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STI/HIV test result disclosure between female sex workers and their primary, noncommercial male partners in two Mexico-U.S. border cities

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Abstract

Objectives—Disclosure of STI/HIV results to sexual partners in Mexico is left to the individual as public health guidelines do not mandate disclosure. To assess the feasibility of couples-based STI/HIV testing with facilitated disclosure as a risk reduction strategy within female sex workers' (FSWs) primary partnerships, we examined current STI/HIV test result disclosure patterns between FSWs and their primary, non-commercial male partners in Tijuana and Ciudad Juárez, two Mexico-U.S. border cities.

Methods—In a cohort study (2010–2013), 330 participants (178 FSWs and 152 primary male partners) were followed for 24 months. At semi-annual visits, participants were tested for STIs/HIV and reported on their disclosure of test results from the prior visit. Multilevel logistic regression for dyadic data was used to identify individual- and partnership-level predictors of

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Competing Interests

None

cumulative STI/HIV test result disclosure within couples during follow-up (disclosed all results vs. did not disclose 1 result).

Results—Eighty-seven percent of participants reported disclosing all STI/HIV test results to their primary partners. Non-disclosure of 1 STI/HIV test result was more common among participants who reported an STI/HIV diagnosis as part of the study (adjusted odds ratio [AOR]=3.54, 95% confidence interval [CI]: 1.18–10.60), those in longer-duration partnerships (AOR=1.11 per year, 95% CI: 1.01–1.21), and those who used drugs before/during sex within partnerships (AOR=3.71, 95% CI: 1.16–11.86). Non-disclosure was less common among participants who injected drugs (AOR=0.27, 95% CI: 0.09–0.80).

Conclusions—STI/HIV test result disclosure was highly prevalent within FSWs' primary partnerships, suggesting couples-based STI/HIV testing with facilitated disclosure may be feasible for these and potentially other socially-marginalized couples.

Keywords

Female sex workers; couples-based research; intimate partnerships; STI/HIV; Mexico

Introduction

Globally, female sex workers (FSWs) are disproportionately affected by sexually transmitted infections (STIs), including HIV.[1] Although FSWs' elevated risk of STI/HIV acquisition has been attributed to various individual, interpersonal, and structural factors, research documenting lower rates of condom use during sex with primary, non-commercial male partners than with clients[2, 3] has underscored FSWs' need for couples-based STI/HIV prevention interventions.[4] Couples HIV counseling and testing (CHCT) is an intervention promoted by the United States (U.S.) Centers for Disease Control and Prevention that involves risk assessment, pre- and post-test counseling, the development of personalized risk reduction plans, and facilitated test result disclosure.[5] The efficacy of CHCT in reducing STI/HIV-related risk behaviors has been demonstrated among heterosexual couples in Africa and the Caribbean[6] as well as partnerships between substance using women and their primary male partners in the U.S.[7] A pilot study of a couples-based intervention for people who inject drugs in Kazakhstan showed similar reductions in sexual risk behaviors associated with the intervention.[8] However, couples-based STI/HIV counseling and testing interventions with facilitated test result disclosure have not been evaluated among FSWs and their primary, noncommercial male partners in resource-constrained settings.

In Mexico, nation-wide HIV prevalence is 0.3%; however, in recent years a dynamic HIV sub-epidemic has emerged among FSWs along the Mexico-U.S. border, where poverty, migration, deportation, quasi-legal sex work, and injection drug use co-occur and magnify the risk of STIs/HIV among marginalized and vulnerable populations.[9] In a 2006 study conducted among FSWs in Tijuana and Ciudad Juárez, two Mexico-U.S. border cities, prevalence of HIV, gonorrhea, chlamydia, and active syphilis (titers 1:8) were 6%, 6%, 13% and 14%, respectively[10], while HIV prevalence among FSWs who inject drugs was 12%.[11]

In Tijuana, approximately 30–50% of FSWs have primary, non-commercial male partners. [12, 13] Although more recent data (2010–2011) from the region suggest that prevalence of STIs/HIV may be lower among substance using FSWs with primary, noncommercial male partners and even lower among their primary partners, prevalence of STI/HIV-related risk behaviors remains high within this population.[14] For example, 64% of FSWs always had unprotected sex with their primary partners in the past month.[15] Yet, 16% of FSWs and their primary partners reported concurrent partners with whom inconsistent condom use was common[15] and >50% of primary male partners reported injection drug use, which was associated with ever having sex with other men and exchanging money or goods for sex.[16] Moreover, these couples expressed difficulty disclosing extra-dyadic risk behaviors, which may exacerbate their risk.[17] Thus, given their level of STI/HIV risk and reluctance to communicate openly about risk behaviors, FSWs and their primary, non-commercial male partners along the Mexico-U.S. border may benefit from the implementation of couples-based STI/HIV counseling and testing with facilitated test result disclosure as a risk reduction strategy.

