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## Drug sharing with clients as a risk marker for increased violence and sexual and drug-related harms among survival sex workers

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### Abstract

Previous studies have described links between violence, decreased condom use and drug sharing among intimate partners, though limited information exists about the predictors of drug sharing among female sex workers and their clients. The following analysis explored the association between sharing illicit drugs with clients and sexual and drug-related harms among survival sex workers. A total of 198 women participated in interview-administered questionnaires and confidential HIV testing. Of the total, 117 (59%) reported sharing drugs with clients/johns (unknown/one-time clients) in the last six months and crack cocaine was the primary drug shared ( $n = 108$ ). In logistic regression analysis, sharing drugs with clients/johns was associated with borrowing a used crack pipe (AOR = 5.63; 95%CI: 2.71–9.44;  $p < 0.001$ ), intensive/daily crack cocaine smoking (AOR = 3.78; 95%CI: 1.60–8.92;  $p < 0.002$ ), inconsistent condom use by a client/john (AOR = 3.17; 95%CI: 1.48–6.77;  $p < 0.003$ ) and having a recent bad date (verbal harassment, physical and/or sexual assault) (AOR = 2.71; 95%CI: 1.17–6.32;  $p = 0.021$ ). Sharing illicit drugs with clients/johns may be a crucial risk marker for increased violence and sexual and drug-related harms among survival sex workers. HIV prevention and harm reduction initiatives targeting both women and clients/johns are urgently needed, including enhanced support for community and peer-driven sex work initiatives, to address some of the structural facilitators for HIV transmission.

### Introduction

Indirect sharing practices among drug users, including the preparation and apportioning of jointly obtained drugs, have been hypothesized to increase the risk of infectious disease transmission (Bourgeois, 1999; Flinlinson et al., 2005; Inciardi & Page, 1991; Koester et al., 2005, 2003). The pooling of resources among drug users commonly leads to the process of drug sharing and is often highly gendered. Among intimate partners, couple drug-involvement has been found to be directly associated with male psychological dominance, increased physical and sexual violence and concomitant sexual HIV risks (El-Bassel et al., 2004). An increased risk of HIV and HCV transmission among both male and female injection drug users (IDUs) who share drugs has been shown to be facilitated through multiple pathways including direct syringe borrowing, syringe-mediated sharing practices, such as frontloading (a method of distributing shared drugs through needles) or sharing of other injection paraphernalia, having a recent casual sex partner, smoking crack cocaine and exchanging of sex for drugs or money (Bourgeois 1999; Fernando et al., 2003; Flinlinson

et al., 2005; Grund et al., 1996, 1991; Koester et al., 2005, 2003)

Despite significant evidence of increased sexual and drug-related HIV risks among intimate, IDU partners who share drugs, to our knowledge there has been no research to date exploring the correlates of drug sharing among female sex workers and their clients. The well-established association between exchanging sex and smoking crack cocaine both in this setting and elsewhere (Booth et al., 2000; Edlin et al., 1994; Spittal et al., 2003; Ward et al., 2000; Wechsberg et al., 2003) suggests a significant potential for sharing of drugs through the sex-for-drugs or -money transaction that may have important implications for HIV-prevention efforts. Epidemiological literature on sexual and drug-related risks among sex workers often ignores the complex gendered nature of condom negotiation, drug use practices and the sex-for-drugs exchange. As described elsewhere, a discussion of risk behaviours must move beyond outcomes of 'individual choices' to consider behaviours as 'negotiated interactions' (Amaro, 1995; Rhodes, 2002). Survival sex and addiction are highly gendered constructs, as evidenced by the

disproportionately high number of women needing assisted injection (O'Connell et al., 2005), the role of control in exchange of sex for drugs, and the overwhelming burden of new HIV infections faced by women (El-Bassel et al., 2000; Spittal et al., 2002). Also, substance-using women engaged in sex work have been consistently shown to experience high rates of violence, and a fear of future victimization has been associated with decreased likelihood of insisting on condom use (Wechsberg et al., 2005).

In Vancouver, Canada, women engaged in survival sex work have remained largely at the periphery of HIV-prevention and harm-reduction policies and services despite compelling evidence of greatly enhanced vulnerabilities to HIV transmission among women and Aboriginal women who inject drugs (Craib et al., 2003; Spittal et al., 2003). Survival sex work may include the exchange of sex for money, drugs, shelter or other commodities. The multiplicity of vulnerabilities faced by this population, including entrenched poverty, substance abuse, repeated violence and sexual assault, stigma and mental illness, directly enhance a woman's risk of HIV infection (Baseman et al., 1999; Booth et al., 2000; El-Bassel et al., 2001; Spittal et al., 2003). In addition, the criminalisation of sex work, and in particular the communication provision designed to reduce the visible presence of street prostitution, has had the direct impact of displacing street prostitution to less visible areas, increasing vulnerability to violence and assault (Brannigan & Fleischman, 1989; Goodyear et al., 2005; Lowman, 2004).

