sex and drug use with FSWs.¹⁶ However, few studies have examined the characteristics of bridging versus non-bridging partnerships, and studies of male bridger clients of FSWs are few. In light of the potential importance of bridging behavior, this study aimed to estimate the frequency of bridging behavior among male clients and to gain insights into the correlates of that behavior. Identifying the factors associated with bridging behavior could be key to developing effective intervention strategies and to slowing the spread of HIV/STIs into the general population.

METHODS

Male clients of FSWs in Tijuana's red light district (*Zona Roja*) were recruited into a study to examine their HIV risk behaviors between June and October 2008.¹⁶ Participants had to be male residents of Tijuana or San Diego County, be 18 years or older, and have paid or traded for sex with an FSW in Tijuana during the previous four months. Outreach workers contacted clients in bars, brothels, or on the street. Participants who completed the baseline questionnaire and underwent HIV and STI testing received \$30. Pre- and post-test counseling were provided, as were referrals for medical care for those testing positive. All participants provided informed consent, and the study was approved by the Human Research Protections Program of the University of California, San Diego and by the Ethics Committee of Tijuana General Hospital.

Data Collection

Participants were asked about socio-demographic factors and about the frequency of unprotected vaginal, oral, and anal sex over the past four months with FSWs and with their

spouses or steady partners. Data were also gathered on recent illicit drug use and psychiatric diagnoses. The questionnaire included subscales measuring the following traits: misogyny (hatred or strong prejudice against women simply because they are female),¹⁷ sexual compulsivity (“obsessive preoccupations with sexual acts and encounters”),^{18, p.588} sexual sensation-seeking (the tendency to seek novelty and risk in one's sexual experiences),¹⁹ traditional attitudes toward male sexuality (degree of acceptance of common stereotypes of masculinity in heterosexual relations),^{20,21} self-esteem,²² and difficulty in meeting basic needs such as food, clothing, and shelter.²³

Laboratory Testing

Participants were given a finger-prick, and drops of blood were drawn for on-site rapid testing of both HIV and syphilis. HIV antibodies were detected using the Determine® rapid test (Abbott Pharmaceuticals, Boston, MA). Participants who received a positive result on this test were given a venous blood-draw, and that sample was tested for HIV antibodies at the San Diego County Health Department by EIA and Western Blot. Syphilis antibodies were detected using a rapid plasma reagin (RPR) test (Macro-Vue, Becton Dickinson, Cockeysville, MD, USA). Urine samples were also collected and sent to the San Diego County Health Department, where tests for *C. trachomatis* and *N. gonorrhoeae* were performed using DNA Strand Displacement Amplification (SDA). Participants receiving a positive rapid test for syphilis or a confirmed positive test for HIV were referred to local clinics for treatment. Those testing positive for chlamydia and gonorrhea were given free treatment at the study offices.

Statistical Analysis

Clients who did not have a spouse or steady partner during the last four months were excluded from these analyses. We compared “excluded” and “included” clients to ascertain if any selection bias existed. Differences between the two risk groups were assessed using Wilcoxon's rank-sum test for continuous covariates, Fisher's exact test for binary covariates, and chi-square test for categorical covariates with more than two categories.

Our remaining analyses focused on comparisons between “bridgers” and “non-bridgers” within the “included” group. Bridgers were defined as male clients who had unprotected vaginal or anal sex with both FSWs and their wives or steady partners in the previous four months. Non-bridgers were clients with wives or steady partners who had (i) unprotected sex with FSWs only, (ii) unprotected sex with their wives or steady partners only, or (iii) only protected sex with FSWs and with their wives or partners. Group differences were assessed using the above-referenced tests. In addition, univariate logistic regressions were performed to evaluate the associations between bridging behavior and demographic characteristics, psychosocial factors, sexual risk behaviors, and substance use variables. Covariates with significance levels $\geq 10\%$ were considered for inclusion in multivariable models, which were constructed using a manual, stepwise-backward elimination process, eliminating the least significantly associated variables until all remaining variables were significant at $p < 0.05$.

RESULTS

Comparison of Included Male Clients versus Excluded Male Clients

Of 383 male clients, 134 (35.0%) had wives or steady female partners and were thus included in the bridging analysis. These men were compared with the excluded participants ($N = 249$). The two groups were similar in demographics, psychosocial factors, substance-use variables, and sexual risk behaviors (Table 1), but a significantly larger percentage of

the included men tested positive for chlamydia and/or gonorrhea compared to the excluded men (14.2% versus 6.0%, respectively, $p = 0.01$).

