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Client demands for unsafe sex: the socio-economic risk environment for HIV among street and off-street sex workers

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Abstract

Objective—Among sex workers (SWs) in Vancouver, Canada, this study identified social, drug use, sex work, environmental-structural and client-related factors associated with being offered and accepting more money after clients' demand for sex without a condom.

Design—Cross-sectional study using baseline (February/10–October/11) data from a longitudinal cohort of 510 SWs.

Methods—A two-part multivariable regression model was used to identify factors associated with two separate outcomes: (1) being offered and (2) accepting more money for sex without a condom in the last six months, among those who had been offered more money.

Results—The sample included 490 SWs. In multivariable analysis, being offered more money for sex without a condom was more likely for SWs who used speedballs, had higher average numbers of clients per week, had difficulty accessing condoms and had clients who visited other SWs. Accepting more money for sex without a condom was more likely for SWs self-reporting as a sexual minority and who had experienced client violence and used crystal methamphetamine use less than daily (vs. none), and less likely for SWs who solicited for clients mainly indoors (vs. outdoor/public places).

Conclusions—These results highlight the high demand for sex without a condom by clients of SWs. HIV prevention efforts should shift responsibility toward clients to reduce offers of more money for unsafe sex. Programs that mitigate the social and economic risk environments of SWs

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alongside the removal of criminal sanctions on sex work to enable condom use within safer indoor work spaces are urgently required.

Keywords

condom use; sex workers; Canada; HIV risk; clients

INTRODUCTION

Male condoms decrease the per-contact probability of male-to-female transmission of HIV by about 95% [1]. Increasing public health calls to focus on the 'feminization of the HIV pandemic', and theoretical work on gender, women and HIV [2], point to the need for more nuanced analyses of negotiation of male condom use, recognizing the important role of gendered power dynamics. Condom use within commercial sex transactions has typically been framed as the responsibility of sex workers (SWs), with research overwhelmingly aimed toward identifying SWs at high risk for condom non-use and implementing behavioural interventions (e.g., education, counseling) to increase condom use. Influenced by the 'risk environment' framework, which conceptualizes that individual HIV risk is mediated by environmental factors exogenous to the individual [3], a growing body of research has acknowledged the importance of structural factors in shaping SWs' vulnerability to HIV, including poverty and unstable housing, structural violence and government policies surrounding the regulation of sex work [4–8].

In the context of these structural factors, clients of SWs play a substantial and frequently unacknowledged role in determining the use of condoms for the prevention of HIV and other sexually transmitted infections (STIs) within commercial sex transactions. Negotiations for condom use between SWs and clients are situated within the interpersonal social environment of SWs and are influenced by a number of factors exogenous to individual SWs (e.g., sex work environment; client-related factors). Client reticence to condom use is widespread, with men resisting condom use even when they are aware they may face their own increased potential risk of acquiring HIV/STIs. Offers to SWs by clients for sex acts without condoms in exchange for financial incentives are common [9–11].

While SWs may face opposition and pressure to not use condoms by clients in the context of structural inequities, it is important to acknowledge SWs' agency and the complex negotiation process within transactions. SWs often have to make difficult micro-level decisions regarding their health and safety in the face of financial pressures and structural inequities, and face pressure to agree to sex without a condom in exchange for a higher fee [9, 10]. While most SWs who understand the personal risks would rather use condoms, some SWs may be prepared to make a trade-off in terms of their own health and safety.

While qualitative research has elucidated the complex relationships between economic incentives related to sex work and risk environments of HIV and violence [10, 12, 13], quantitative studies are rare, and largely focused on SWs who use drugs [9, 14]. The few studies have focused on economic costs to women when they practice safer sex (e.g., the amount women could lose by using condoms), or have presented theoretical economic models describing how compensation for sex work is linked with future health and social costs (e.g. stigma, forgone marriage opportunities, social exclusion, risks to health, safety and well-being)[15–18]. The objective of our study was therefore to identify the associations between social, drug use, sex work, environmental-structural and client-related factors and being offered and accepting more money after clients' pressure for sex without a condom among a large sample of SWs in Vancouver, British Columbia. These relationships are examined in the context of Canada's quasi-criminalized approach to sex work; in most of

Canada, including British Columbia, while sex work per se is legal, many of the activities surrounding sex work are criminalized (which apply equally to male, female and transgender sex workers and include communicating/soliciting for the purposes of prostitution; owning and operating a brothel/bawdy house; and living off the avails of prostitution), making the practice of sex work nearly impossible without breaking laws. To our knowledge, our study is the first to examine these relationships, which are critical in the understanding of how condom non-use can be addressed in public health interventions.