STI/HIV disclosure to sexual partners is left to the individual in Mexico as public health guidelines do not mandate disclosure (Dr. Carlos Magis-Rodriguez, personal communication 2014). Thus, little is known about current patterns of STI/HIV test result disclosure between FSWs and their primary, non-commercial male partners and whether couples-based interventions designed to facilitate disclosure would be feasible. To inform the development of such interventions for this population, we investigated the prevalence and correlates of STI/HIV test result disclosure between FSWs and their primary, non-commercial male partners in Tijuana and Ciudad Juárez. We hypothesized that non-disclosure of STI/HIV test results would be associated with characteristics at both the individual- (e.g., being STI/HIV positive and having concurrent partners) and partnership-level (e.g., partnership duration and drug use before/during sex within partnerships).

Methods

Study design and population

Proyecto Parejas was a prospective cohort study of the context and epidemiology of STIs/HIV among FSWs and their primary, non-commercial male partners conducted between 2010 and 2013 in Tijuana and Ciudad Juárez, Mexico, which has been previously described.[18] Briefly, FSWs were recruited via targeted and snowball sampling, and eligible women were asked to return to the study site with their primary, non-commercial male partners for a rigorous screening process to verify their status as a couple. Eligible FSWs had to be ≥18 years of age; report lifetime substance use (heroin, cocaine, crack, or methamphetamine); report being in a partnership with a non-commercial male partner for ≥6 months; and report sex with their noncommercial male partner as well as ≥1 client in the past month. FSWs were considered ineligible if they planned to imminently end their partnership, anticipated moving to another city, refused treatment for STIs, or expressed concern that participation would result in life-threatening intimate partner violence (IPV). Eligible male partners had to be ≥18 years of age and verify that they had sex with their FSW partners in the past month. Participants completed semi-annual study visits for 24

months and were compensated 20 USD for each visit. Participants provided written informed consent and all study protocols were approved by institutional review boards at the University of California, San Diego, Tijuana's Hospital General, El Colegio de la Frontera Norte, and the Universidad Autónoma de Ciudad Juárez.

Study procedures and data collection

At each study visit, participants provided blood samples for HIV and syphilis testing and urine samples for chlamydia and gonorrhea testing. Rapid HIV and syphilis test results were delivered to participants individually at each visit. Testing of urine samples and confirmatory testing of all rapid positive HIV and syphilis blood samples were conducted at the San Diego County Health Department. At interim visits (~1 month later), study staff delivered confirmatory HIV and syphilis test results and all chlamydia and gonorrhea test results to participants individually. At this time, participants were also encouraged to disclose their test results to their primary partners. Participants who tested positive for STIs were offered free treatment according to Mexican and U.S. guidelines, while HIV-infected participants were referred to municipal clinics for free care and treatment.

Participants also completed interviewer-administered computer questionnaires at each visit, which collected information on socio-demographics, substance use, sexual behaviors, and primary partnership characteristics, including partnership duration, trust between partners, [19] partnership satisfaction,[20] receipt of financial support from partner, frequency of vaginal and anal sex within partnerships (past month), substance use before/during sex within partnerships (past 6 months), and conflict within partnerships (past 6 months).[21] Beginning at visit three, study questionnaires collected information on whether participants received STI/HIV test results from their prior visit, and if so, what their results were and whether they disclosed their results to their primary partners. Based on their disclosure history during the study period, regardless of whether results were positive or negative, participants were categorized into one of two cumulative STI/HIV test result disclosure groups: (1) disclosed all STI/HIV test results to their primary partners and (2) did not disclose 1 STI/HIV test result to their primary partners. This binary variable was used as the outcome in our analysis.