Comparison of Bridgers versus Non-Bridgers

Among the 134 clients who had wives or steady female partners, 70 (52.2%) had unprotected sex with both FSWs and their wives or partners and were thus characterized as bridgers; the remaining 64 clients (47.8%) were classified as non-bridgers (Table 2). Of the 64 non-bridgers, 75.0% ($n = 48$) had unprotected sex only with their wives or steady partners; 6.2% ($n = 4$) had unprotected sex only with FSWs; and 18.8% ($n = 12$) had only protected sex with FSWs and with wives or steady partners.

Male clients who participated in bridging behavior had similar demographics to non-bridgers, but bridgers were more likely to report being bisexual (5.7% versus 4.9%, $p = 0.02$). Bridgers also had significantly higher scores on misogyny, sexual compulsivity, sexual sensation-seeking, traditional attitudes toward male sexuality, and difficulties associated with meeting basic needs. Bridgers had significantly lower scores on the self-esteem scale.

Bridgers were more likely to have injected drugs (38.6% versus 17.2%, $p < 0.05$) and to have shared needles with FSWs (24.3% versus 4.7%, $p < 0.01$) in the previous four months. Bridgers were twice as likely to have shared needles with their wives or steady partners (15.7%) than non-bridgers (7.8%); however, the sample was too small to detect a statistically significant difference ($p = 0.19$).

Bridgers were also more likely to have used drugs during sex with a wife or steady partner (75.7% versus 48.4%, $p < 0.05$) and with an FSW (81.4% versus 46.9%, $p < 0.01$) and were more likely to report that FSWs were “high” when they had sex with them compared to non-bridgers (73.5% versus 42.2%, $p < 0.05$).

Bridgers visited FSWs more frequently during the past year (median of 10 versus 6 visits, $p = 0.05$). While there was no significant difference in age between bridgers and non-bridgers, bridgers had a longer history of visiting FSWs (median 10 years versus 3 years, $p < 0.05$). A larger percentage of bridgers reported having sex with FSWs in their own homes compared to non-bridgers (41.4% versus 17.2%, $p < 0.05$). Approximately one-third of bridgers had ever offered FSWs extra money to have sex without a condom (34.3%), while only 1.6% of non-bridgers reported having done the same ($p < 0.05$).

Although HIV prevalence in this sample was relatively low (2.2%), all three cases of HIV were among bridgers. A higher percentage of non-bridgers (20.3%) tested positive for chlamydia or gonorrhea than did bridgers (8.6%); however, there was not sufficient power to detect a difference in HIV or chlamydia and gonorrhea between bridgers and non-bridgers ($p = 0.25$ and $p = 0.06$, respectively).

Factors Independently Associated with Bridging Behavior

Three covariates were found to be significantly associated with being a bridger (Table 3). Male clients who used drugs during sex with FSWs were more likely to be bridgers (adjusted odds ratio [AOR] = 3.39; 95% CI: 1.40–8.23), as were men who offered FSWs extra money to have sex without a condom (AOR = 24.52; 95% CI: 3.08–195.40). Clients who scored higher on the sexual sensation-seeking scale were more likely to have unprotected sex with FSWs and wives or steady partners (AOR = 4.28 per unit increase; 95% CI: 1.41–13.02).

Only one non-bridger reported offering FSWs extra money for sex without a condom, and this small cell resulted in a very wide confidence interval for the estimated effect on bridging behavior; therefore, another multivariable model was constructed excluding this effect (Table 4). As in the first model, male clients who used drugs during sex with an FSW or who scored higher on sexual sensation-seeking were more likely to be bridgers (AOR = 3.25; 95% CI: 1.41–7.52; AOR = 4.97; 95% CI: 1.72–14.41, respectively). Additionally, male clients who had sex in their homes with FSWs were more likely to engage in bridging behavior (AOR = 2.51; 95% CI: 1.05–5.96).

