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## HIV Risk Profile and Prostitution Among Female Street Youths

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**ABSTRACT** *The objective of this study was to compare human immunodeficiency virus (HIV) risk factors among female street youths involved in prostitution and those with no history of prostitution. Youths aged 14 to 25 years were recruited into the Montreal Street Youth Cohort. Semiannually, youths completed an interviewer-administered questionnaire. Statistical analyses comparing characteristics and HIV risk factors for girls involved in prostitution and those never involved were carried out using parametric and nonparametric methods. Of the girls, 88 (27%) reported involvement in prostitution, and 177 girls reported no history of prostitution at the baseline interview. Girls involved in prostitution were two times and five times more likely to have reported bingeing on alcohol and on drugs, respectively. A history of injection drug use was four times more likely to have been reported by girls involved in prostitution. Further, these girls were 2.5 times more likely to have reported injected cocaine as their drug of choice. Girls involved in prostitution were younger the first time they had consensual sex and were twice as likely to have reported anal sex. Consistent condom use for anal, vaginal, and oral sex was low for all girls. Girls involved in prostitution reported more risky sexual partners. In conclusion, girls involved in prostitution may be at increased risk of HIV infection due to their injection drug use and risky sexual behaviors. Unique intervention strategies are necessary for reducing HIV infection among female street youths involved in prostitution.*

**KEYWORDS** *Canada, HIV/AIDS, Prostitution, Street youth, Women.*

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### INTRODUCTION

Inner-city street youths are increasingly being recognized as a population at risk for a wide range of physical and mental health problems.<sup>1,2</sup> The number of street youths is not known, and estimation is difficult due in part to variation in the definition of street involvement. In the United States, estimates from the early 1990s indicate that as many as 2 million youths run away from home each year, and a large proportion of these youths become homeless.<sup>3</sup> Ringwalt et al.<sup>4</sup> found that 7.6% of a nationally representative sample of youths in the United States reported that they had experienced at least one night of homelessness over a 12-month period. The street youth population is largely comprised of out of school and unemployed indi-

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viduals, many of whom are involved with illegal activities, including drug dealing and street prostitution.<sup>5</sup> Economic options to meet daily survival needs are lacking, placing street youths at risk of sexual exploitation and various types of crime.<sup>6</sup>

Prostitution among street youths is a common occurrence. In the United States, estimates<sup>1,5,7-15</sup> of the proportion of runaway and homeless youths who have been involved in prostitution range from 10% to 50%. In Canada, these estimates<sup>16,17</sup> range from 12% to 32%. Much of the variation in these numbers is due to the definition used for individual studies. For example, some investigators use a narrow definition of prostitution that includes only the exchange of sexual activities for money, while others use a broader definition that encompasses the trading of sex to meet subsistence needs such as food, shelter, and protection. Regardless of the definition used, however, the proportion of street youths involved in such activities is high, and although the definition may vary by author, the basic premise of using sexual activity as a service for material or personal exchange remains constant.

The health consequences of prostitution are of concern. One important health problem is infection with sexually transmitted diseases and, especially, infection with the human immunodeficiency virus (HIV). While HIV risk behaviors among female street youths have been well characterized across North America,<sup>1,16-19</sup> such behaviors among particular subgroups of these youths, such as females involved in prostitution, are not well documented. To date, no studies have specifically investigated HIV risk among female street youths involved in prostitution. The purpose of this study was to compare HIV risk factors among female street youths involved in prostitution to those with no history of involvement in prostitution.

## METHODS

A prospective cohort study was initiated in Montreal, Canada, in January 1995 to determine the prevalence and incidence of HIV infection and associated risk behaviors among street youths. To be eligible for initial recruitment into the cohort, the youths had to have either been without a place to sleep more than once in the previous year or have regularly used the services of one of the Montreal street youth agencies in the previous year. These criteria were used to capture a broad spectrum of street youths as it is known that youths have different experiences based in part on the degree of involvement in street life. Further eligibility criteria required that the youth be between 14 and 25 years old, speak either English or French, and be able to provide informed consent and to complete a questionnaire.