Sample selection and follow-up

Of the 428 participants (214 FSWs and 214 primary male partners) enrolled in the study, 370 completed 1 visit during which disclosure data were ascertained. Among those participants, 330 (178 FSWs and 152 primary male partners) provided data that could be used to determine their cumulative STI/HIV test result disclosure status, and were included in our sample. Our sample contains an unequal number of FSWs and primary male partners because one member of the couple did not provide disclosure data (n=19) or the partnership dissolved during follow-up (n=13) (i.e., disclosure data were not obtained from primary male partners in the event of partnership dissolution because their follow-up was discontinued at that time). The 330 participants represented 185 primary partnerships overall – 145 in which both partners reported on disclosure, 33 in which only FSWs reported on disclosure, and 7 in which only primary male partners reported on disclosure. In the

analysis, participants were followed to their last study visit, partnership dissolution, or the end of the study period, whichever came first.

Statistical analysis

To describe our sample, we calculated descriptive statistics by gender and cumulative HIV/STI test result disclosure. Next, we calculated the Pearson-type pairwise interclass correlation coefficient (PICC) to determine the degree of within-dyad interdependence in cumulative STI/HIV test result disclosure.[22] Given the potential for Type II errors, an alpha level of 0.20 was used to interpret the Pearson-type PICC and justify the use of a multilevel modeling approach for dyadic data to account for the observed correlation within partnerships.[22]

To obtain unadjusted estimates of the effect of individual- and partnership-level characteristics on cumulative STI/HIV test result disclosure, we used bivariate multilevel logistic regression. Characteristics significantly associated with cumulative STI/HIV test result disclosure at an alpha level of 0.10 were assessed for collinearity and included in our final multivariate multilevel logistic regression model to obtain adjusted effect estimates. Less than 10% of participants who reported non-disclosure of 1 STI/HIV test result lived in Ciudad Juárez, thus this variable was excluded from the final model to minimize the potential for unstable estimates due to small cell sizes. Further, due to our limited sample size, we were unable to examine interactions within our final model. To eliminate temporal ambiguity in interpreting effect estimates, we examined the effect of individual- and partnership-level characteristics measured at visit two in all regression models. Many partnership characteristics represent shared behaviors or experiences (e.g., partnership duration) and do not vary within dyads. However, because data were ascertained from both partners in our sample, values for these characteristics varied slightly within dyads. Thus, as recommended by McMahon et al.,[22] for continuous measures we averaged values within dyads and for binary measures where only one partner reported the presence of a particular characteristic, that characteristic was considered present for both members of the dyad.

Results

Of the 330 participants, 62% contributed disclosure data from all three visits during which they were collected (median number of visits=3; IQR=2–3). The mean age of our sample was 35.7 years (SD=9.2), with primary male partners (mean=37.4 years; SD=9.3) older than FSWs (mean=34.3; SD=8.9) (Table 1). Approximately one third of participants lived in Tijuana and ~40% reported earning an average monthly income <2,500 pesos (~200 USD). In the past 6 months, 59% of participants reported injecting heroin, crack, cocaine, or methamphetamine. Over the course of follow-up, 20% of participants reported 1 positive STI/HIV test result from the study.

Among the 185 partnerships, mean partnership duration was 5.0 years (SD=4.2). In the past 6 months, 42% of partnerships used drugs before/during sex: 40% reported injection drug use only (100% injected heroin; 11% injected methamphetamine; 21% injected heroin and methamphetamine together), 39% reported non-injection drug use only (70% smoked methamphetamine; 15% smoked crack; 11% inhaled cocaine; 4% smoked heroin), and 21%

reported both injection and non-injection drug use (100% injected heroin; 93% smoked methamphetamine; 20% swallowed tranquilizers; 20% injected methamphetamine and heroin together; 6% used inhalants). In the past month, vaginal sex was practiced a mean of 9.7 times (SD=6.2) within partnerships and 89% never used condoms during vaginal sex.

Thirteen percent (42/330) of participants reported not disclosing 1 STI/HIV test result from the study. Among those 42 participants, 71% (30/42) did not disclose a negative result and 29% (12/42) did not disclose a positive result. Reasons for not disclosing a positive result included: being scared that their partner would become violent or angry (3/10), their result was positive (2/10), not trusting their partner (1/10), not thinking it was important for their partner to know (1/10), and they broke up before being able to tell their partner (3/10).

