Sexual and Drug-related Vulnerabilities for HIV Infection Among Women Engaged in Survival Sex Work in Vancouver, Canada

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ABSTRACT

Background: Women engaged in survival sex work face multiple sexual and drug-related harms that directly enhance their vulnerability to HIV infection. Although research on injection-drug-using women has explored predictors of sex work and HIV infection, little information currently exists on the complex vulnerabilities to HIV transmission faced by survival sex workers in this setting. This analysis aimed to determine HIV prevalence among women engaged in survival sex work, and explore sexual and drug-related vulnerabilities associated with baseline infection.

Methods: Descriptive and univariate analysis were used to explore associations with baseline HIV infection. Variables found to be associated with baseline infection at the univariate level (p<0.05) were entered into a fixed logistic regression model, adjusted for age.

Results: Of a total of 198 women, baseline HIV prevalence was 26%. In multivariate logistic regression, baseline HIV infection was associated with early age of sex work initiation (<18 years) (aOR=1.8, 95% CI: 1.3-2.2), Aboriginal ethnicity (aOR=2.1, 95% CI: 1.4-3.8), daily cocaine injection (aOR=2.2, 95% CI: 1.3-3.5), intensive, daily crack smoking (aOR=2.7, 95% CI: 2.1-3.9), and unprotected sex with an intimate partner (aOR=2.8, 95% CI: 1.9-3.6).

Interpretation: Innovative and evidence-based strategies are urgently needed that address the sexual and drug-related vulnerabilities to HIV infection among survival sex workers and in particular, interventions targeting the precursors to early initiation into sex work.

MeSH terms: Prostitution; HIV infections; harm reduction

La traduction du résumé se trouve à la fin de l'article.

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T he term “survival sex work” has been used to describe women who exchange sex for money, drugs, or shelter as a means of daily survival. The social context of survival sex workers’ lives presents multiple barriers that place them at heightened risk for HIV transmission, including repeated episodes of violence and sexual assault, entrenched poverty, social isolation, mental illness, and substance abuse.

The association between survival sex and crack cocaine has been consistently documented, and raises significant concern for HIV transmission through dual sexual and drug risk pathways. Studies have also shown increased risk of both parenteral and sexual transmission among women injection drug users (IDU) engaged in sex work. In addition, women who exchange sex for money or drugs are significantly more likely to have experienced traumatic experiences during childhood, both physical and sexual abuse, and to be victims of violence and sexual assault in adulthood. In the United States, a recent longitudinal study found the mortality rate among women actively engaged in sex work to be 17-fold higher than that of the age-matched general population. Suicide, violence, and drug-related deaths were other primary causes of mortality.

In Vancouver, Canada, the disappearance of more than 60 women between 1995 and 2000, the majority of whom were women of First Nations’ ancestry engaged in survival sex work, is only one illustration of the ongoing victimization faced by this population. In Vancouver, as in the rest of Canada, women of Aboriginal ancestry are over-represented in the HIV epidemic, and constitute the majority of women engaged in visible, street-level sex work. While the buying or selling of sex is not in itself illegal in Canada, the communication for purposes of transaction, or soliciting to sell or exchange sex in public places is prohibited. As a result, and as strolls are moved through displacement and police presence, women are pushed further from social supports, impeding their ability to negotiate their situation.

To date, the research on HIV vulnerabilities among survival sex workers in this setting has primarily focused on injection drug use, despite growing evidence of multiple sexual and drug-related harms faced...
by women. Given earlier evidence suggests that only approximately half of this population inject drugs, the following analysis was undertaken to describe the HIV prevalence of women in survival sex work and to identify sexual and drug-related harms associated with baseline infection.

**METHODS**

The Maka Project is a community-based research project that was created to explore the HIV-related harms and impact of current HIV prevention and harm reduction strategies among survival sex workers. The first phase of the Maka Project included a baseline questionnaire, HIV diagnostic testing, and pre-/post-test counselling in late 2004. Participants were recruited through targeted sampling at a drop-in centre for women in survival sex work. Participants received $20 remuneration for their participation. The University of British Columbia/Providence Health Research Ethics Board provided approval for this study.