METHODS

Survey design and sample

Beginning in January 2010, youth and adult women (14 years+) were enrolled in a longitudinal cohort known as 'An Evaluation of Sex Worker's Health Access' ('AESHA'). This study is based on substantial community collaborations (e.g., sex work agencies and service providers) existing since 2005, and is monitored by a Community Advisory Board with representatives from 15+ agencies. Using time-location sampling,[19] women who exchanged sex for money within the last 30 days (SWs) were recruited through outreach to outdoor sex work locations (i.e. streets, alleys), indoor sex work venues (i.e. massage parlours, micro-brothels, and in-call locations) and independent/self-advertising SWs (e.g. online, newspapers) in Metropolitan Vancouver. Our eligibility is inclusive of transgender individuals (male-to-female, MTF) who identify as women, based on our previous work [20] and community guidance, as MTF transgender individuals work in similar spaces as the female SW population, and access the same services as the female SWs (directed toward self-identifying women, transgender inclusive). Interviews were conducted in places where women felt comfortable (i.e., three office site locations across Vancouver; within indoor sex work venues). As executed previously, outdoor sex work 'strolls' and indoor venues were identified through a participatory mapping exercise conducted with current/former SWs,[20] and continuously updated by the outreach team. The study holds ethical approval through Providence Health Care/University of British Columbia Research Ethics Board. All participants receive an honorarium of \$40CAD at each bi-annual visit for their time, expertise and travel.

Questionnaires and measures

Following informed consent, at baseline and each semi-annual follow-up visit, participants completed questionnaires by trained interviewers (both SW and non-SW interviewers) that elicited responses relating to socio-demographics, sex work patterns/client experiences, work environments; occupational violence and interactions with policing, characteristics of non-commercial or regular partnerships, violence and trauma, and drug use. Participants also completed a nurse-administered questionnaire that elicited responses relating to overall physical, mental and emotional health, sexual and reproductive health and HIV testing and treatment. As part of the nursing visit, SWs were also provided with extensive pre/and post-test counseling, testing for HIV, Hepatitis C Virus (HCV) and STIs, and referral for care and support services. Biolytical INSTI rapid tests were used for HIV screening, with reactive tests confirmed by blood draw for western blot. Urine samples were collected for gonorrhea and chlamydia, and blood was drawn for syphilis, HSV-2 antibody, and HCV. Treatment was provided for symptomatic STI infections by an on-site nurse, and free serology and Papanicolaou testing were also available for those in need, regardless of study enrollment.

Outcome

Two outcomes were included: (1) being offered more money for sex without a condom; and (2) accepting more money for sex without a condom, by both regular and one-time clients; both outcomes were assessed in a six-month timeframe. Participants were considered to

have positive ('yes') responses for each outcome if their responses included "always", "usually", "often" and "sometimes", as opposed to "never" ('no'). The outcome variables were dichotomized since conceptually, women who reported being offered or accepting more money more frequently than 'never' could potentially be exposed to HIV/STIs.

Explanatory variables

The relationships between the study outcomes and a number of explanatory variables were explored. All factors were self-reported and most factors, with the exception of age, sexual minority status and ethnicity, were reported on for the last six months. Table 1 provides a full list of explanatory variables. These included individual-level variables that capture effects within the social environment. For example, these include age, reporting being a sexual minority (lesbian, gay, bisexual, transgender, transsexual, two-spirit versus heterosexual and non-transgender), and ethnicity (Indigenous/Aboriginal ancestry, including First Nations and Métis, Inuit and visible minority, primarily comprised of Asian new immigrant/migrant SWs, versus Caucasian/white). These also included drug use and sex work-related factors (e.g., non-injection and injection drug use; exchanging sex while high), client-related factors (e.g., violence by clients) and environmental-structural variables (e.g., main place of soliciting for clients [Independent, including self-advertised, online, phone/texting; Indoor, including bars, brothels, massage/beauty parlours, dance/strip clubs; versus Outdoor/public, including streets and outdoor public spaces]).