Despite intersections of violence, sexual and drug-related harms among substance-using women in sex work, there is surprisingly little research to date aimed at elucidating the correlates of drug sharing in the sex-for-money or -drugs transaction. The following analysis therefore explores the association between sharing illicit drugs with clients and sexual and drug-related harms among survival sex workers. Given previous literature on drug sharing among IDU partners, it is hypothesized that the process of drug sharing in the sexual transaction may play a key role in mediating infectious disease risk through both sexual and drug-related risk practices.

## Methods

The Maka Project is a community-based HIV-prevention research project that was created to explore the harms and barriers faced by women survival sex workers in an effort to inform evidence-based policy and practice tailored to this population. Maka represents a community-academic partnership between the WISH Drop-In Centre Society and the British Columbia Centre for Excellence in HIV/AIDS.

The present analysis is restricted to interviews and HIV diagnostic testing conducted between September and November 2004. Participants were recruited through targeted sampling at a low-threshold drop-in centre for street-entrenched women engaged in survival sex work. All substance-using women who had exchanged sex for drugs, money or shelter within the last month were eligible to participate. Injection drug use was not considered an eligibility criteria to participate, with only approximately half injecting drugs in this population, while smokeable crack cocaine is the primary drug of choice (88%) (Shannon et al., 2005). Participants were allocated referral cards with appointment times and all interviews and HIV testing were conducted off-site by peer-interviewers during evening hours. Participants received \$20 remuneration for their participation and time. The University of British Columbia/ Providence Health Research Ethics Board provided approval for this study.

The dependent variable of interest in this analysis was drug sharing. Based on the available theoretical and evidence-based literature on drug sharing among IDUs, we were interested in the drug sharing process rather than specific micro-sharing practices (Koester et al., 2003). Drug sharing was therefore defined as use of illicit drugs with clients in the last six months at the time of interview and types of injection or non-injection drugs shared.

Key explanatory variables of interest included condom use by clients, drug use patterns, sharing of injection and non-injection paraphernalia, violence with clients and HIV/HCV/STI infections. Inconsistent condom use by clients was based on self-reported frequency of condom use over the last six months for vaginal or anal sex and included any unprotected sex. In addition, two other variables were considered as proxies for condom use negotiation: having been offered more money to not use a condom by a client and, if yes, having agreed to not using a condom. Drug use behaviours included frequency of cocaine injection, heroin injection, crystal methamphetamine injection and crack cocaine smoking over the last six months (daily versus less than daily use). Given the high levels of crack cocaine use, intensive crack use was defined as smoking greater than ten rocks per day. Drug-related harms included injection bingeing (defined as more than ten injections in a 24 hour period), requiring assistance to inject and borrowing used injection and non-injection drug use paraphernalia. A recent bad date was defined as having experienced verbal harassment, physical and/or sexual abuse by a client in the last six months. HIV status was based on diagnostic testing conducted at the time of interview by the project nurse using the standard ELISA test

and confirmatory western blot. HCV and STI infection were based on self-report.

Demographic variables considered included age (continuous), ethnicity, housing status, living status of both worker and client and education level (high school completed versus less than high school). As previously (Shannon et al., 2005), ethnicity was defined as self-identifying as being of Aboriginal ancestry (inclusive of First Nations, Metis, Inuit and non-status Aboriginal) versus non-aboriginal, and unstable housing was defined as living arrangements that included single room occupancy hotels, transitional housing and no fixed address/homeless. Living status was defined as living in the Downtown Eastside (DTES) core versus outside the DTES.

Descriptive and univariate analyses were used to explore associations between drug sharing and socio-demographic characteristics, health status, violence and sexual and drug-related harms. Means were used to describe normally distributed variables and medians were used to describe skewed variables. Categorical and explanatory variables were analyzed using Pearson  $\chi^2$ , normally distributed continuous variables were analyzed using *t*-tests for independent variables and skewed continuous variables were analyzed using Mann-Whitney U tests. A logistic regression model was fitted using forward conditional regression procedures, the likelihood ratio test and variables associated with drug sharing at  $p < 0.05$  at the univariate level. The model was adjusted for age and ethnicity. All reported *p*-values are two-sided and odds ratios (ORs) reported at 95% confidence intervals (CIs).