DISCUSSION

Our study of FSWs' clients in Tijuana's *Zona Roja* found that half of those having wives or steady partners engaged in bridging behaviors. Compared to non-bridgers, bridgers were more likely to be bisexual, visited FSWs more frequently, had visited FSWs for a greater number of years, offered more money for unprotected sex, and were more likely to have sex with FSWs in their own homes. They were also more likely to use drugs during sex with both FSWs and steady partners, inject drugs, and share needles with FSWs. In addition, bridgers scored higher on sexual compulsivity, sexual sensation-seeking, misogyny, traditional values toward male sexuality, and difficulty meeting basic needs, and they scored lower on self-esteem. Factors independently associated with bridging behaviors were using drugs during sex with an FSW, having higher sexual sensation-seeking scores, and offering extra money to FSWs for unprotected sex. These findings suggest that bridgers in the *Zona Roja* place lower-risk sex partners (such as wives, girlfriends, and other steady female partners) at high risk for infection with HIV and other STIs. Because it is likely that the steady partners or wives and the FSWs with whom a bridging client has unprotected sex are unaware of the client's other behaviors, it is important to develop HIV/STI prevention for both clients and FSWs.

While previous studies have shown that clients of FSWs can serve as bridges for infectious disease from FSWs to the general population, clients are also capable of bridging from non-FSW risk groups, such as IDUs or MSM. A study of reportedly heterosexual male clients of FSWs in London, England found that 36% reported past sexual contact with other men, suggesting additional sexual risks for bridgers and their partners.⁶ That study is corroborated by our own finding that bridgers were almost five times as likely as non-bridgers to report being bisexual. Our data also indicate that bridging behavior among clients of FSWs was associated with injection drug use. Clients who injected drugs had three times the odds of engaging in bridging behavior compared to non-injecting clients. These risk factors further increase the likelihood of HIV infection among bridgers, who in turn have a higher risk of infecting steady partners and FSWs. Our findings suggest that bridgers engage in risky drug use and sexual behaviors that draw in risk from other high-risk groups, which can be particularly problematic in an environment without a generalized HIV epidemic. HIV in the US/Mexico border region is still emerging and characterized by disparate prevalence among high-risk versus lower-risk groups.²⁴ Because the epidemic is not yet generalized, it is extremely important to address the high-risk drug use and sexual risk practices of the bridging population in order to prevent the spread of HIV to the general population.

Male clients who used drugs during sex with an FSW were also more likely to be bridgers. Studies of other bridging populations suggest that they have similarly risky sexual and drug-using characteristics. In a study conducted in Oakland, California, of 68 men who had sex with men and women (MSMW), 38% reported concurrent unprotected sex with both male and female partners in the last three months, 85% used drugs before sex, and 71% used alcohol before sex. Men who used drugs before sex had a 10 times higher likelihood of unprotected sex.²⁵ However, because our study was cross-sectional, the direction of the

relationship between drug use and sex in this population of male bridgers is unclear. They may plan risky sex along with drug use, or the taking of certain drugs may lead spontaneously to riskier sex. It is also unclear whether these bridgers are using drugs as a coercive strategy for obtaining unsafe sex, or if they are using drugs to reduce their own inhibitions, leading to riskier behaviors. Based on other factors that were associated with bridging behavior (misogyny, sexual compulsivity, and traditional values regarding male sexuality), there may be psychological or personality factors that modify or mediate the relationship between drug use and sexual risk behavior in this population. More research is needed to examine psychological factors as pathways that influence the sexual and drug risk practices of bridging populations, especially male clients of FSWs. Psychological factors are potentially modifiable and thus are potential targets for intervention. Interventions for male clients should also seek to address the intertwining of risky sexual behaviors and drug dependency.

A male client's having paid more for unprotected sex was associated with his being a bridger. This is particularly disturbing, in that not only are bridgers putting their partners at risk for acquiring HIV and other STIs, they are also willing to pay more to do so. Strathdee et al. found that FSWs from Tijuana who reported having clients from the US were more likely to have STIs and engage in high-risk sexual behaviors, such as engaging in sex without a condom for extra pay.²⁶ These results suggest that interventions for clients might use a decisional balance approach to convince men that the benefits of always using condoms with FSWs (including paying less money) outweigh the perceived negative consequences of condom use.²⁷ Also, interventions for FSWs should teach assertiveness so that women can better resist coercion by male clients who offer extra money for unprotected sex.²⁸

Male clients who scored higher on sexual sensation-seeking had almost eight times the odds of bridging behavior compared to clients who scored lower on this dispositional construct. This result may be corroborated by other behavioral factors that were independently associated with bridging behavior, such as using drugs with an FSW and paying more for unprotected sex, both of which may be indicators of sensation-seeking. To our knowledge, no study has yet examined the associations among these psychological variables in male clients of FSWs. However, a study of young men who have sex with men (MSM) found that higher levels of sensation-seeking increased the positive association between frequency of unprotected sex and the use of substances with sexual partners.²⁹ In a study of heterosexual men and women in an STI clinic in South Africa, sensation-seeking was associated with outcome expectancies for alcohol, which in turn predicted the use of alcohol during sexual encounters.³⁰ Male clients who have elevated levels of sexual sensation-seeking may tolerate levels of risk that others find unacceptable and thus may be less responsive to standard risk-reduction interventions. Motivational interviewing and cognitive behavioral therapy may offer effective strategies (e.g., self awareness, self-monitoring) to help manage sensation-seeking in the context of sex with FSWs and other sexual partners.^{27,31}