Analysis

In bivariate analysis, categorical variables were compared using the Chi-square test and the Fisher's exact test, while continuous variables were compared using Wilcoxon rank-sum test. A two-part modeling approach was used. First, using multivariable logistic regression, we fitted an explanatory model for the relationship between the explanatory variables and the outcome 'being offered more money for sex without a condom'. Then, for SWs who had been offered more money for sex without a condom, we fitted a multivariable logistic regression explanatory model for the relationship between the explanatory variables and the outcome 'accepting more money for sex without a condom'. Odds ratios (ORs), adjusted odds ratios (AOR) and 95% confidence intervals (95% CIs) were presented. As in previous research [21, 22], a backward stepwise technique was used in the selection of covariates for an explanatory model. This modeling approach is well-suited for understanding which factors/explanatory variables best explain a high probability of our outcomes, being offered more money for sex without a condom and accepting more money for sex without a condom. The final model was selected by minimizing Akaike Information Criterion (AIC) in a step-wise manner, with selection starting with a model including only a constant and adding predictor one at a time. At each step, the effect on AIC is checked by removing a previously added variable, with a lower value suggesting a better fit. Missing data were dropped prior to model selection. Unadjusted (bivariate) odds ratios (ORs), adjusted (multivariable) odds ratios (AOR), 95% confidence intervals (95% CIs) and p-values were reported. All statistical analyses were performed using SAS software version 9.2 [23].

RESULTS

Of 510 SWs who completed baseline, 490 SWs provided valid responses to the outcome 'being offered more money for sex without a condom' and were included in the analyses. The sample had a median age of 35 years (interquartile range [IQR]: 28–42 years) and a median age at first sex work of 20 years (IQR: 15–30 years). Overall, 120 (24.5%) reported identifying as a sexual minority. The sample included 190 individuals (38.8%) of Indigenous/Aboriginal ancestry, 124 (25.3%) were visible minorities (of these, 97.5% East Asian, namely Chinese; 2.5% other visible minority) and 176 (35.9%) Caucasian/white. Of

note, Aboriginal SWs were highly overrepresented in our sample relative to the general Canadian population of women and girls (3%)[24]. Overall, 266 (54.3%) reported soliciting for clients independently, 127 (25.9%) in indoor sex work places and 347 (70.8%) outdoor sex work places, highlighting the substantial overlap in terms of sex work solicitation environments. Of the 490 respondents, 356 (72.6%) reported being offered more money for sex without a condom by clients in the last six months, with 75/302 (19.2%) reporting accepting more money after client demand (54 missing, or 11.0%). Overall, 11.4% of SWs in the sample were HIV-positive and prevalence of STIs (including chlamydia, gonorrhea and active syphilis) was 10.4%.

Offered more money

Variables associated with being offered more money for sex without a condom in bivariate analysis ($p < 0.05$) are detailed in Table 1. In multivariable analysis, significantly higher odds of being offered more money for sex without a condom were found for SWs who had, in the last six months: used speedballs (AOR: 6.93, 95% CIs: 1.60–29.94); higher average numbers of clients per week (AOR: 1.03, 95% CIs: 1.01–1.06, a 3% increase in the odds of the outcome for each one-client increase); difficulty accessing condoms (AOR: 2.72, 95% CIs: 1.09–6.77); and had clients who visited other SWs (AOR: 2.72, 95% CIs: 1.09–6.77).

Accepted more money

Variables associated with accepting more money for sex without a condom in bivariate analysis ($p < 0.05$) are detailed in Table 2. In multivariable analysis, significantly higher odds of accepting more money for sex without a condom were found for SWs self-reporting as a sexual minority (AOR: 2.72, 95% CIs: 1.35–5.46), and who had, in the last six months: experienced client violence (AOR: 2.18, 95% CIs: 1.10–4.34); were displaced (i.e., moved to another place) by security (AOR: 2.01, 95% CIs: 0.95–4.26) and had higher intensity of crystal meth use (Daily, AOR: 2.58, 95% CIs: 0.39–17.17; Less than daily, AOR: 2.95, 95% CIs: 1.27–6.87; versus none). Significantly reduced odds of accepting more money for sex without a condom was found for older SWs (AOR: 0.96, 95% CIs: 0.93–1.00, a 4% decrease in the odds of the outcome for each one-year increase) and SWs who solicited for clients indoors (vs outdoor/public places)(AOR: 0.15, 95% CIs: 0.04–0.54).

DISCUSSION

Our study confirms the high demand by clients for unprotected sex among SWs in an urban Canadian setting. Overall, nearly three-quarters of hidden street- and off-street SWs reported being offered more money for sex without a condom by clients within the last six months, with one-fifth reporting accepting more money according to client demand. We identified a number of social, drug use, sex work, environmental-structural and client-related factors and being offered and accepting more money after clients' pressure for sex without a condom among a large sample of SWs in Vancouver, British Columbia.