## Results

In total, 198 women participated in interview-administered questionnaires and confidential HIV testing, of which 111 (57%) self-identified as being

of First Nations, Metis, or Inuit ancestry, 38% as white and 5% as other visible minority populations. The median age at the time of interview was 39 years (interquartile range [IQR] = 34–44). Eighty-seven percent reported living in the Downtown Eastside community and 90% reported having some or all clients from the DTES. The vast majority of women (82%) lived in unstable living situations, of which 22% had no fixed address or were living on the street. Based on diagnostic testing, the overall HIV prevalence was 26%. Self-reported HCV prevalence was 59% and 11% reported a recent STI diagnosis (gonorrhoea, chlamydia, syphilis).

Of the total, 117 (59%) reported sharing drugs with clients in the last six months. In terms of specific drugs shared, crack cocaine was the primary drug shared among 108 (54%) of women, while only 13% shared injection drugs (9% cocaine injection, 8% heroin injection, 6% speedball injection), 13% alcohol and 9% marijuana. The univariate analyses of associations between sharing drugs with clients and sociodemographic characteristics, health status and sexual and drug-related harms are shown in Tables I and II. As indicated, sharing drugs with clients was associated with living in the Downtown Eastside core (OR = 1.41; 95%CI: 1.02–2.00), daily alcohol consumption (OR = 1.60; 95% CI: 1.03–2.48), public injecting (OR = 1.62; 95%CI: 1.00–2.61), daily crack cocaine smoking (OR = 2.09; 95%CI: 1.54–2.83), intensive daily crack cocaine smoking (OR = 2.50; 95%CI: 1.45–4.26), inconsistent condom use by client/john (OR = 2.95; 95%CI: 1.38–4.68), having a recent bad date (OR = 3.18; 95%CI: 1.51–6.69), client insisting on more money to not use a condom (OR = 5.62; 95%CI: 3.02–10.55), borrowing a used crack pipe (OR = 6.18; 95%CI: 3.29–11.62) and having agreed to not using a condom (OR = 8.64; 95%CI: 2.00–37.98).

Table I. Univariate associations between sharing drugs with clients and sociodemographic characteristics and health status among survival sex workers.

Characteristic	Sharing drugs with clients		OR (95%CI)	<i>p</i> -value
	Yes ( <i>n</i> = 117) <i>n</i> (%)	No ( <i>n</i> = 81) <i>n</i> (%)		
Median age [IQ Range]	38 (34–44)	40 (36–44)		0.273
Aboriginal ethnicity	62 (53)	49 (61)	0.74 (0.41–1.31)	0.296
Live in the DTES core	84 (72)	47 (58)	1.41 (1.02–2.00)	0.044
Some or all clients from the DTES	109 (93)	69 (85)	1.55 (0.04–2.32)	0.067
Unstable housing	99 (85)	64 (79)	1.24 (0.84–1.83)	0.310
Homeless/no fixed address	29 (25)	15 (19)	1.26 (0.80–1.97)	0.297
High school completed	53 (45)	26 (32)	1.40 (0.97–20.3)	0.062
Recent incarceration	22 (19)	13 (16)	1.12 (0.70–1.79)	0.617
HIV infection	30 (26)	22 (27)	0.96 (0.66–1.39)	0.811
HCV infection	80 (68)	53 (65)	1.08 (0.76–1.53)	0.664
Other recent STI infections (gonorrhoea, syphilis, clamydia)	12 (10)	8 (10)	1.03 (0.58–1.80)	0.931

Table II. Univariate associations between sharing drugs with clients and violence and sexual and drug-related harms among survival sex workers.

Characteristic	Sharing drugs with clients		OR (95% CI)	p-value
	Yes (n = 117) n(%)	No (n = 81) n(%)		
History of injection drug use	67 (58)	43 (53)	1.11 (0.79–1.54)	0.561
Daily cocaine injection*	30 (26)	19 (24)	1.07 (0.72–1.60)	0.726
Daily heroin injection*	35 (30)	19 (24)	1.22 (0.81–1.84)	0.316
Daily alcohol consumption*	42 (36)	17 (21)	2.11 (1.10–4.10)	0.024
Daily crack cocaine smoking*	101 (86)	48 (59)	2.09 (1.54–2.83)	<0.001
Intensive, daily crack cocaine smoking* (>10rocks/day)	48 (41)	12 (15)	4.00 (2.00–8.18)	<0.001
Borrowing a used crack pipe*	80 (68)	21 (26)	6.18 (3.29–11.62)	<0.001
Borrowing a used syringe*	6 (5)	2 (3)	2.14 (0.42–10.86)	0.350
Public injecting*	36 (31)	14 (17)	1.62 (1.00–2.61)	0.032
Requiring assistance to inject*	29 (25)	16 (20)	1.20 (0.78–1.85)	0.406
Inconsistent condom use by clients*	89 (76)	45 (56)	2.95 (1.38–4.68)	0.002
Client insisting on more money to not use a condom*	91 (78)	31 (38)	5.65 (3.02–10.55)	<0.001
Agreed to more money to not use a condom*	21 (18)	2 (3)	8.64 (2.00–37.98)	0.001
Recent bad date (harassment, physical and/or sexual assault)*	39 (33)	11 (14)	3.18 (1.51–6.69)	0.002