Youths were recruited through interviewers who regularly visited all major agencies in Montreal offering free services to street youths. The frequency of these visits was determined by the volume of youths served by each of the individual agencies. These agencies included drop-in centers, shelters, outreach vans, and other facilities offering outreach services. The majority of youths were recruited through shelters (36%), followed by outreach vans (29%) and drop-in centers (27%).

An interviewer-administered questionnaire and HIV antibody testing were completed at entry and on a semiannual basis thereafter. The baseline questionnaire used in this study was previously validated and assessed for the acceptability of the questions and the length of the questionnaire. The reliability has also been evaluated.<sup>20</sup> The baseline questionnaire elicited detailed information on sociodemographic characteristics, substance use, and sexual behavior, including involvement in prostitution.

### Measurement

Characteristics and behaviors reported at baseline by female street youths involved in prostitution in the 6 months prior to the baseline visit were compared with those of females who reported never having engaged in prostitution. We chose a broad definition of prostitution to capture a large spectrum of situations involving “the exchange of sex for money, gifts, drugs, a place to sleep, or other things.” Variables of interest in these analyses included sociodemographic characteristics such as age at baseline, country of birth, and the highest level of education achieved; personal history variables included having ever been without a place to sleep, having ever run away from home, and having ever been kicked out of home. Sources of income in the 6 months prior to baseline included social assistance, defined as the receipt of money from social welfare, employment insurance, a youth center, or social worker; employment income, defined as money earned through occasional or regular work; and illegal sources of income, including stealing and selling drugs. Income from prostitution was excluded from this category.

The use of alcohol and other drugs, injection drug use, and needle-sharing behaviors were compared. Bingeing on alcohol or drugs was defined as having “gotten drunk or high for 1 day or more,” respectively. The drugs most often injected in the 6 months prior to baseline were grouped into cocaine, heroin, and other.

Sexual behavior variables, including lifetime sexual activity, sexual abuse, number and types of sexual partners, condom use, and a history of pregnancy were compared for the two groups of girls.

### Statistical Methods

Medians and crude proportions were calculated for girls involved in prostitution and girls with no history of prostitution at baseline. Univariate odds ratios and 95% confidence intervals were calculated using logistic regression analysis.

### RESULTS

As of the end of September 2000, there were 330 girls between the ages of 14 and 25 years who had completed a baseline questionnaire. Of these, 88 (27%) reported involvement in prostitution in the 6 months prior to baseline. There were 177 girls who reported no history of involvement in prostitution prior to baseline; 65 girls with a prior history of prostitution were excluded from the analysis. Comparison of sociodemographic characteristics revealed no significant differences between girls involved and not involved in prostitution with respect to the median age at recruitment, which was 19 years (interquartile range [IQR] 16–22); the proportion born in Canada; or the highest level of education attained (Table 1). A higher proportion of girls involved in prostitution reported ever having been without a place to sleep. The median age at the first time without a place to sleep was lower by 1 year for girls involved in prostitution (14 years vs. 15 years;  $P = .027$ ). Girls involved in prostitution had been on the street longer than girls with no history of prostitution (mean 4.3 years, [SD 3.0 years] vs. 3.7 years [SD 2.6 years];  $P = .124$ ). Girls involved in prostitution were more likely to report having ever run away and having been kicked out of home compared to girls with no history of prostitution. With respect to sources of income in the 6 months prior to baseline, similar proportions of girls in the two groups reported income from social assistance, occasional or regular employment, or family or friends. However, girls involved in prostitution were more likely to report income from earned illegal activities and panhandling.