Variables considered in this analysis include age, ethnicity, health status, sexual and drug risk patterns. Drug use behaviours included: frequency of cocaine, heroin, and crystal methamphetamine injection, and crack cocaine smoking. Given the high levels of crack cocaine use, intensity of drug use was defined as smoking greater than ten rocks per day. A recent “bad date” was defined as having been verbally harassed, physically and/or sexually assaulted by a client in the last six months.

Descriptive and univariate analyses were used to determine associations between HIV infection and explanatory variables. Categorical and explanatory variables were analyzed using Pearson X², normally distributed continuous variables were analyzed using t-tests for independent variables, and skewed continuous variables were analyzed using Mann-Whitney U tests. Variables found to be associated with HIV infection at the univariate level (p<0.05) were entered into a fixed logistic regression model. The model was adjusted for age and all reported p-values are two-sided.

**RESULTS**

A total of 198 women engaged in survival sex work completed a baseline questionnaire and HIV testing. Descriptive and univariate analyses of characteristics associated with baseline HIV infection are summarized in Tables I and II. The median age was 39 years (interquartile range [IQR] = 32-44) and the median age of sex work initiation was 19 years (IQR=15-26 years). In total, 111 (57%) self-identified as Aboriginal, of which 47% were of First Nations ancestry, 9% Metis, and 1% Inuit. Based on diagnostictic testing, 52 (26%) women tested positive for HIV. Women of Aboriginal ancestry had an HIV prevalence of 32% compared to 18% for non-Aboriginal women (p<0.001). Of the total, a quarter of women (25%) had experienced harassment, physical and/or sexual assault violations by a client in the last six months, with one fifth reporting recent incarceration (20% for non-Aboriginal women vs. 29% for Aboriginal women, p=0.004).

**TABLE I**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HIV Infection</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive (n=52)</td>
<td>Negative (n=146)</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>Positive (n=52)</td>
<td>Negative (n=146)</td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>&lt;18 years</td>
<td>1.8 (1.2-2.7)</td>
<td>1.0 (0.8-1.2)</td>
<td>0.001</td>
</tr>
<tr>
<td>≥18 years</td>
<td>1.0 (0.8-1.3)</td>
<td>1.0 (0.8-1.2)</td>
<td>0.686</td>
</tr>
</tbody>
</table>

**TABLE II**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HIV Infection</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive (n=52)</td>
<td>Negative (n=146)</td>
<td></td>
</tr>
<tr>
<td>Unprotected sex with intimate partners*</td>
<td>5.2 (3.8-7.0)</td>
<td>2.0 (1.5-2.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Regular partner injection</td>
<td>2.0 (1.5-2.6)</td>
<td>1.4 (1.1-1.8)</td>
<td>0.027</td>
</tr>
<tr>
<td>Regular partner HIV positive</td>
<td>3.1 (2.5-3.9)</td>
<td>1.3 (1.0-1.6)</td>
<td>0.011</td>
</tr>
<tr>
<td>Inconsistent condom use with clients/johns*</td>
<td>4.3 (3.3-5.4)</td>
<td>1.9 (1.5-2.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Offered more money to not use a condom*</td>
<td>1.6 (1.2-2.1)</td>
<td>1.1 (0.9-1.3)</td>
<td>0.011</td>
</tr>
<tr>
<td>Agreed to more money to not use a condom*</td>
<td>1.6 (1.2-2.1)</td>
<td>1.2 (1.0-1.5)</td>
<td>0.011</td>
</tr>
<tr>
<td>Use drugs with clients/johns*</td>
<td>1.8 (1.4-2.5)</td>
<td>0.9 (0.7-1.2)</td>
<td>0.011</td>
</tr>
<tr>
<td>Use injection drugs with clients*</td>
<td>1.6 (1.2-2.0)</td>
<td>1.1 (0.9-1.3)</td>
<td>0.011</td>
</tr>
<tr>
<td>Bad date (harassment/physical/sexual assault)*</td>
<td>2.0 (1.6-2.5)</td>
<td>1.1 (0.9-1.3)</td>
<td>0.011</td>
</tr>
<tr>
<td>Sexual assault by non-sex trade partner*</td>
<td>1.6 (1.2-2.1)</td>
<td>0.9 (0.7-1.2)</td>
<td>0.011</td>
</tr>
</tbody>
</table>

* Refers to the last 6 months at the time of interview.