\*Refer to self-reported behaviours and harms in the last six months at the time of interview.

As indicated in Table III, in logistic regression analysis, sharing drugs with clients/johns was independently associated with borrowing a used crack pipe (aOR = 5.63; 95%CI: 2.71–9.44;  $p < 0.001$ ), intensive/ daily crack cocaine smoking (aOR = 3.78; 95%CI: 1.60–8.92;  $p < 0.002$ ), inconsistent condom use by a client/john (aOR = 3.17; 95%CI: 1.48–6.77;  $p < 0.003$ ) and having a recent bad date (aOR = 2.71; 95%CI: 1.17–6.32;  $p < 0.021$ ).

## Discussion

Sharing illicit drugs with clients/johns may be a crucial risk marker for heightened vulnerability to violence and sexual and drug-related harms among survival sex workers. In this study, over half of survival sex workers reported drug sharing with clients and sharing drugs was associated with several factors previously linked to increased likelihood of infectious disease transmission, including multiple unprotected sexual encounters and intensive crack cocaine smoking.

Among drug-related harms, sharing drugs with clients was associated with intensive daily crack use and borrowing a used crack pipe. While approximately half the women in this study were IDUs in addition to non-IDUs, only risky crack-related

harms were independently associated with using drugs with clients. Despite a plethora of evidence of the association between crack cocaine smoking and heightened rates of infectious disease transmission (Edlin et al., 1994; Tortu et al., 2004; Ward et al., 2000), the exact mechanism for this risk is still not well understood. Crack cocaine smokers have a high prevalence of oral sores, cuts and burns to lips and mouth that likely facilitate blood-borne infections, particularly HCV, through risky sexual practices such as unprotected sexual encounters and sharing of non-injection drug use paraphernalia (Edlin et al., 1994; Tortu et al., 2004; Ward et al., 2000). Although the risk of blood-borne transmission is likely heightened through the sharing of crack pipes between infected and uninfected partners, the lack of association between sharing of drugs and HIV or HCV status of women should be interpreted with caution. Given the observed associations with known HIV risk factors, it is likely that drug sharing is an intermediary-step in facilitating enhanced HIV risk among both sex workers and their clients.

The association between intensive daily crack use and sharing drugs with clients may further highlight the intrinsic nature of crack use and survival sex, as well as the gendered nature of addiction in this community. While the vast majority of women were

Table III. Logistic regression model of factors independently associated with sharing drugs with clients among survival sex workers.

Characteristic	AOR (95%CI)	95%CI	p-value
Borrowing a used crack pipe	5.73	2.71–9.44	<0.001
Intensive/daily crack cocaine smoking	3.78	1.60–8.92	0.002
Inconsistent condom use by client/john	3.17	1.48–6.77	0.003
Recent bad date (harassment, physical and/or sexual assault)	2.71	1.17–6.32	0.020

crack cocaine users (88%), the intensity of daily crack smoking and borrowing of crack pipes may point to a specific sub-population of women and clients at increased risk for HIV infection. Crack cocaine use has been historically associated with increased exploitation of women, enhanced violence and crime and greater likelihood of engaging in risky sexual practices (Booth et al., 2000; Edlin et al., 1994). While this study is unable to adequately account for the client's sexual risk taking, sharing of drug use with clients represents an exchange in which both the worker and the client were smoking crack through shared use, and in many cases with shared use of crack pipes and related paraphernalia. The overlapping networks of sex- and drug-related partners may elucidate a key target for HIV-prevention and harm-reduction efforts (Strathdee & Sherman, 2003).