**TABLE 1. Comparison of sociodemographic characteristics of female street youths involved (n = 88) and never involved (n = 177) in prostitution**

	Prostitution, n (%)	No prostitution, n (%)	Odds ratio (95% CI)
Ever without a place to sleep	87 (99)	162 (92)	8.1 (1.0–62.0)
Ever run away from home	70 (80)	99 (56)	3.1 (1.7–5.6)
Ever kicked out of home	57 (65)	72 (41)	2.7 (1.6–4.6)
Without a place to sleep (6 months)	79 (89)	111 (63)	5.2 (2.5–11.1)
Born in Canada	84 (96)	171 (97)	0.7 (0.2–2.7)
Education level			
Primary	5 (6)	6 (3)	Reference
Secondary 1–5	71 (81)	136 (78)	0.6 (0.2–2.1)
Collège 1–2	7 (8)	25 (4)	0.3 (0.1–1.4)
University/trade	5 (6)	8 (5)	0.8 (0.1–3.8)
Source of income (6 months)			
Social assistance	37 (42)	74 (42)	1.0 (0.6–1.7)
Employment	48 (55)	116 (66)	0.6 (0.4–1.1)
Friends or family	68 (77)	129 (73)	1.3 (0.7–2.3)
Illegal activities (excluding prostitution)	57 (65)	67 (38)	3.0 (1.8–5.1)
Panhandling	75 (85)	120 (68)	2.7 (1.4–5.3)

CI, confidence interval. Collège, Collège d'enseignement général et professionnel.

Alcohol and noninjection drug use is summarized in Table 2. All girls reported having ever used alcohol, but girls involved in prostitution were more likely to have ever binged on alcohol. Compared to girls with no history of prostitution, girls involved in prostitution were at least twice as likely to have reported the use of all drugs except marijuana.

**TABLE 2. Comparison of lifetime substance use behaviors of female street youths involved (n = 88) and never involved (n = 177) in prostitution**

	Prostitution, n (%)	No prostitution, n (%)	Odds ratio (95% CI)
Ever used alcohol	88 (100)	177 (100)	—
Alcohol bingeing	57 (65)	82 (47)	2.1 (1.2–3.6)
Drug bingeing	77 (88)	104 (59)	4.8 (2.4–9.7)
Crack	63 (72)	70 (40)	3.9 (2.2–6.7)
Marijuana	88 (100)	168 (95)	—
Heroin	49 (56)	63 (36)	2.3 (1.4–3.8)
Speedball	29 (33)	27 (15)	2.8 (1.5–5.1)
Acid/PCP (phencyclidine)	83 (94)	140 (79)	4.4 (1.7–11.6)
Cocaine	82 (93)	115 (65)	7.4 (3.0–17.8)
Tranquilizers	60 (68)	63 (36)	3.9 (2.3–6.7)
Solvents	45 (51)	47 (27)	2.9 (1.7–4.9)

CI, confidence interval.

With respect to injection drug use, girls involved in prostitution were more likely to have reported a history of injection drug use compared with girls with no history of prostitution (Table 3). Reporting the use of injection drugs more than 50 times was higher for girls involved in prostitution. Of the girls who reported ever having injected drugs, similar proportions of girls in the two groups reported injection drug use in the 6 months prior to baseline. However, a greater proportion of girls involved in prostitution reported injecting cocaine most often in the 6 months prior to baseline. Finally, tattooing and body piercing were found to be more frequent behaviors among girls involved in prostitution compared to girls with no history of prostitution.