In our second multivariable model, male clients who had sex with FSWs in their own homes had almost two-and-a-half times the odds of engaging in bridging behavior compared to clients who did not report sex with FSWs in this setting (AOR 2.51, CI 1.05–59.96). The former group may enjoy considerable familiarity with a “regular” FSW and thus feel comfortable having transactional sex with her in their own homes. The client may even be in an informal “steady” relationship with the FSW. The blurring of relationships between “regular” FSWs and wives or steady partners could also partially account for the lack of condom use in both relationships. It may be that clients of FSWs are unaccustomed to wearing condoms because they do not use them in their everyday sexual encounters with their wives or steady partner(s). These men might believe that they are not exposed to sexual

risk in their relationship with a wife or steady partner and therefore feel that they are safe from STI transmission with a quasi-steady FSW. An analysis of these same client data by Goldenberg et al. showed that repeatedly visiting an FSW was independently associated with having unprotected sex with her.³² Therefore, any intervention in this high-risk bridging population should address the men's possible beliefs about the special nature of those relationships.

There were several limitations to our study. Although non-bridgers were similar in their abstinence from combinations of behaviors that could transmit STIs or HIV between FSWs and wives or steady partners, they differed in whether they had unprotected sex at all and, among those who had unprotected sex, on which side of the “bridge” the unprotected sex occurred. Future studies should use greater sample sizes to examine differences between these three groups. Our modest sample size was also reflected in wide confidence intervals for some variables in the multivariate analyses, again indicating the need to obtain larger samples of bridgers and non-bridgers. Moreover, because our data were cross-sectional, no causal associations could be established. Temporal succession between sensation-seeking and bridging behavior, for example, was impossible to discern. In addition, our reliance on participant self-report may have led to inaccuracies due to the unreliability of memory, although it is unknown in which direction associations would have been biased by this limitation. As this population is highly marginalized and often “hidden” due to stigma, its members are generally difficult to reach. It is thus unknown whether a sub-population of bridgers who exhibit even more extreme bridging behavior exists. Therefore, our associations may be underestimates of the true behavioral associations of bridgers in this community. Further, even if our results concerning the frequency of bridging behavior among male clients of FSWs were approximately representative, it would be difficult to estimate the absolute magnitude of the problem, since the number of adult males who pay for sex in the Tijuana region or elsewhere in Mexico is unknown. However, estimates from other developing countries range from less than 2% in Nepal, Kazakhstan, Uganda, Rwanda, and Namibia to 10% or more in Benin, Cameroon, the Central African Republic, Dominican Republic, Mozambique, and Zambia.³³

This study identified male clients of FSWs in Tijuana as a bridging population that is potentially important to the generalizing of an HIV epidemic in Mexico. Our findings contribute to HIV prevention research for male clients of FSWs by providing empirical support for developing interventions that move beyond condom promotion and voluntary counseling and testing for male clients^{34,35} and that target modifiable factors such as drug use during sex, sexual sensation-seeking, and specific characteristics of client-FSW transactions. Because of male clients' complex risk profile, researchers should develop individual-level and structural interventions that directly target factors associated with their bridging behaviors, rather than rely solely on FSWs to promote behavior change among their clients. Promotion of correct condom use among clients and FSWs in locations such as the *Zona Roja*, as well as general prevention education for others who provide support and infrastructure to the sex trade industry (e.g., brothel and business owners), are two such strategies.³⁶ Overall, preventing the spread of HIV to the general population in Mexico may depend heavily upon the development of effective prevention and intervention strategies for male clients of FSWs who engage in bridging behaviors.