More frequent drug use (e.g., use of speedballs, non-injection crystal methamphetamine) was strongly associated with being offered or accepting more money for sex without a condom. These findings are consistent with other studies, which have suggested that clients looking for unprotected sex may seek out SWs who are particularly vulnerable to coercion, including women who are experiencing acute withdrawal and the immediate need to use drugs [9, 13, 25]. Despite this relationship, as well as demonstrated quantitative linkages between sex work income earned and money spent on drugs [14], it may be surprising that some measures of drug use were not associated with accepting more money due to client demand. These results may reflect how SWs with increased drug use vulnerability sometimes provide sexual services in direct exchange for drugs instead of financial

incentives [13], or may suggest that SWs agree to other higher-risk sex acts (e.g., anal sex) after client demand in exchange for increased earnings.

The relationship between experiencing physical or sexual violence by clients and accepting more money for sex without a condom supports research suggesting a link between violence and HIV risk among sex workers [26]. Violence against SWs in many settings is high, as evidenced by a recent systematic review on the factors shaping risk environments for violence among SWs globally (ranging from 50–75% lifetime to 32–55% in the last year), and has been linked to reduced condom use by clients [27]. During experiences of direct violence, including physical assault and rape, condom use is unlikely. Fear or threat of violence can result in SWs' heightened reluctance to insist on condom use, and to agree to use condoms in exchange for an increased fee to avoid client violence as a safety measure [13]. Inequitable gender-based power relations that favour male clients within environments of repeated and sustained 'everyday' occupational violence (e.g., by clients, police, pimps/managers) and in the context of criminalization of indoor sex work spaces and public communication limit the agency of women and transgender women to negotiate condom use [13].

Our results suggest potential routes of increased HIV risk to SWs through difficulty accessing condoms and having clients with other SWs as sex partners. SWs who experience difficulty accessing condoms may also experience heightened police harassment, lessening their control over negotiations with clients [13, 28]. Finally, our results suggest that SWs working in indoor settings (e.g., massage/beauty parlours; managed indoor spaces/brothels) are less likely to accept more money based on client demand relative to SWs who work in more dangerous, outdoor and street-based public settings. Multiple studies have suggested working outdoors places women at greater risk for exposure to violent predators and clients and can result in difficulty accessing safer sex and harm reduction services, and to clients' demands [5, 6, 29]. Women who work in indoor settings can have more control over negotiations with clients regarding sexual transactions and can charge increased fees, potentially reducing the need to agree to clients' demands for unsafe sex [13, 30].

Our study also suggests key social factors that can help identify SWs who may be particularly vulnerable to HIV/STIs. Sexual minority SWs experience additional and unique forms of stigma and marginalization, including homophobia and transphobia [31–33]. Stigma, gender discrimination, homophobia and transphobia, which shape the risk environment for HIV through social pathways, factor into power relations between sex workers and clients and may result in less negotiating power for sexual minority SWs. For example, many transgender SWs face high rates of physical and sexual violence [34, 35], which may compromise negotiation of condom use with clients. Further, marginalization and economic vulnerabilities have also been shown to be instrumental in sexual minority SWs' ability to negotiate HIV risk behaviours [36], including client condom use [34], suggesting increased economic pressure to accept more money for sex without a condom. Our results also suggest that, since the median age at initiation of sex work initiation in our sample was 20 years (IQR: 15–30 years) while the median age was 35 years (IQR: 28–42), older women with longer duration in sex work may be more experienced in negotiations with clients or more comfortable refusing demands for higher fees. Moreover, research also suggests that youth may be particularly at risk for economic pressures and differential power relations favouring older male partners, which may affect their vulnerability to client demand for unsafe sex [37, 38]. Importantly, these results also highlight the potential increased risk of younger SWs to acquiring HIV/STIs from clients. Finally, results suggest that having more clients may result in increased opportunities for encountering coercive clients with a preference for unprotected sex.