Table 4 summarizes reported sexual behavior for girls involved and not involved in prostitution. Most girls in both groups had engaged in some type of sexual activity. The median age of first consensual sexual experience for girls involved in prostitution was lower by 1 year compared to girls with no history of prostitution (13 years vs. 14 years,  $P = .008$ ). Girls involved in prostitution were more likely to have reported sexual abuse in their lifetime. The proportions of girls having engaged in vaginal sex and oral sex were similar for the two groups; however, girls involved in prostitution were more likely to have reported engagement in anal sex. Reported condom use for each sexual act (vaginal, anal, oral) was not statistically different among the two groups. However, consistent condom use was below 10% for both groups for vaginal and oral sex. Although not statistically different, a smaller proportion of girls involved in prostitution reported always using a condom during anal sex compared to girls with no history of prostitution. Girls involved in prostitution were more likely to report often or always being under the influence of alcohol or drugs during sex compared to never being under the influence of substances during sex. Comparison of both groups of girls regarding their sexual partners showed that girls involved in prostitution were significantly more likely to have reported female sex partners in the 6 months prior to baseline (33% vs. 9%,  $P < .001$ ). They were also significantly more likely to have had greater numbers of either regular or casual male sex partners in the 6 months

**TABLE 3. Injection drug use behaviors, tattooing, and body piercing of female street youths involved (n = 88) and never involved (n = 177) in prostitution**

	Prostitution, n (%)	No prostitution, n (%)	Odds ratio (95% CI)
Injection drug use (ever)	57 (65)	58 (33)	3.8 (2.2–6.5)
More than 50 injections (lifetime)	23 (55)	13 (33)	2.4 (1.0–6.0)
Injection drug use (last 6 months)	48 (84)	44 (76)	1.7 (0.7–4.3)
Drug injected most often (6 months)			
Cocaine	20 (43)	10 (23)	2.5 (1.0–6.3)
Heroin	24 (51)	33 (75)	
Other*	3 (6)	1 (2)	
Injected with a used needle (6 months)	15 (58)	5 (33)	2.7 (0.7–10.3)
Ever had a tattoo	52 (59)	79 (45)	1.8 (1.1–3.0)
Ever had body piercing	66 (75)	115 (65)	1.6 (0.9–2.9)

CI, confidence interval.

\*Speedball or PCP.

**TABLE 4. Comparison of sexual behaviors of female street youths involved (n = 88) and never involved (n = 177) in prostitution**

	Prostitution, n (%)	No prostitution, n (%)	Odds ratio (95% CI)
Sexual activity	88 (100)	173 (98)	—
Sexual abuse	71 (82)	91 (53)	4.1 (2.2–7.5)
Vaginal sex	88 (100)	167 (97)	—
Anal sex	35 (40)	41 (24)	2.1 (1.2–3.7)
Oral sex	88 (100)	152 (92)	—
Condom use for vaginal sex*	3 (3)	12 (7)	0.5 (0.1–1.7)
Condom use for anal sex*	7 (21)	13 (32)	0.6 (0.2–1.6)
Condom use for oral sex*	4 (5)	6 (4)	1.2 (0.3–4.4)
Under influence of drugs/alcohol during sex (6 months)			
Never	4 (5)	23 (14)	Reference
Sometimes	25 (28)	83 (49)	1.7 (0.5–5.5)
Often/always	59 (67)	62 (37)	5.5 (1.8–16.8)
Regular male partners (6 months)			
0	8 (10)	17 (10)	Reference
1	44 (55)	103 (62)	0.9 (0.4–2.3)
2–5	24 (30)	44 (27)	1.2 (0.4–3.1)
6–20	4 (5)	2 (1)	4.3 (0.6–28.2)
20+	0 (0)	0 (0)	—
Casual male partner (6 months)			
0	9 (11)	46 (31)	Reference
1	13 (15)	31 (21)	2.1 (0.8–5.6)
2–5	36 (42)	56 (38)	3.3 (1.4–7.5)
6–10	16 (19)	15 (10)	5.5 (2.0–14.9)
11–50	10 (12)	1 (1)	51.1 (5.8–450)
50+	2 (2)	0 (0)	—
Injection drug—using partner	67 (79)	95 (58)	2.7 (1.5–5.0)
Gay or bisexual male partner	32 (42)	36 (23)	2.5 (1.4–4.5)
Male partner involved in prostitution	30 (36)	20 (12)	4.2 (2.2–7.9)
Female partner involved in prostitution	21 (24)	6 (4)	8.9 (3.4–23.0)
Always use condom with risk partner	8 (13)	18 (22)	0.5 (0.2–1.3)
Ever pregnant	45 (52)	79 (47)	1.2 (0.7–2.1)

\*CI, confidence interval.