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Table 1

Factors Associated with Clients of FSWs without Wives or Partners (Excluded) Versus Those with Wives or Partners (Included)

Characteristic or Behavior	Male Clients			<i>p</i> -value
	Total (<i>n</i> = 383)	Without Wife or Partner (<i>n</i> = 249)	With Wife or Partner (<i>n</i> = 134)	
Age, <i>median (IQR)</i>	36 (28–43)	37 (29–45)	36 (27–42)	0.17
Resides in U.S., <i>n (%)</i>	159 (41.5%)	98 (39.4%)	61 (45.5%)	0.28
Latino/Hispanic, <i>n (%)</i>	304 (79.4%)	191 (76.7%)	113 (84.3%)	0.09
Employed, <i>n (%)</i>	232 (60.6%)	146 (58.6%)	86 (64.2%)	0.32
Heterosexual, <i>n (%)</i>	335 (87.9%)	218 (87.9%)	117 (88.0%)	1.00
Has at least one child, <i>n (%)</i>	251 (65.5%)	157 (63.1%)	94 (70.1%)	0.18
Misogyny, <i>mean (SD)</i>	2.3 (0.3)	2.3 (0.3)	2.2 (0.3)	0.34
Sexual compulsivity, <i>mean (SD)</i>	2.3 (0.5)	2.3 (0.5)	2.2 (0.6)	0.91
Sexual sensation-seeking, <i>mean (SD)</i>	2.6 (0.4)	2.6 (0.4)	2.6 (0.4)	0.37
Traditional attitudes toward male sexuality, <i>mean (SD)</i>	2.8 (0.2)	2.8 (0.3)	2.7 (0.2)	0.69
Client perceived stigma, <i>mean (SD)</i>	2.8 (0.5)	2.8 (0.5)	2.9 (0.5)	0.13
Self esteem, <i>mean (SD)</i>	2.8 (0.3)	2.8 (0.3)	2.8 (0.4)	0.24
Basic necessities, <i>mean (SD)</i>	1.6 (0.8)	1.7 (0.8)	1.5 (0.7)	0.07
Injected drugs [†] , <i>n (%)</i>	98 (25.6%)	60 (24.1%)	38 (28.4%)	0.39
Shared needle with FSW [†] , <i>n (%)</i>	47 (12.3%)	27 (10.8%)	20 (14.9%)	0.26
Shared needle with steady partner/wife/girlfriend [†] , <i>n (%)</i>	35 (9.1%)	19 (7.6%)	16 (11.9%)	0.19
Had unprotected sex with FSW [†] , <i>n (%)</i>	194 (50.7%)	120 (48.2%)	74 (55.2%)	0.20
Used drugs during sex with unpaid female partner [†] , <i>n (%)</i>	218 (56.9%)	134 (53.8%)	84 (62.7%)	0.11
Used drugs during sex with FSW [†] , <i>n (%)</i>	248 (64.8%)	161 (64.7%)	87 (64.9%)	1.00
FSW was sometimes high during sex with client [†] , <i>n (%)</i>	213 (57.3%)	136 (56.7%)	77 (58.3%)	0.83
Number of visits to FSW during past year, <i>median (IQR)</i>	10 (4–25)	10 (4–30)	8.5 (4.5–20)	0.15
Number of years that client has visited FSWs, <i>median (IQR)</i>	7 (2–17)	7 (2–18)	7 (2–16)	0.64
Had sex with FSW in home of client [†] , <i>n (%)</i>	137 (35.8%)	97 (39.0%)	40 (29.9%)	0.09
Ever offered FSW extra money to have sex without a condom, <i>n (%)</i>	63 (16.4%)	38 (15.3%)	25 (18.7%)	0.39
Tested positive for HIV, <i>n (%)</i>	15 (4.0%)	12 (4.9%)	3 (2.3%)	0.28
Tested positive for syphilis, <i>n (%)</i>	9 (2.4%)	4 (1.6%)	5 (3.8%)	0.29
Tested positive for chlamydia and/or gonorrhea, <i>n (%)</i>	34 (8.9%)	15 (6.0%)	19 (14.2%)*	0.01

[†]Past four months

Table 2

Factors Associated With Bridging Behavior Among Male Clients who Have Wives or Steady Partners