There was significant interdependence within dyads (Table 2), thus justifying the use of a multilevel modeling approach for our analysis. In bivariate multilevel logistic regression models (Table 3), non-disclosure of 1 STI/HIV test result over the course of follow-up was positively associated with living in Tijuana (odds ratio [OR]=25.70, 95% confidence interval [CI]: 7.37–89.64), being female (OR=3.64, 95% CI: 1.50–8.84), reporting more concurrent partners (past 6 months) (OR=2.78 per partner, 95% CI: 1.15–6.73), reporting 1 positive STI/HIV test result from the study (OR=4.23, 95% CI: 1.44–12.45), being in a longer-duration partnership (OR=1.12 per year, 95% CI: 1.01–1.24) and reporting drug use before/during sex within partnerships (past 6 months) (OR=6.63, 95% CI: 2.27–19.39). Non-disclosure of 1 STI/HIV test result was less common among participants reporting greater partnership satisfaction (OR=0.80, 95% CI: 0.68–0.95) and those receiving financial support from their partner (OR=0.21, 95% CI: 0.09–0.55).

In our final multivariate multilevel logistic regression model (Table 4), non-disclosure of 1 STI/HIV test result was more common among participants who reported 1 positive STI/HIV test result from the study (adjusted OR [AOR]=3.54, 95% CI: 1.18–10.60), those in longer-duration partnerships (AOR=1.11 per year, 95% CI: 1.01–1.21), and those who used drugs before/during sex within partnerships (past 6 months) (AOR=3.71, 95% CI: 1.16–11.86). Non-disclosure was less common among participants who injected drugs (past 6 months) (AOR=0.27, 95% CI: 0.09–0.80).

Discussion

To our knowledge, this is the first study to examine the prevalence and correlates of STI/HIV test result disclosure in the context of FSWs' primary partnerships. Within our sample, it was reassuring that nearly 90% of FSWs and their primary, non-commercial male partners reported disclosing all STI/HIV test results to one another. While disclosure may have been facilitated by participants' knowledge that their primary partners were also tested as part of the study, our findings highlight an existing form of resiliency that couples-based STI/HIV testing interventions could build on to reduce the risk of transmission within FSWs' primary partnerships.

However, several individual- and partnership-level characteristics were associated with non-disclosure and require consideration in the design of STI/HIV prevention interventions for

high-risk couples. First, participants who reported a positive STI/HIV test result from the study were less likely to disclose all test results. Moreover, of those who did not disclose a positive result, some cited a lack of trust or fear of violence as their reason for not disclosing. These findings are consistent with those from previous quantitative and qualitative research suggesting that perceived stigma and the fear of rejection or abuse from sexual partners limit STI/HIV disclosure.[23–25] Thus, couples-based interventions that reduce potential conflict within partnerships by promoting a safe and non-judgmental environment may facilitate STI/HIV disclosure between FSWs and their primary, non-commercial male partners.

Non-disclosure of STI/HIV test results was more common among participants in longer-term partnerships, which may be explained by contextual factors specific to resource-constrained settings that shape the lives of vulnerable populations. In Mexico-U.S. border cities, employment opportunities are often inaccessible to socially-marginalized women who use drugs, which drives many of them to sex work to support themselves and their families. [26] Their marginalized position in society is then exacerbated by the stigma associated with sex work.[17, 27] While FSWs' relationships with their primary, non-commercial male partners vary in terms of their emotional intensity, FSWs' long-term and more committed relationships are often characterized by love, trust, mutual respect, and a deep emotional connection based on shared experiences of addiction, poverty, and discrimination.[28] As a result, many FSWs depend on their intimate relationships for their emotional well-being and the sense of inclusion they provide.[27] In fact, qualitative data from this study suggest that both FSWs and their primary, non-commercial male partners adopt coping mechanisms, such as disconnecting from their situation or avoiding the discussion of sex work, to maintain their emotional connection and minimize the stress associated with sex work on their relationships.[17] Thus, STI/HIV test result disclosure, which could lead to the discussion of sex work and risk behaviors experienced with clients, may be more difficult in longer-term relationships due to a reliance on these coping strategies to maintain their relationships and protect their emotional intimacy.