Our study has several limitations. Since sampling frames are difficult to construct for hidden populations, the sample was not randomly generated and may not be representative of all SWs in ours or other settings. To address this, we recruited participants through systematic time-location sampling and targeted outreach to sex work strolls and indoor locations [19], considered the best method of recruitment for mobile/hidden populations and therefore helping attract a representative sample. The study design is cross-sectional in nature and thus cannot determine causal relationships; however, although it is not possible to confirm the direction of associations, our study results are situated within a number of other studies suggesting relationships between social, drug use, sex work, environmental-structural and client-related factors and condom use. We had a large sample size for both street- and off-street SWs. As with all self-report data, responses may be subject to recall or social desirability bias, and the prevalence of being offered and/or accepting more money for sex without a condom may be higher than reported. However, we had extensively trained interviewers with experience with the sample population, and interviews were conducted in spaces where women were comfortable (i.e., indoor work places), facilitating accurate responses.

Our results point to several important structural and policy gaps in HIV programming and related recommendations to support SWs' agency and ability to refuse clients' demands for sex without a condom. While approximately three-quarters of SWs reported that clients demanded sex without a condom, it is positive that only one-fifth reported accepting clients' demands (though this may be under-reported). Our study therefore provides strong evidence of the importance of acknowledging the role of clients in the spread of HIV/STIs. Although there are limited studies on clients of SWs, [11, 39, 40] such studies are a crucial first step in understanding how to reduce demand for unprotected sex with SWs, include clients in HIV/STI programming for SWs and address client responsibility for safer sex practices. Gaining this understanding is particularly relevant in settings such as Vancouver, where the client population is highly hidden. Increasing calls are being made to develop HIV/STI programs specific to clients [41, 42], with some evidence of successful integration of hidden populations of clients demonstrated in international settings using smaller peer-based [43] and large-scale targeted [42, 44] approaches. In addition, structural policy changes that reduce economic disempowerment among SWs' are critical [45]. For example, practical interventions could include scaled-up access to sex worker-driven programs that increase SWs' financial security, including those that support SWs to engage with regulated and legal banking institutions as well as those that provide relevant education and training. SWs who wish to remain in sex work as well as those who wish to exit should be supported. Where relevant, harm reduction and drug treatment modalities, including opiate substitution therapies, should be made available for SWs who use drugs to increase economic empowerment. Safer-environment interventions that are designed for SWs and are tailored for specific sex work environments (i.e., mobile outreach [46]) can help meet the needs of SWs for an adequate no-cost condom supply.

Finally, alongside global calls [47, 48], our study adds to a growing evidence base suggesting the potential protective effects of working in indoor spaces and of changes to policies relating to the criminalization and regulation sex work, including punitive sanctions and enforcement-based policing approaches that target public solicitation and prevent the development of safer indoor sex work spaces, to enable condom use in commercial sex transactions. In Ontario, Canada, such sex work laws were recently overturned based on evidence that such laws negatively impact SWs' health and safety, including HIV risk prevention practices (similar court cases are ongoing in British Columbia, Canada)[49, 50]. Decriminalized environments support SWs to self-regulate industry practices through collectivization processes and re-conceptualization of sex work as work, including setting prices and limiting competition, that drive unprotected sex, as well as maintaining

occupational health and safety standards [51]. Safer indoor sex work spaces tailored for local social and cultural contexts can enhance SWs' agency to decline pressure from clients to have unprotected sex through buffers of social support, self-regulation and organization. For example, non-exploitative managed brothels in designated areas where sex work is tolerated might be appropriate for SWs who prefer a distinction between work and home, while a focus on home-based sex work could work better for SWs who feel their safety could be compromised if there is an increased risk of disclosure by travelling to designated areas. Drawing on the experiences and knowledge of SWs is key in identifying the most effective HIV prevention approaches for SWs and addressing upstream factors that shape socio-economic HIV risk environments.

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Table 1

Social, drug use, sex work, structural-environmental and client-related factors of sex workers (SWs) in Vancouver, Canada, according to whether or not they were offered more money for sex without a condom.

