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The Cedar Project: Historical trauma, sexual abuse and HIV risk among young Aboriginal people who use injection and non-injection drugs in two Canadian cities☆

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A B S T R A C T

Recent Indigenist scholarship has situated high rates of traumatic life experiences, including sexual abuse, among Indigenous peoples of North America within the larger context of their status as colonized peoples. Sexual abuse has been linked to many negative health outcomes including mental, sexual and drug-related vulnerabilities. There is a paucity of research in Canada addressing the relationship between antecedent sexual abuse and negative health outcomes among Aboriginal people including elevated risk of HIV infection. The primary objectives of this study were to determine factors associated with sexual abuse among participants of the Cedar Project, a cohort of young Aboriginal people between the ages of 14 and 30 years who use injection and non-injection drugs in two urban centres in British Columbia, Canada; and to locate findings through a lens of historical and intergenerational trauma. We utilized post-colonial perspectives in research design, problem formulation and the interpretation of results. Multivariate modeling was used to determine the extent to which a history of sexual abuse was predictive of negative health outcomes and vulnerability to HIV infection. Of the 543 eligible participants, 48% reported ever having experienced sexual abuse; 69% of sexually abused participants were female. The median age of first sexual abuse was 6 years for both female and male participants. After adjusting for sociodemographic variables and factors of historical trauma, sexually

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abused participants were more likely to have ever been on the streets for more than three nights, to have ever self-harmed, to have suicide ideation, to have attempted suicide, to have a diagnosis of mental illness, to have been in the emergency department within the previous 6 months, to have had over 20 lifetime sexual partners, to have ever been paid for sex and to have ever overdosed. The prevalence and consequences of sexual abuse among Cedar Project participants are of grave concern. Sexual trauma will continue to impact individuals, families and communities until unresolved historical trauma is meaningfully addressed in client-driven, culturally safe programming.

Introduction

Aboriginal scholars have suggested that understanding HIV-related vulnerability among Aboriginal people must begin with a consideration of the historical legacy of colonization, including forced removal from traditional lands and spiritual connection to the lands, cultural genocide and, in particular, the history of the residential school system (O'Neil, 1986; Walters & Simoni, 2002). The residential school system in Canada removed well over a hundred thousand Aboriginal children from their families between 1874 and 1986 (Gagné, 1998; Miller, 1996; Royal Commission on Aboriginal People (RCAP), 1996). Forcing the children into residential schools was part of a church-state partnership that aimed to assimilate and Christianize the youngest generations of Aboriginal people in the absence of their parents and leaders. In all, there were 22 residential schools in British Columbia, more than any other province. In sharp contrast to traditional Aboriginal systems of learning, the missionary-teachers of residential schools utilized "strict discipline, regimented behaviour, submission to authority, and corporal punishment," (Furniss, 1995, p. 49) and taught students to be ashamed of their languages, cultures, and Aboriginal identity (Hylton, 2002). Moreover, the "schools were opportunistic sites of abuse" (Hylton, 2002; RCAP, 1996, p. 367) for some discontented, predatory staff who exacerbated and compounded the children's degradation and pain (Ross, 2006). The systemic nature and range of abuses carried out by male and female missionary-teachers have been described as a means to degrade the psyche of Aboriginal children and devalue Aboriginal identity on the whole (Law Commission of Canada, 2000; RCAP, 1996). Although Aboriginal children in residential schools experienced many forms of abuse, the pervasiveness of sexual abuse, in particular, was the "deepest secret" revealed to the 1996 Royal Commission on Aboriginal People (RCAP). Statements by former students before the RCAP gave horrifying descriptions of nuns and priests who engaged in various forms of sexual abuse of residential school students including: forced sexual intercourse and sexual touching, forced oral–genital contact, sexualized punishments, and arranging or inducing of abortions in female children impregnated by men in authority.