		Bridgers (n = 70)	Non-bridgers (n = 64)	OR (95% CI)
Background characteristics	Age, median (IQR)	36 (29–42)	35.5 (24–42.5)	1.02 (0.98–1.06)
	Resides in U.S., n (%)	30 (42.9%)	31 (48.4%)	0.80 (0.40–1.58)
	Latino/Hispanic, n (%)	57 (81.4%)	56 (87.5%)	0.63 (0.24–1.63)
	Lives with wife/partner, n (%)	48 (68.6%)	40 (62.5%)	1.31 (0.64–2.68)
	Employed, n (%)	41 (58.6%)	45 (70.3%)	0.60 (0.29–1.22)
	Heterosexual, n (%)	56 (81.2%)	61 (95.3%) *	0.21 * (0.06–0.78)
	Has at least one child, n (%)	50 (71.4%)	44 (68.8%)	1.14 (0.54–2.38)
Psychosocial factors	Misogyny, mean (SD)	2.3 (0.3)	2.2 (0.3) *	3.78 * (1.11–12.82)
	Sexual compulsivity, mean (SD)	2.4 (0.7)	2.1 (0.5) *	2.17 * (1.17–4.02)
	Sexual sensation-seeking, mean (SD)	2.8 (0.4)	2.4 (0.4) *	7.75 * (2.73–21.96)
	Traditional male, mean (SD)	2.8 (0.2)	2.7 (0.2) *	6.90 * (1.35–35.35)
	Client perceived stigma, mean (SD)	2.8 (0.6)	2.9 (0.5)	0.81 (0.43–1.52)
	Self esteem, mean (SD)	2.7 (0.3)	2.9 (0.4) *	0.21 * (0.06–0.67)
	Difficulty meeting basic needs, mean (SD)	1.7 (0.7)	1.4 (0.7) *	1.90 * (1.12–3.20)
Drug use behavior	Injected drugs [†] , n (%)	27 (38.6%)	11 (17.2%) *	3.03 * (1.35–6.79)
	Shared needle with FSW [†] , n (%)	17 (24.3%)	3 (4.7%) *	6.52 * (1.81–23.48)
	Shared needle with wife or steady partner [†] , n (%)	11 (15.7%)	5 (7.8%)	2.20 (0.72–6.72)
	Used drugs during sex with wife or steady partner [†] , n (%)	53 (75.7%)	31 (48.4%) *	3.32 * (1.59–6.91)
	Used drugs during sex with FSW [†] , n (%)	57 (81.4%)	30 (46.9%) *	4.97 * (2.28–10.81)
	FSW was sometimes high during sex with client [†] , n (%)	50 (73.5%)	27 (42.2%) *	3.81 * (1.83–7.92)
Behaviors associated with sex with FSWs	Number of visits to FSW during past year, median (IQR)	10 (5–30)	6 (3–13) *	1.02 * (1.00–1.03)
	Number of years that client has visited FSWs, median (IQR)	10 (3–20)	3 (1–12) *	1.06 * (1.02–1.10)
	Had sex with FSW in home of client [†] , n (%)	29 (41.4%)	11 (17.2%) *	3.41 * (1.52–7.62)
	Offered FSW extra money to have sex without a condom, n (%)	24 (34.3%)	1 (1.6%) *	32.87 [†] (4.29–251.8)
Sexually transmitted infections	Tested positive for HIV [†] , n (%)	3 (4.3%)	0 (0.0%)	
	Tested positive for syphilis, n (%)	2 (2.9%)	3 (4.8%)	0.59 (0.10–3.64)
	Tested positive for chlamydia and/or gonorrhea, n (%)	6 (8.6%)	13 (20.3%)	0.37 (0.13–1.04)

* $p < 0.05$ (p -value corresponds to descriptive statistics)[†] Past four months

[‡]The odds of bridging for every one-unit increase in the scale

[§]Odds ratio was not calculated because of structural zero cells.

Table 3

Multivariable Logistic Regression Modeling Bridging Behavior Among Male Clients with Wives or Partners, Including the Effect of Offering FSWs More Money for Sex without a Condom ($n = 134$)

Characteristic or Behavior	Bridging Behavior ($n = 70$) AOR	95% CI
Used drugs during sex with FSW, past four months	3.39 *	(1.40–8.23)
Ever offered FSW extra money to have sex without a condom	24.52 *	(3.08–195.4)
Sexual sensation-seeking scale	4.28 *	(1.41–13.02)

*
 $p < 0.05$

Table 4

Multivariable Logistic Regression Modeling Bridging Behavior Among Male Clients with Wives or Partners, Excluding the Effect of Offering FSWs More Money for Sex without a Condom ($n = 134$)

Characteristic or Behavior	Bridging Behavior ($n = 70$) AOR	95% CI
Used drugs during sex with FSW, past four months	3.25 *	(1.41–7.52)
Had sex with FSW in home of client, past four months	2.51 *	(1.05–5.96)
Sexual sensation-seeking scale	4.97 *	(1.72–14.41)

*
 $p < 0.05$