	Offered more money for sex without a condom n=356	Not offered more money for sex without a condom n=134	OR [95% confidence intervals]	p-value
(N (Proportion) or median (IQR))				
Social				
Age (years)	35.00 (28.00, 42.00)	35.00 (28.00, 44.00)	0.99 (0.97, 1.03)	0.600
Age at first sex work (years)	20.00 (16.00, 30.00)	20.00 (15.00, 29.00)	1.00 (0.98, 1.03)	0.694
Sexual identity				
Sexual minority	83 (23.4%)	37 (27.4%)	0.81 (0.51, 1.27)	0.354
Straight	272 (76.6%)	98 (72.6%)		
Ethnicity				
Aboriginal	132(37.2%)	58(43.0%)	0.74(0.46, 1.17)	0.193
Visible minority	90(25.3%)	34(25.2%)	0.86(0.51, 1.44)	0.560
Caucasian/white	133(37.5%)	43(31.8%)		
Supports someone financially ¹				
Yes	105 (29.6%)	32 (23.7%)	1.35 (0.86, 2.14)	0.196
No	250 (70.4%)	103 (76.3%)		
Drug use				
Crack use intensity				
Daily	135 (38.0%)	32 (23.7%)	1.70(1.03,2.81)	0.038
Less than daily	91 (25.6%)	51 (37.8%)	0.72(0.45,1.15)	0.170
None	129 (36.3%)	52 (38.5%)		
Crystal meth intensity				
Daily	9 (2.5%)	2 (1.5%)	1.76(0.37,8.26)	0.475
Less than daily	44 (12.4%)	15 (11.1%)	1.15(0.61, 2.14)	0.668
None	302 (85.1%)	118 (87.4%)		
Heroin intensity (injection)				
Daily	63 (17.7%)	19 (14.1%)	1.44(0.82,2.52)	0.207
Less than daily	59 (16.6%)	15 (11.1%)	1.70(0.92,3.15)	0.088
None	233 (65.6%)	101 (74.8%)		
Cocaine (injection)				
Yes	62 (17.5%)	11 (8.1%)	2.39 (1.21, 4.68)	0.010
No	293 (82.5%)	124 (91.9%)		
Speedballs (injection)				
Yes	33 (9.3%)	2 (1.5%)	6.82 (1.61, 28.81)	0.003
No	322 (90.7%)	133 (98.5%)		
Sex work				
Numbers of clients per week	12.00 (6.00, 20.00)	9.00 (4.00, 18.00)	1.03 (1.01, 1.06)	0.002
Exchange sex while high				
Yes	226 (63.7%)	71 (52.6%)	1.58 (1.06, 2.36)	0.025

	Offered more money for sex without a condom n=356	Not offered more money for sex without a condom n=134	OR [95% confidence intervals]	p-value
	(N (Proportion) or median (IQR))			
No	129 (36.3%)	64 (47.4%)		
Sex work main income				
Yes	297 (83.7%)	103 (76.3%)	1.59 (0.98, 2.59)	0.060
No	58 (16.3%)	32 (23.7%)		
Has a manager/pimp ²				
Yes	17 (4.8%)	5 (3.7%)	1.31 (0.47, 3.62)	0.604
No	338 (95.2%)	130 (96.3%)		
Environmental-structural				
Place of soliciting				
Independent	51 (14.4%)	21 (15.6%)	0.89(0.50, 1.58)	0.698
Indoor	100 (28.2%)	39 (28.9%)	0.94(0.60, 1.49)	0.799
Outdoor/public	204 (57.5%)	75 (55.6%)		
Displaced by police				
Yes	136 (38.3%)	36 (26.7%)	1.71 (1.10, 2.64)	0.016
No	219 (61.7%)	99 (73.3%)		
Displaced by security				
Yes	57 (16.1%)	14 (10.4%)	1.65 (0.89, 3.08)	0.110
No	298 (83.9%)	121 (89.6%)		
Rushed negotiation due to police				
Yes	138 (38.9%)	40 (29.6%)	1.51 (0.99, 2.31)	0.057
No	217 (61.1%)	95 (70.4%)		
Difficulty accessing condoms				
Yes	40 (11.3%)	7 (5.2%)	2.32 (1.01, 5.32)	0.041
No	315 (88.7%)	128 (94.8%)		
Client-related³				
Physical or sexual violence by clients				
Yes	148 (41.7%)	39 (28.9%)	1.76 (1.15, 2.70)	0.009
No	207 (58.3%)	96 (71.1%)		
Most clients are regular				
Yes	65 (18.3%)	34 (25.2%)	0.67 (0.42, 1.07)	0.090
No	290 (81.7%)	101 (74.8%)		
Most clients have another partner ⁴				
Yes	150 (42.3%)	45 (33.3%)	1.46 (0.97, 2.22)	0.071
No	205 (57.7%)	90 (66.7%)		
Most clients have other SW partners				
Yes	170 (47.9%)	45 (33.3%)	1.84 (1.21, 2.78)	0.004
No	185 (52.1%)	90 (66.7%)		
Most clients are from the inner city/drug use epi-centre ⁵				