Always versus inconsistent condom use.

prior to baseline. Further, girls involved in prostitution were consistently more likely to report risky sexual partners, such as an injection drug user, a gay or bisexual male partner, a male partner involved in prostitution, or a female partner involved in prostitution. Reported condom use with risky partners was low for both groups of girls. Similar proportions of girls in both groups reported having ever

been pregnant. Among girls involved in prostitution, one (1.1%) was found to be HIV positive at baseline. Similarly, one (0.6%) girl with no history of prostitution tested HIV positive.

## DISCUSSION

Girls involved in prostitution have lifestyles that may place them at increased risk of HIV infection. This is evident by the fact that, on average, girls involved in prostitution were younger the first time they were without a place to sleep. They were also more likely to report having run away from home and having been kicked out of home. Homeless youths have been shown to be at increased risk for HIV infection due in part to the fact that the probability of engaging in HIV risk behavior increases with the length of homelessness.<sup>21,22</sup> It has been previously suggested that youths who are homeless for longer periods of time are more likely to become involved in risky sexual and drug-using activities. They may incur more material needs, thereby further reducing inhibitions against risk-taking behaviors and increasing their exposure to high-risk populations.<sup>13</sup> Further differences between the two groups of girls in this study were evident in their sources of income. Girls involved in prostitution were more likely to have received income from illegal sources, including stealing and selling drugs. They were also more likely to have used panhandling as a means of acquiring income compared to girls with no history of prostitution. These characteristics suggest that those girls involved in prostitution may be more dependent on the street economy and have an increased likelihood of engaging in behaviors that put them at risk for HIV infection.

Substance use is often a part of life for homeless youths.<sup>6,11,16,22-26</sup> Overall, substance use behaviors were more common among girls involved in prostitution. A higher proportion of these girls reported ever bingeing on alcohol and drugs and having had sexual relations under the influence of alcohol or drugs. Further, girls involved in prostitution reported higher levels of use for all drugs examined with the exception of marijuana. Substance use may place youths at increased risk of infection with HIV by disinhibiting sexual behavior.<sup>1,18</sup> The likelihood of engaging in HIV risk behaviors may increase during times of decreased cognition associated with substance use, and the use of substances during sex may lead to a decrease in both the perception of risk and the negotiation of safer sex behaviors.

An important difference between the two groups was identified with respect to injection drug use, which was found to be more prevalent for girls involved in prostitution. The sharing of injection equipment and injection of cocaine as the drug of choice have been shown to be independent risk factors for infection with HIV.<sup>27-32</sup> Although the reporting of needle- and syringe-sharing behaviors was not statistically different between the two groups, there was a tendency toward more sharing behaviors among girls involved in prostitution, and more girls involved in prostitution reported injecting cocaine most often. Cocaine use may explain the tendency toward more sharing since bingeing patterns of use and high frequency of injection are common among cocaine injectors.<sup>33-36</sup> The specific relationship between cocaine injection and prostitution warrants further investigation. Needle sharing was prevalent among both groups of girls and may be further encouraged by the unstable lifestyle of street youths. Strategies to reduce needle sharing, such as continuous education campaigns, increased access to needle-exchange facilities, and additional addiction services, are important as mechanisms to decrease HIV transmission for all street-involved individuals.

Almost all girls in both groups reported some type of sexual activity in their lifetime. A significantly higher proportion of girls involved in prostitution reported sexual abuse. Childhood sexual abuse has been linked with many HIV risk behaviors, including prostitution.<sup>14,37-39</sup> Sexual violence against prostitutes is also a well-recognized problem<sup>40-42</sup> and may represent another risk for HIV infection.