It is widely accepted that prior to European contact and the residential school system, sexual abuse within Aboriginal communities was relatively rare (Fournier & Crey, 1997; Hylton, 2002). However, in the aftermath of European colonization, Aboriginal cultural principles that fostered a sacredness of sexuality were dismantled in conjunction with preventive values and tradition (Chester, Robin, Koss, Lopez, & Goldman, 1994). Students who attended residential schools often brought back to their communities what they had learned about control and abuse, and inflicted this upon their own children. Certainly, sexual abuse is one of the most disastrous corollaries of historical trauma among Aboriginal people; and, for many, the "cultural buffers" (Walters & Simoni, 2002, p. 523) that mediate vulnerability have eroded, increasing potential for negative health and social outcomes including HIV infection (Barlow, 2003). Currently, there are an estimated 80,000 living survivors of the residential school system in Canada, of whom 35,000 live in British Columbia (Indian Residential Schools Resolution Canada, unknown date). As former students raise their children and grandchildren, the intergenerational effects of abuse and familial fragmentation are evident among Aboriginal families and communities where abuse and substance misuse is widespread (Fournier & Crey, 1997; Frank, 1992; Hylton, 2002; RCAP, 1996; Walters & Simoni, 2002; Wesley-Esquimaux & Smolewski, 2004). According to the 1998 British Columbia Children's Commission Annual Report, the rates of child maltreatment within Aboriginal families are related to intergenerational trauma and that "Aboriginal parents and grandparents are coping with the effects of residential schools, loss of family, isolation, poverty, and a sense of hopelessness" (1999, p. 7). Aboriginal scholars refer to historical or, intergenerational trauma as a collective emotional and psychological injury over the lifespan and across generations (Yellow Horse Brave Heart, 2003).

The era of the residential school system was intersected by another era of assimilationist strategy, aimed again at Aboriginal children. Beginning in 1951, the Federal government delegated authority from the Indian Act (1876) over the health, welfare and educational services of Aboriginal people to the provinces. With their new charge over the welfare of Aboriginal children and guaranteed payment for each Indian child they apprehended, provincial social workers took efficient action. From the 1950s to the 1960s, citing rationales including poverty and neglect, the rate of child welfare apprehension of Aboriginal children grew from 1% to 30–40% (Fournier & Crey, 1997). Today, Aboriginal children continue to be overrepresented within the foster care system. In British Columbia, Aboriginal children account for approximately 9% of the child population, but make up 49% of children-in-care and 42% youth in custody (British Columbia Ministry of Children and Family Development, 2006).

Although scientific data are scarce, government inquiries and Aboriginal and non-Aboriginal scholars alike have suggested that as part of the post-colonial legacy,

the prevalence of sexual abuse within Aboriginal communities in Canada is higher than in other communities (Hylton, 2002; LaRocque, 1994; RCAP, 1996; Trocmé et al., 2001; Young & Katz, 1998). For example, the 1998 Canadian Incidence Study of Reported Child Maltreatment reported that while Aboriginal children account for only 5% of the youth population in Canada, they made up 16% of families investigated due to suspected maltreatment and 9% of substantiated cases of sexual abuse (Trocmé et al., 2005).

Research to date on the negative health outcomes of sexual abuse is inadequate to the task of preventing HIV among vulnerable and drug dependent young Aboriginal people (Vernon, 2001). While there is little empirical evidence of the relation between sexual abuse and HIV infection among Aboriginal people, there is a large body of literature that strongly links previous sexual trauma with HIV vulnerability among vulnerable populations (Braitstein et al., 2003; Whetton et al., 2006). The focus is often on women because sexual abuse is twice as likely to target females as males according to one study (Libby et al., 2005). Sexual abuse was also found to be higher among Aboriginal women compared to non-Aboriginal women at a community health centre in Winnipeg, Manitoba, Canada (Young & Katz, 1998). The same study found that sexual abuse increased the risk of sexually transmitted infections (STIs) and number of lifetime sexual partners. Simoni, Sehgal, and Walters (2004) reported that among urban American Indian women in New York, sexual trauma mediated the relationship between injection drug use and high-risk sex. Finally, among 155 American Indian women living in New York, 28% had experienced childhood sexual abuse and 48% had experienced rape as adult women (Evans-Campbell, Lindhorst, Huang, & Walters, 2006). Women with histories of sexual violence in this study were also more likely to have experienced mental health issues and HIV-related vulnerability.