Surprisingly, participants who reported injection drug use were more likely to disclose their STI/HIV test results to their primary partners. Although this finding merits further investigation, local harm reduction efforts (e.g., needle exchange programs), which have reduced sexual risk behaviors in other settings,[29] may have raised awareness about HIV transmission risks among people who inject drugs and the importance of HIV testing and serostatus disclosure to their sexual partners. On the other hand, we also found that drug use in the context of sex within partnerships was associated with non-disclosure of STI/HIV test results. This finding might be explained by the fact that 60% of partnerships that used drugs before/during sex reported non-injection drug use, and of those the majority reported smoking methamphetamine. Given the well documented association between methamphetamine use and the practice of high-risk sexual behaviors,[30] drug use before/during sex is likely a marker for higher risk behaviors within our sample. Individuals within these high-risk couples may be less likely to disclose their STI/HIV test results if they also engage in high-risk behaviors with clients or casual partners, but are not open with their primary partners about their extra-dyadic risk behaviors. Taken together, these findings suggest that interventions for FSWs and their primary, non-commercial male partners need

to address both their sexual and drug-related risk behaviors in order to facilitate STI/HIV test result disclosure as well as the development of effective risk reduction plans.

Our study has several limitations. First, to ensure the safety of participants, this study was restricted to FSWs who did not report extreme IPV within their primary partnerships. Thus, our findings may not be generalizable to all FSWs' primary partnerships as those that experience severe IPV may be less likely to disclose STI/HIV test results. Second, data were collected via face-to-face interviews conducted by study staff who encouraged participants to disclose their STI/HIV test results to their primary partners. So as not to disappoint interviewers, participants may have over-reported disclosing their STI/HIV test results during the study period. While data collection via audio computer-assisted self-interviewing (ACASI) may have improved the accuracy of reported data, ACASI was deemed infeasible in this population due to the low level of computer literacy. Thus, study staff were encouraged to develop a rapport with participants and earn their trust to minimize the potential for social desirability bias.

Despite these limitations, as one of the first studies of STI/HIV test result disclosure among FSWs and their primary, non-commercial male partners, our findings have important implications for the development of STI/HIV prevention interventions for this population, and potentially other socially-marginalized groups. Encouragingly, STI/HIV test result disclosure was highly prevalent within our sample. However, couples-based STI/HIV testing interventions for socially-marginalized couples may need to minimize potential conflict, promote effective communication, and encourage risk reduction planning within partnerships in order to facilitate STI/HIV test result disclosure and reduce STI/HIV transmission.

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Key Messages

- Couples-based STI/HIV testing with facilitated test result disclosure, which reduces STI/HIV-related risk behaviors, remains underexplored among high-risk, socially-marginalized couples in resource-constrained settings.
- STI/HIV test result disclosure was common between female sex workers (FSWs) and their primary male partners in Tijuana and Ciudad Juárez, two Mexico-US border cities.
- Couples-based interventions that minimize conflict, promote effective communication, and encourage risk reduction planning within partnerships may facilitate STI/HIV test result disclosure within socially-marginalized couples.

Table 1

Characteristics of FSWs and their primary, non-commercial male partners in two Mexico-U.S. border cities.

Characteristic ^d	Male (n=152) n (%)	Female (n=178) n (%)	Total (n=330) n (%)	Dyads (n=185) n (%)
Individual-level				
Sociodemographics				
Lives in Tijuana	47 (30.9)	73 (41.0)	120 (36.4)	80 (43.2)
Mean age in years (SD)	37.4 (9.3)	34.3 (8.9)	35.7 (9.2)	-
Average monthly income 2,500 pesos (~200 USD)	93 (63.3)	108 (63.2)	201 (63.2)	-
Arrested (past 6 months)	58 (39.7)	35 (20.4)	93 (29.3)	-
Injected any drugs (past 6 months) ^b	81 (55.5)	107 (62.6)	188 (59.3)	-
Mean # of concurrent partners (SD) (past 6 months)	0.01 (0.12)	0.16 (0.55)	0.09 (0.42)	-
FSW had regular clients (past month)	-	128 (73.6)	-	-
FSW always used condoms with clients (past 6 months)	-	67 (42.4)	-	-
Male partner traded sex (past 6 months)	9 (6.2)	-	-	-
Male partner had sex with a male (past 6 months)	7 (4.8)	-	-	-
Self-reported 1 positive STI/HIV test result ^c	21 (13.8)	46 (26.0)	67 (20.4)	-
Disclosed all STI/HIV test results ^d	142 (93.4)	146 (82.0)	288 (87.3)	-
Partnership-level				
Cohabitation	-	-	-	178 (99.4)
Mean partnership duration in years (SD)	-	-	-	5.0 (4.2)
Receives financial support from partner	129 (86.6)	141 (81.0)	270 (83.6)	-
Mean trust of partner (10-point scale) ^e (SD)	8.4 (1.7)	8.2 (1.7)	8.3 (1.7)	-
Mean partnership satisfaction (20-point scale) ^f (SD)	14.5 (1.5)	13.7 (2.4)	14.0 (2.1)	-
Victim of any conflict (past 6 months) ^g	92 (62.6)	92 (54.1)	184 (58.0)	-
Perpetrated any conflict (past 6 months) ^g	89 (60.1)	100 (58.8)	189 (59.4)	-
Alcohol used before/during sex with partner (past 6 months)	-	-	-	19 (10.6)
Drugs use before/during sex with partner (past 6 months) ^h	-	-	-	70 (41.9)
Sexual behavior (past month)				
Mean # of vaginal sex acts (SD)	-	-	-	9.7 (6.2)
Mean # of anal sex acts (SD)	-	-	-	1.0 (2.9)
Never used condoms during vaginal sex	-	-	-	155 (89.1)