**TABLE III**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>AOR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unprotected sex with intimate partners</td>
<td>2.8</td>
<td>1.9-3.6</td>
<td>0.001</td>
</tr>
<tr>
<td>Intensive, daily crack cocaine smoking</td>
<td>2.7</td>
<td>2.1-3.9</td>
<td>0.003</td>
</tr>
<tr>
<td>Daily cocaine injection</td>
<td>2.5</td>
<td>1.7-3.1</td>
<td>0.004</td>
</tr>
<tr>
<td>Aboriginal ethnicity</td>
<td>2.1</td>
<td>1.4-3.8</td>
<td>0.004</td>
</tr>
<tr>
<td>Age of sex work initiation &lt;18 years</td>
<td>1.8</td>
<td>1.3-2.2</td>
<td>0.007</td>
</tr>
</tbody>
</table>
Among mobility patterns, 30% reported working in strolls outside of the Downtown Eastside (DTES) community, while 72% reported having some or all clients from other parts of Vancouver. The majority (82%) lived in unstable living situations, of which 22% had no fixed address or were living on the street.

In multivariate logistic regression analysis (Table III), the adjusted odds ratios for factors independently associated with baseline HIV infection included early age of sex work initiation (<18 years) (aOR=1.8, 95% CI: 1.3-2.2), Aboriginal ethnicity (aOR=2.1, 95% CI: 1.4-3.8), daily cocaine injection (aOR=2.2, 95% CI: 1.3-3.5), intensive, daily crack smoking (aOR=2.7, 95% CI: 2.1-3.9), and unprotected sex with an intimate partner (aOR=2.8, 95% CI: 1.9-3.6).

**DISCUSSION**

This study documents an HIV prevalence of 26%. Women who were HIV positive at baseline were more likely to report initiation into sex work during youth and/or adolescence, to self-identify as Aboriginal, to report daily cocaine injection, intensive/daily crack cocaine smoking, and unprotected sex with an intimate partner. Although the cross-sectional nature of this study precludes inference of causality, the findings offer important evidence of the vulnerabilities associated with HIV infection that require immediate address in public health and prevention efforts tailored to women in survival sex work.

Of particular concern, initiation into sex work during youth and/or adolescence is striking with a quarter of women who smoke crack are placed in vulnerable situations and lack control in working conditions, and have been shown to have decreased ability to insist on condom use. The finding that unprotected sex with regular partners is associated with a threefold increase in HIV infection is consistent with previous work that suggests sexual transmission among survival sex workers is more reflective of unprotected sexual encounters with intimate partners rather than clients. However the notably high level of inconsistent condom use by clients/johns (32%) may be cause for caution when interpreting these findings. In particular, given sex work in this population serves as a means of daily survival and sustaining one’s drug habit, the prevalence of clients offering more money for unprotected sex (61%) suggests an important need for public health efforts that enhance access to low-threshold employment and transitioning strategies out of “survival” sex work, as well as addictions treatments and harm reduction strategies among women. Finally, the high rates of harassment, physical and/or sexual assault violations by both clients and non-sex trade partners, coupled with previous evidence of violence in decreasing women’s ability to insist on condom use, highlight the urgent need for violence prevention for both working and intimate relationships as part of HIV prevention strategies for this population. As well, interventions targeting potential sexual transmission and safe sex negotiation need to be incorporated within the context of gender-focused harm reduction initiatives.

Several limitations of this analysis should be considered. First, the results are derived from a cross-sectional survey and thus the direction or causality of associations cannot be determined. Further follow-up will allow for prospective analysis of the causal relationship between survival sex and smokeable crack cocaine use.