	Offered more money for sex without a condom n=356	Not offered more money for sex without a condom n=134	OR [95% confidence intervals]	p-value
	(N (Proportion) or median (IQR))			
Yes	11 (3.1%)	8 (5.9%)	0.51 (0.20, 1.29)	0.148
No	344 (96.9%)	127 (94.1%)		
Most clients use injection drugs				
Yes	54 (15.2%)	19 (14.1%)	1.10 (0.62, 1.93)	0.752
No	301 (84.8%)	116 (85.9%)		
Most clients use non-injection drugs				
Yes	2 (0.6%)	0 (0.0%)	0.92(0.07, infinity)	1.000
No	353 (99.4%)	135 (100.0%)		

¹ e.g., child, family

² e.g., including business owner/manager, pimp, or boyfriend

³ 'most' was quantified as >75% of the time

⁴ e.g., wife, girlfriend

⁵ Downtown Eastside neighbourhood in Vancouver, Canada

Table 2

Social, drug use, sex work, structural-environmental and client-related factors of sex workers (SWs) in Vancouver, Canada, according to whether or not they accepted more money for sex without a condom.

	Accepted more money for sex without a condom n=75	Did not accept more money for sex without a condom n=227	OR [95% confidence intervals]	p-value
(N (Proportion) or median (IQR))				
Individual-social				
Age (years)	31.00 (26.00, 40.00)	36.00 (29.00, 42.00)	0.95 (0.92, 0.98)	0.001
Age at first sex work (years)	17.00 (14.00, 22.00)	21.00 (16.00, 33.00)	0.93 (0.90, 0.97)	<.0001
Sexual identity				
Sexual minority	28 (39.4%)	54 (19.1%)	2.75 (1.57, 4.82)	0.000
Straight	43 (60.6%)	228 (80.9%)		
Ethnicity				
Aboriginal	31 (43.7%)	101 (35.8%)	0.79(0.45,1.40)	0.418
Visible minority	7 (9.9%)	96 (34.4%)	0.19(0.08,0.45)	0.000
Caucasian/white	33(46.5%)	85(30.1%)		
Supports someone financially ¹				
Yes	14 (19.7%)	90 (31.9%)	0.52 (0.28, 0.99)	0.044
No	57 (80.3%)	192 (68.1%)		
Drug use				
Crack use intensity				
Daily	42 (59.2%)	92 (32.6%)	4.90(2.39, 10.03)	0.000
Less than daily	18 (25.4%)	72 (25.5%)	2.68(1.20, 6.00)	0.016
None	11 (15.5%)	118 (41.8%)		
Crystal meth intensity				
Daily	3 (4.2%)	6 (2.1%)	2.71(0.65, 11.23)	0.168
Less than daily	21 (29.6%)	21 (7.4%)	5.43(2.75, 10.71)	0.000
None	47 (66.2%)	255 (90.4%)		
Heroin intensity (injection)				
Daily	19 (26.8%)	43 (15.2%)	2.33(1.22, 4.43)	0.010
Less than daily	15 (21.1%)	44 (15.6%)	1.80(0.91, 3.56)	0.093
None	37 (52.1%)	195 (69.1%)		
Cocaine (injection)				
Yes	15 (21.1%)	46 (16.3%)	1.37 (0.72, 2.64)	0.338
No	56 (78.9%)	236 (83.7%)		
Speedballs (injection)				
Yes	9 (12.7%)	24 (8.5%)	1.56 (0.69, 3.52)	0.281
No	62 (87.3%)	258 (91.5%)		
Sex work				
Numbers of clients per week	15.00 (6.00, 28.00)	12.00 (6.00, 20.00)	1.018 (1.00, 1.03)	0.011
Exchange sex while high				
Yes	64 (90.1%)	160 (56.7%)	6.97 (3.09, 15.75)	0.000