Among sexual related harms, sharing drugs with clients was associated with inconsistent condom use by a client/John. It is worth noting the unadjusted associations between drug sharing and increased likelihood of clients insisting on more money to not use a condom and women agreeing to not use a condom suggest another mechanism for this association may be at play. The observed collinearity between clients insisting on more money to not use a condom and a recent bad date is particularly noteworthy. Given the immense literature of increased violence and exploitation of women who use crack (Baseman, 1999; Booth et al., 2000), as well as the observed associations between drug sharing and a recent bad date (defined as recent harassment, physical and/or sexual assault by a client), it appears that the increased sexual risk represents a power dynamic in the ability of women to insist on condom use and the likelihood of clients demanding sex without a condom. The role of violence and assault in enhancing sexual transmission of HIV among women has been previously reported (El-Bassel, 2004) and, among those with a history of victimization, a fear of violence has been linked to decreased likelihood of insisting on condom use (Wechsberg et al., 2005). As mentioned previously, research on drug sharing among intimate partners suggests that couple drug-involvement was associated with increased male dominance, increased risk of physical and sexual violence and decreased likelihood of insisting on condom use (El-Bassel, 2004). The power dynamics in drug dependency, when paired with the sex-for-drugs exchange, may represent a crucial mechanism for increased risk of violence and assault by male clients. HIV-prevention and harm-reduction efforts, along with community safety initiatives, should focus support on removing the structural barriers to safety inherent in existing policies surrounding sex work

and look at more anonymous methods for reporting bad dates and related assault.

Although survival sex may include the exchange of sex for money, shelter or other commodities, the exchanging of sex for drugs, and in particular the sharing of drugs with clients, may represent a crucial mechanism for increased vulnerability to HIV infection. The multiplicity of factors that may facilitate risk for HIV transmission are likely embedded in the power dynamics of shared crack use and condom negotiation with clients not adequately captured in the present analysis (El-Bassel, 2000; Wechsberg et al., 2005). However the findings suggest that drug sharing with clients increases the risk both of violence and assault and the likelihood that clients will insist on sex without a condom, and decreases the likelihood that women will insist on condom use. Harm-reduction and -prevention efforts that incorporate a gendered approach to sex-for-drugs exchange and consider the place of the worker, that of the client/John and the contextual/environmental factors that contribute to increased vulnerability for HIV transmission are urgently needed. Several recent environmental-structural interventions among female sex workers, aimed at promoting community solidarity and shifting government policy, have been shown to have positive impacts on HIV and STI risk reduction (Kerrigan et al., 2006, 2003; Parker et al., 2000). Environmental-structural prevention/risk-reduction approaches move beyond individual-level interventions, such as condom promotion and management of STIs, to examining the physical, social and policy environment that facilitates HIV risk (Latkin et al., 2005; Parker et al., 2000). Within an IDU context, the HIV risk environment has been defined as 'factors exogenous to the individual that interact to increase vulnerability to HIV' (Rhodes et al., 2005). This approach broadly encompasses social norms and networks, poverty, mobility, social dislocation, gender inequalities and 'social capital' at the level of networks and communities (Rhodes et al., 2005). In addition, further qualitative and ethnographic research in this setting will help to better identify the specific networks and subpopulations of women and clients at increased vulnerability for HIV infection and help to examine the environmental-structural facilitators and barriers to prevention efforts.

Several limitations should be noted. First, the research presented here is cross-sectional in nature and, thus, causal relationships cannot be drawn between explanatory variables and outcome measures. Ongoing follow-up will allow for longitudinal analysis of observed associations. Second, commercial sex work extends to multiple facets from massage parlours and escort agencies to street-based sex work, and this study focuses solely on one

segment of this population, street-entrenched women engaged in survival sex work. Thus, results may not be generalised to other levels of commercial sex work in this setting or others. Third, the inherent difficulties in attaining a representative sample of a sex-work population have been noted elsewhere (Benoit et al., 2005; Shaver, 2005). Targeted recruitment through a community partnership with a low-threshold drop-in centre is likely to have reached many high-risk women. Also, current mapping of the community and time-space sampling with experiential workers will help to identify some of the hidden populations not adequately captured in the present analysis. Fourth, it should also be noted that due to the small sample size there was a wide range around some estimates. Nevertheless, there was sufficient statistical power to demonstrate large differences across several factors considered. Finally, the findings relied on individual self-reports and thus may be subject to socially desirable reporting. However, previous research has provided validation for self-reporting about high-risk populations (De Irala et al., 1996).

HIV prevention and harm-reduction initiatives targeting both women and clients are urgently needed in this community and must recognize the overlapping boundaries of sex and drug-use partners in survival sex work. The process of drug sharing with clients highlights the gendered nature of HIV vulnerability and some of structural barriers to HIV-prevention efforts among women. Harm-reduction and HIV-prevention efforts should encourage women's own means of policing and self-protection, including support for peer driven initiatives and work with community and government on socio-legal policy reforms that better protect women and remove some of the structural facilitators for HIV infection in the sex-for-drugs or money exchange.

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