Aboriginal leaders in Canada are deeply concerned about the rate of HIV among young Aboriginal people and the possibility that vulnerability is heightened by antecedent sexual abuse. In the past decade, the rate of HIV infection among Aboriginal people has grown more rapidly than in any other single ethnic group in Canada. Although Aboriginal people comprise only 3.3% of the Canadian population, as of 2005, an estimated 3600–5100 Aboriginal people were living with HIV in Canada, representing 7.5% of all HIV infections and 22% of new infections. Injection drug use is the primary risk factor for HIV among Aboriginal people, accounting for 58.9% of all infections between 1998 and 2005 (Public Health Agency of Canada, 2006). Limited research indicates that before 1992, in provinces with reported ethnicity data, 9.7% of Aboriginal AIDS cases were among people under the age of 30 years. In 2002, however, 41.2% of the Aboriginal cases were in this age group. Although the majority of infections can be attributed to injection drug use, factors that explain elevated risk and transmission of HIV among young Aboriginal people who use illicit drugs are not well understood.

Aboriginal people in Canada appear to have greater vulnerability to traumatic life events compared to non-Aboriginal people (Karmali et al., 2005), including sexual abuse (Hylton, 2002). However, there is a paucity of research addressing the relationship between sexual trauma and risk for HIV infection among young Aboriginal people in Canada. The objectives of this study were (a) to describe the prevalence of sexual abuse among young Aboriginal people who use drugs and; (b) to describe vulnerability to HIV infection and other negative health outcomes associated with sexual abuse while controlling for sociodemographic and historical trauma factors within a cohort of young Aboriginal people who use drugs from Vancouver and Prince George, British Columbia. As advocated by Indigenous scholars we aimed to situate findings within the context of historical trauma and the transference of trauma from one generation to the next (Smith, 1999). This study explored whether a history of sexual abuse makes an independent contribution to HIV-related vulnerabilities and other negative health outcomes—including drug use, risky sex practices and mental health issues—among young Aboriginal people who use drugs.

Methods

Sample

The Cedar study is an ongoing prospective cohort study of young Aboriginal people who use drugs in Vancouver and Prince George. In this study, young people who self identify as Aboriginal people are considered to be the descendants of the First Nation Peoples of North America and include Métis, Aboriginal, First Nations, Inuit and status and non-status Indians. Our target for enrolment was to recruit 300 at-risk participants in both cities. We define at-risk as young people who are either smoking or injecting illicit drugs. Eligibility criteria for this cohort stipulated that participants be between 14 and 30 years of age, and have smoked or injected illicit drugs, including crystal methamphetamine, crack-cocaine, heroin or cocaine in the month prior to enrolment. Saliva screens (Oral-screen, Avitar Onsite Diagnostics) were used to confirm drug use. Participants must have been residing in the greater Vancouver or Prince George regions, and have provided written informed consent.

Data collection procedures

Participants in both cities were recruited through referral by health care providers, community outreach, and by word of mouth. The majority of young people who participated in the study found out about the study by word of mouth (39%) and by outreach staff (32%). It is, therefore, difficult for us to assess how many young people heard about the study, were eligible and chose not to participate.

Guidelines provided in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Human Subjects (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council of Canada, 1998) were followed in the development and conduct of this study, with particular attention to section 6.0 pertaining to research involving Aboriginal subjects. Participants were given the opportunity to be interviewed by an Aboriginal person. Because confidentiality issues are a concern,

particularly in smaller communities, participants could choose someone they trusted to interview them. Aboriginal study personnel were heavily involved in the design and pilot of the research instrument, including addressing sensitivities related to historical trauma. Our First Nations collaborators and investigators, including Aboriginal AIDS Service Organizations, were involved in the conception, design and implementation of the Cedar Project. They also reviewed the results of this analysis and approved this manuscript for publication. The University of British Columbia/Providence Health Care Research Ethics Board also approved the study.