	Accepted more money for sex without a condom n=75	Did not accept more money for sex without a condom n=227	OR [95% confidence intervals]	p-value
	(N (Proportion) or median (IQR))			
No	7 (9.9%)	122 (43.3%)		
Sex work main income				
Yes	63 (88.7%)	233 (82.6%)	1.66 (0.75, 3.68)	0.211
No	8 (11.3%)	49 (17.4%)		
Has a manager/pimp ²				
Yes	6 (8.5%)	11 (3.9%)	2.27 (0.81, 6.38)	0.109
No	65 (91.5%)	271 (96.1%)		
Environmental-structural				
Place of soliciting				
Independent	9 (12.7%)	42 (14.9%)	0.54(0.25,1.19)	0.128
Indoor	5 (7.0%)	95 (33.7%)	0.13(0.05,0.35)	0.000
Outdoor/public	57 (80.3%)	145 (51.4%)		
Displaced by police				
Yes	37 (52.1%)	97 (34.4%)	2.08 (1.23, 3.51)	0.006
No	34 (47.9%)	185 (65.6%)		
Displaced by security				
Yes	23 (32.4%)	34 (12.1%)	3.50 (1.89, 6.45)	0.000
No	48 (67.6%)	248 (87.9%)		
Rushed negotiation due to police				
Yes	35 (49.3%)	101 (35.8%)	1.74 (1.03, 2.95)	0.037
No	36 (50.7%)	181 (64.2%)		
Difficulty accessing condoms				
Yes	10 (14.1%)	29 (10.3%)	1.43 (0.66, 3.09)	0.361
No	61 (85.9%)	253 (89.7%)		
Client-related³				
Physical or sexual violence by clients				
Yes	48 (67.6%)	98 (34.8%)	3.92 (2.25, 6.82)	0.000
No	23 (32.4%)	184 (65.2%)		
Most clients are regular				
Yes	10 (14.1%)	55 (19.5%)	0.68 (0.33, 1.40)	0.292
No	61 (85.9%)	227 (80.5%)		
Most clients have another partner ⁴				
Yes	23 (32.4%)	125 (44.3%)	0.60 (0.35, 1.04)	0.069
No	48 (67.6%)	157 (55.7%)		
Most clients have other SW partners				
Yes	28 (39.4%)	142 (50.4%)	0.64 (0.38, 1.09)	0.100
No	43 (60.6%)	140 (49.6%)		
Most clients are from the inner city/drug use epi-centre ⁵				

	Accepted more money for sex without a condom n=75	Did not accept more money for sex without a condom n=227	OR [95% confidence intervals]	p-value
	(N (Proportion) or median (IQR))			
Yes	4 (7.1%)	7 (3.1%)	2.43 (0.69, 8.61)	0.157
No	52 (92.9%)	221 (96.9%)		
Most clients use injection drugs				
Yes	18 (29.5%)	35 (13.9%)	2.58 (1.34, 4.98)	0.004
No	43 (70.5%)	216 (86.1%)		
Most clients use non-injection drugs				
Yes	2 (3.2%)	0 (0.0%)	9.43(0.73, infinity)	0.084
No	60 (96.8%)	239 (100.0%)		

¹ e.g., child, family

² e.g., including business owner/manager, pimp, or boyfriend

³ 'most' was quantified as >75% of the time

⁴ e.g., wife, girlfriend

⁵ Downtown Eastside neighbourhood in Vancouver, Canada

Table 3

Multivariable associations between social, drug use, sex work, structural-environmental and client-related factors of sex workers (SWs) in Vancouver, Canada, and being offered and accepting more money for sex without a condom

	Offered more money for sex without a condom		Accepted more money for sex without a condom	
	AOR	p-value	AOR	p-value
Social-demographic				
Age (years)	/		0.96 (0.93, 1.00)	0.048
Sexual identity				
Sexual minority	/		2.72 (1.35, 5.46)	0.005
Straight	/		1.0 (ref)	
Drug use				
Crystal meth intensity				
Daily	/		2.58 (0.39, 17.17)	0.326
Less than daily	/		2.95 (1.27, 6.87)	0.012
None	/		1.0 (ref)	
Speedballs (injection)				
Yes	6.93 (1.60, 29.94)	0.010	/	
No	1.0 (ref)		/	
Sex work				
Numbers of clients per week	1.03 (1.01, 1.06)	0.002	/	
Environmental-structural				
Place of soliciting				
Independent	/		0.56 (0.22, 1.41)	0.565
Indoor	/		0.15 (0.04, 0.54)	0.047
Outdoor/public	/		1.0 (ref)	
Difficulty accessing condoms				
Yes	2.72 (1.09, 6.77)	0.031	/	
No	1.0 (ref)		/	
Client-related¹				
Physical or sexual violence by clients				
Yes	1.42 (0.90, 2.25)	0.130	2.18 (1.10, 4.34)	0.025
No	1.0 (ref)		1.0 (ref)	
Most clients have other SW partners ²				
Yes	1.83 (1.19, 2.84)	0.006	/	
No	1.0 (ref)		/	

¹ 'most' was quantified as >75% of the time

² e.g., wife, girlfriend