Numbers may not sum to column totals due to missing values; Percents may not sum to 100 due to rounding.

Abbreviations: FSW=female sex worker; HIV=human immunodeficiency virus; STI=sexually transmitted infection; U.S.=United States; SD=standard deviation; USD=U.S. dollars.

^a All individual-level and partnership-level characteristics measured at visit 2, except for self-reported STI/HIV test results (cumulative).

^b Drugs include: heroin, crack, cocaine, and methamphetamine.

^c Self-reported being STI/HIV positive on 1 test administered during the study period.

^d STI/HIV tests performed at visits 2, 3, and 4; STI/HIV test result disclosure measured at visits 3, 4, and 5.

^e Sherman & Latkin 2001 (higher scores indicate greater trust).

^f 5 item Satisfaction with Married Life Scale (higher scores indicate greater satisfaction).

^g Conflict = psychological aggression, physical assault, injury or sexual coercion based on 8 items of the 10 item Revised Conflict Tactics Scale (CTS2).

^h Drugs include: heroin, crack, cocaine, methamphetamine, inhalants, and tranquilizers.

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Table 2

Within-dyad interdependence in cumulative STI/HIV test result disclosure between FSWs and their primary, non-commercial male partners.

		FSW disclosed all STI/HIV test results to their primary male partner (N=145)	
		Yes	No
Primary male partner disclosed all STI/HIV test results to their FSW partner (N=145)	Yes	123 (84.8%)	13 (9.0%)
	No	6 (4.1%)	3 (2.1%)

Abbreviations: FSW= female sex worker; HIV=human immunodeficiency virus; STI=sexually transmitted infection.

* Pearson-type pairwise interclass correlation coefficient (PICC) = 0.18, 80% confidence interval: 0.03 to 0.34.

Table 3

Individual- and partnership-level characteristics by cumulative STI/HIV test result disclosure between FSWs and their primary, non-commercial male partners during the study period.

Characteristic ^a	Disclosed all HIV/STI test results ^b (N=288) n (col %)	Any non-disclosure of HIV/STI test results ^b (N=42) n (col %)	Unadjusted OR (95% CI) ^c
Individual-level			
Sociodemographics			
Lives in Tijuana	82 (28.5)	38 (90.5)	25.70 (7.37, 89.64)*
Mean age in years (SD)	35.6 (9.1)	36.4 (10.0)	1.00 (0.96, 1.06)
Female	146 (50.7)	32 (76.2)	3.64 (1.50, 8.84)*
Average monthly income 2,500 pesos (~200 USD)	182 (65.2)	19 (48.7)	0.45 (0.19, 1.06)*
Arrested (past 6 months)	84 (30.0)	9 (23.7)	0.58 (0.20, 1.72)
Injected any drugs (past 6 months) ^d	171 (61.1)	17 (46.0)	0.45 (0.17, 1.17)*
Mean # of concurrent partners (SD) (past 6 months)	0.1 (0.3)	0.3 (0.9)	2.78 (1.15, 6.73)*
Self-reported 1 positive STI/HIV test result ^e	51 (17.7)	16 (39.0)	4.23 (1.44, 12.45)*
Partnership-level			
Mean partnership duration in years (SD)	4.8 (4.0)	6.7 (5.8)	1.12 (1.01, 1.24)*
Receives financial support from partner	246 (86.6)	24 (61.5)	0.21 (0.09, 0.55)*
Mean trust of partner (10-point scale) ^f (SD)	8.4 (1.6)	7.9 (2.6)	0.88 (0.72, 1.09)
Mean partnership satisfaction (20-point scale) ^g (SD)	14.2 (2.0)	13.1 (2.5)	0.80 (0.68, 0.95)*
Victim of any conflict (past 6 months) ^h	167 (59.6)	17 (46.0)	0.48 (0.19, 1.22)
Perpetrated any conflict (past 6 months) ^h	170 (60.5)	19 (51.4)	0.62 (0.26, 1.50)
Alcohol used before/during sex with partner (past 6 months)	31 (10.8)	7 (18.4)	1.91 (0.51, 7.10)
Drugs use before/during sex with partner (past 6 months) ⁱ	96 (35.3)	26 (74.3)	6.63 (2.27, 19.39)*
Sexual behavior (past month)			
Mean # of vaginal sex acts (SD)	9.8 (5.7)	10.0 (6.7)	1.01 (0.94, 1.09)
Mean # of anal sex acts (SD)	0.9 (2.1)	0.9 (1.7)	0.97 (0.78, 1.22)
Never used condoms during vaginal sex	253 (90.4)	32 (88.9)	0.91 (0.19, 4.35)