All participants met with one Aboriginal study coordinator who explained procedures, sought informed consent and confirmed study eligibility. In the consenting process, all participants were informed of the limitations of research confidentiality including communicable disease reporting and child welfare legislation regarding current sexual abuse. At enrolment, participants completed a detailed interviewer-administered questionnaire to elicit data on sociodemographic characteristics, non-injection and injection drug use, injection practices, sexual vulnerability and service utilization. Venous blood samples were drawn and tested for HIV and HCV (hepatitis C) antibodies and interviewers were blinded to the HIV and HCV status of the subjects. All participants had private interviews including pre- and post-test counselling with trained nurses; participants were requested to return for their HIV/HCV serostatus test result at which time referrals for HIV/AIDS and HCV care were provided. Returning for their result was encouraged but voluntary. Throughout, study personnel worked actively with the participants to secure requested physical and emotional support, such as traditional healing, drug dependency treatment and secure housing. Participants were given a 20 dollar stipend at each study visit as compensation for their time and to facilitate transportation.

Measures

Definition of sexual abuse

"Sexual abuse" was defined in this study as any type of sexual activity that participants were forced or coerced into (including childhood sexual abuse, molestation, rape, and sexual assault). Interviewers gave this definition to participants prior to asking the question: "Have you ever been forced to have sex against your will and/or been molested." Response options were yes, no, unsure/can't remember, and prefer not to answer. In order to preserve the number of cases, researchers made the conservative decision to code participants who answered that they were unsure/can't remember or preferred not to answer as "no" in the analysis.

Historical trauma

We defined historical trauma as having at least one parent who attended a residential school and/or ever having been taken from biological parents into care. Participants were asked "Do you know if your biological parents attended residential school?" and "Were you ever taken from your biological parents?"

Outcome variables

Unless otherwise stated, we dichotomized continuous outcome variables at the cohort median value. Drug use variables examined participants' patterns of smoking and injection drug use. Age drugs were first smoked (dichotomized at the cohort median 16, inter-quartile range (IQR) 14–18), and the frequencies of smoking crack, cocaine, methamphetamine (MA), and heroin, measured smoking behaviours. As done in previous studies of people who use illicit drugs (Craib et al., 2003; Schechter et al., 1999), we defined frequent drug smoking as those who reported smoking drugs once of more per day and lesser frequency drug use as using less than daily. Binge smoking was defined as periods during which drugs were smoked more frequently than usual. Participants were asked "In the past 6 months did you go on runs or binges where you smoked drugs more than usual?" Previous studies have established that the terms "runs" and "binges" are interpreted by people who use drugs as compulsive high-intensity drug use over longer periods of time that differs from normal patterns of drug use (Miller, Kerr, et al., 2006). Finally, all participants were asked if they had ever overdosed (yes vs. no) and if they had ever injected drugs (yes vs. no).

For those who answered "yes" to ever injecting drugs, a sub-analysis of variables exclusive to IDU participants was carried out. Injection drug use variables included age of first injection (dichotomized at the cohort median 18, IQR 15–21), frequency of injection within the 6 months prior to interview and binge injection behaviour over the past 6 months. As with binge drug smoking, we defined frequent cocaine, heroin and speedball users as those who reported injecting cocaine, heroin or speedballs (cocaine and heroin) once or more per day (daily or more vs. less than daily). As with binge drug smoking, binge injection drug use was defined as periods during which drugs were injected more frequently than usual. Participants were asked "In the past six months did you go on runs or binges where you injected drugs more than usual?" High-risk injection variables included ever needing help injecting, having needed help injecting in the past 6 months, ever having used a rig someone else had already used, and using a rig someone else had used in the past 6 months (each yes/no).

Risk factors of sexual vulnerability included age of first willing sex (dichotomized at the cohort median 14, IQR 13–16), having unsafe insertive sex (condom use always vs. not always) with a regular or casual partner, number of lifetime sexual partners (dichotomized at the cohort median, 0–19 partners vs. 20 partners or more), sex with a partner who was an injection drug user in the previous 6 months (yes vs. no), ever had sex with an HIV-positive partner (yes vs. no), ever paid for sex (yes vs. no), ever had a sexually transmitted infection (STI) (yes vs. no), and ever had an STI in the previous 6 months (yes vs. no). Sex work was defined as receiving money, shelter, food or drugs for sex. Unsafe sex was defined as not always using condoms for insertive sex (vaginal and/or anal) with regular and casual partners. Regular partners were defined as sexual relationships that had lasted longer than 3 months and casual partners were

defined as sexual relationships that lasted less than 3 months.