In this study, girls involved in prostitution had initiated sexual activity at a younger age. Younger age at first coitus has been linked to risky sexual behavior, including multiple partners and risk partners such as bisexual men, injection drug users, and HIV-positive men.<sup>43</sup> These previous findings are partially supported by the fact that girls involved in prostitution were also more likely to report multiple regular and casual sex partners and unprotected sexual activities with partners that may place them at increased risk of infection with HIV. Overall, the young age of initiation into sexual activity is of concern for all girls in this study as research has shown that younger women are at increased risk of HIV infection due to physiological vulnerability.<sup>44</sup>

A higher proportion of girls involved in prostitution had engaged in anal sex. Among gay and bisexual men, anal sex is a known risk factor for HIV transmission.<sup>45-47</sup> Few studies have examined the risk of HIV transmission associated with anal sex among women. The studies that have explored this relationship have shown anal sex to be associated with a 1.4-fold to 5.1-fold increase in the risk of HIV infection.<sup>44,48,49</sup> The highest levels of condom use reported were for anal sex in both groups of girls. This suggests that prevention messages such as those targeted toward homosexual men may filter through to the general population. Even so, less than one third of girls reported always using condoms for anal sex. This indicates that prevention messages must continue to be sensitive to the experiences of young women, and condom promotion for all sex acts is necessary. The low levels of consistent condom use may be further exacerbated by the large proportion of girls involved in prostitution who reported often or always being under the influence of alcohol or drugs during sex.

The high proportions of girls in both groups reporting pregnancy indicates that their birth control needs are not being met. The proportions of girls reporting pregnancy is close to double that found in a study of American female homeless youths,<sup>50</sup> but similar to the proportion of homeless girls reporting pregnancy in a study conducted in California.<sup>7</sup> Further, the levels of pregnancy are indicative of the high levels of unprotected sex, which in turn increases the likelihood of infection with sexually transmitted pathogens. In Canada, it is possible for street-involved individuals to access care with no charge. However, there are other important barriers, both personal and societal, that prevent street youths from accessing health services. It is imperative that health care professionals who interact with these youths promote global sexual health, including screening for sexually transmitted diseases, HIV counseling and testing, as well as condom education and provision. Increased efforts to provide pregnancy counseling and access to effective birth control measures such as injectable contraceptives are essential to reduce the rates of adolescent pregnancy.

Limitations of this study must be taken into consideration in the interpretation of the results. First, because the study population was recruited through services directed toward street youths, the results may not be generalizable to a broader street youth population if there are a group of youths who do not access these services. It is possible that youths who do not access services are further marginalized and at greater risk of HIV infection. Conversely, we may have missed well-



organized youths who do not need to use services. The number of street youths not benefiting from the free services available in Montreal is unknown.<sup>17</sup> However, a survey of street-involved people in Montreal reported that 90% of these persons used community-based agencies or services.<sup>51</sup> We therefore feel that our sample is likely representative of the street youth population in Montreal.

Second, this study relies on self-reported information. It is possible that participants may have under-reported behaviors, particularly those that may be illegal or socially unacceptable. We have attempted to minimize this by ensuring participants of confidentiality and through establishing a trustful relationship between the interviewers and the study participants.

Finally, it is important to consider the temporal relationship between lifetime events and recent prostitution in considering the results of this analysis. It is not possible to determine the causal or predictive association between independent variables and recent prostitution. However, the intention of this analysis was not to identify causes of prostitution, but to compare HIV risk profiles of the two groups of at-risk street youths.

In conclusion, girls involved in prostitution are at increased risk of HIV infection due to their sexual and drug use behaviors. For this group, injection drug use most likely represents the greatest risk of HIV infection. Further, risk of HIV infection due to sexual risk behavior is far from being limited to commercial partners as these young women take sexual risks in their personal relationships. Strategies to reach these girls and to provide them with personalized prevention messages and preventive health care is a major challenge for public health authorities.

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