Further, daily use of both injection and oral cocaine use were among the strongest associations with HIV infection in this study with nearly a threefold higher HIV prevalence. The synergistic correlation between survival sex and smokeable crack cocaine suggests a particularly alarming concern, given the high reported rates of intensive, daily crack smoking and drug sharing with clients. Addiction to crack cocaine has been suggested to progress more rapidly than addiction to other opiates or alternate forms of cocaine, and has been previously associated with heightened violence, crime, and exploitation of women through exchanging of sex to sustain their drug habit. Survival sex workers who smoke crack are placed in vulnerable situations and lack control in working conditions, and have been shown to have decreased ability to insist on condom use. The finding that unprotected sex with regular partners is associated with a threefold increase in HIV infection is consistent with previous work that suggests sexual transmission among survival sex workers is more reflective of unprotected sexual encounters with intimate partners rather than clients. However the notably high level of inconsistent condom use by clients/johns (32%) may be cause for caution when interpreting these findings. In particular, given sex work in this population serves as a means of daily survival and sustaining one’s drug habit, the prevalence of clients offering more money for unprotected sex (61%) suggests an important need for public health efforts that enhance access to low-threshold employment and transitioning strategies out of “survival” sex work, as well as addictions treatments and harm reduction strategies among women. Finally, the high rates of harassment, physical and/or sexual assault violations by both clients and non-sex trade partners, coupled with previous evidence of violence in decreasing women’s ability to insist on condom use, highlight the urgent need for violence prevention for both working and intimate relationships as part of HIV prevention strategies for this population. As well, interventions targeting potential sexual transmission and safe sex negotiation need to be incorporated within the context of gender-focused harm reduction initiatives.
relationship between explanatory variables and HIV infection, and determine temporality. Second, all behavioural variables are self-reported and thus may be subject to social desirability bias. Previous studies have provided validation of self-reported information among drug user populations. Third, although interviews were conducted off-site, all women were initially contacted through a low-threshold drop-in centre and thus this study may have failed to access the most marginalized women. However, given the hard-to-reach nature, illegal constructs of sex work, and ongoing challenges of trust and confidentiality among this hidden population, contact through a low-threshold community group is likely to have removed some of the barriers and facilitated connection with many high-risk women. Further participatory research and mapping will help to ensure that an increasing number of sex workers are reached. Finally, interviews were restricted to women in survival sex work, and thus results may not be generalizable to other levels of commercial sex work.

Innovative and evidence-based strategies are urgently needed to address the sexual and drug-related vulnerabilities to HIV infection among survival sex workers. In particular, given that initiation into sex work during adolescence was associated with close to a two-fold increase in likelihood of baseline HIV infection, interventions are desperately needed to target the multiple precursors to early initiation into sex work.


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PREVENT, PREPARE for and PROTECT YOURSELF from the next FLU PANDEMIC

The Canadian Public Health Association (CPHA) and the Pandemic Health Alert Network are informing Canadians about the basic public health steps we can all take to help prevent the spread of infection, prepare to cope in an emergency, and protect our health during a flu pandemic.

Around the world, governments are gearing up for the next flu pandemic. Websites, fact sheets and checklists abound. However, the language they use and level of information they provide can be overwhelming and technical. To address this, CPHA and the Pandemic Health Alert Network have created a toolkit of practical, evidence-based information that is communicated in plain language.

This simple and practical toolkit provides Canadians with the information they need to protect themselves in a flu pandemic. The tools are easy to use, with common sense measures Canadians can put into practice in their daily lives.

These simple public health steps fall into three action areas:
1. PREVENT – basic public health habits that reduce the chance of catching and spreading the flu, such as proper hand washing;
2. PREPARE – easy-to-follow instructions on how to be prepared for a flu pandemic, or other emergency situation; and
3. PROTECT – crucial information on self-care during a flu pandemic.

The toolkit is designed to stimulate Canadians’ interest to learn more and put that knowledge into action with simple measures that could stem the force of the next flu pandemic. The hope is that these steps will strengthen public resilience. That way we’ll all be better prepared to cope in a flu pandemic, or other public health emergency.

The toolkit is available in English and French, online at www.pandemic.cpha.ca.