Numbers may not sum to column totals due to missing values; Percents may not sum to 100 due to rounding.

Abbreviations: HIV=human immunodeficiency virus; STI=sexually transmitted infection; FSW=female sex worker; OR=odds ratio; CI=confidence interval; SD=standard deviation; USD=U.S. dollars.

* p-value < 0.10.

^a All individual-level and partnership-level characteristics measured at visit 2, except for decision-making dominance (visit 1) and self-reported HSTI/HIV test results (cumulative).

^b STI/HIV tests performed at visits 2, 3, and 4; STI/HIV test result disclosure measured at visits 3, 4, and 5.

^c Bivariate multilevel dyadic logistic regression (SAS PROC NLMIXED).

^d Drugs include: heroin, crack, cocaine, and methamphetamine.

^eSelf-reported being STI/HIV positive on 1 test administered during the study period.

^fSherman & Latkin 2001 (higher scores indicate greater trust).

^g5 item Satisfaction with Married Life Scale (higher scores indicate greater satisfaction).

^hConflict = psychological aggression, physical assault, injury or sexual coercion based on 8 items of the 10 item Revised Conflict Tactics Scale (CTS2).

ⁱDrugs include: heroin, crack, cocaine, methamphetamine, inhalants, and tranquilizers.

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Table 4

Multivariate multilevel logistic regression estimates for the effect of individual- and partnership-level characteristics on non-disclosure of 1 STI/HIV test result between FSWs and their primary, non-commercial male partners during the study period.

Characteristic ^a	Adjusted OR (95% CI)
Individual-level	
Female	1.87 (0.68, 5.10)
Average monthly income 2,500 pesos (~200 USD)	0.61 (0.24, 1.54)
Injected any drugs (past 6 months) ^b	0.27 (0.09, 0.80)
# of concurrent partners (past 6 months)	1.97 (0.87, 4.49)
Self-reported 1 positive STI/HIV test result ^c	3.54 (1.18, 10.60)
Partnership-level	
Mean partnership duration in years (SD)	1.11 (1.01, 1.21)
Receives financial support from partner	0.39 (0.14, 1.09)
Mean partnership satisfaction (20-point scale) ^d (SD)	0.86 (0.71, 1.04)
Drugs use before/during sex with partner (past 6 months) ^e	3.71 (1.16, 11.86)

Numbers may not sum to column totals due to missing values; Percents may not sum to 100 due to rounding.

Abbreviations: HIV=human immunodeficiency virus; STI=sexually transmitted infection; FSW=female sex worker; OR=odds ratio; CI=confidence interval; USD=U.S. dollars.

^a All individual-level and partnership-level characteristics measured at visit 2, except for self-reported STI/HIV test results (cumulative).

^b Drugs include: heroin, crack, cocaine, and methamphetamine.

^c Self-reported being STI/HIV positive on 1 test administered during the study period.

^d 5 item Satisfaction with Married Life Scale (higher scores indicate greater satisfaction).

^e Drugs include: heroin, crack, cocaine, methamphetamine, inhalants, and tranquilizers.