Social and mental health vulnerabilities included ever having been on the streets with no place to sleep for more than three nights (yes vs. no), ever being placed in prison or jail overnight or longer (yes vs. no), suicide ideation (yes vs. no), ever attempted suicide (yes vs. no), ever diagnosed with a mental disability/disorder (yes vs. no), ever been hospitalized for a mental disability (including suicide) (yes vs. no), and use of emergency department services in the previous 6 months prior to interview (yes vs. no).

In order to measure HIV and HCV serostatus, point estimates of HIV and HCV prevalence and 95% confidence intervals were obtained for specified populations of interest.

Analysis

This analysis utilized data from the baseline questionnaires of all participants recruited from the study's inception in October 2003–April 2005. Comparisons of categorical variables between individuals who reported a history of sexual abuse and those that did not were conducted using Pearson's χ^2 test and Fishers Exact methods when expected cell values were less than 5. The continuous variable of age was analyzed using the Wilcoxon rank-sum test, and normally distributed continuous data was analyzed using Student's *t*-test. All reported *p*-values are two-sided. All significant associations between variables at the 0.15 cut-off were entered into univariate analysis. Significant variables at the $p < 0.05$ cut-off in univariate analysis were entered into multivariable logistic regression analysis using the Enter method in SPSS (14.0 for Windows, Release 5 September, 2005). Both unadjusted and adjusted odds ratio and 95% confidence intervals were obtained using logistic regression.

Univariate logistic regression was used to determine the sociodemographic and historical trauma factors that were independently associated with ever experiencing sexual abuse. Multivariable logistic regression analysis determined whether sexual abuse was independently associated with a priori outcomes, after controlling for sociodemographic and historical trauma factors. Model I adjusted for sociodemographic factors associated with ever experiencing sexual abuse, including age at baseline, gender, employment status (receives income from regular job, yes vs. no) and marital status (married vs. other). Model II adjusted for variables that measured both sociodemographic and historical trauma factors that were associated with ever experiencing sexual abuse including ever been taken from biological parents into care (yes vs. no), and had at least one parent who attended residential school (yes vs. no). All outcomes in the models were determined based on their importance to HIV vulnerability or other health outcomes, and because they were statistically significant at the 0.15 cut-off in bivariate analysis. HIV and HCV prevalence estimates were calculated as the total number of individuals who are currently HIV-antibody positive, calculated separately for individuals who have ever experienced sexual abuse and those who have not.

Results

Of the 543 Aboriginal young adults included in the analysis, 281 (52%) were male and 262 (48%) were female. The median age of participants at baseline was 23 years, and the vast majority (83%) had not completed high school (data not shown). Nearly half (48%, 95% confidence interval [CI]: 43–52%) of the cohort has experienced sexual abuse at least once in their lifetime. Tables 1 and 2 show comparisons of traumatic/stressful life events as well as drug and sex-related vulnerabilities between participants who reported a history of sexual abuse and those who did not. Among those who reported sexual abuse, 69% were women and 31% were men. For age of onset or first incident of sexual abuse, 219 (85%) participants who reported sexual abuse said they were under age 13 years, 33 (13%) reported they were first abused at age 13 years or older, and 7 (3%) did not answer the question (data not shown). The median age at which participants reported experiencing their first incident of sexual abuse was 6 years for both boys and girls (IQR 4–9). For those who reported a history of sexual abuse, 70 (27%) had never told anyone about the experience prior to the baseline interview and 167 (65%) had never received counselling that involved dealing with the abuse (data not shown). Further, 121 (48%) reported that since their first experience of sexual abuse, they have again experienced sexual abuse by other people (data not shown).

Table 1
Comparison of sociodemographic factors and important vulnerabilities including traumatic/stressful life events between participants who reported sexual abuse ($n = 258$) and those who did not ($n = 285$)

Variables	Sexually abused *n* (%)	Never sexually abused *n* (%)	*p* Value
Baseline interview location: Vancouver	120 (46.5)	162 (57)	0.650
Female gender	179 (69)	83 (29)	<0.001
Median age at baseline (range)	24 (14–30)	22 (13–30)	0.002
At least one parent in residential school	128 (50)	117 (41)	0.036
Ever taken from biological parents into care	188 (73)	160 (56)	<0.001
Age first taken from parents into care under cohort median (4 years)	78 (42)	67 (43)	0.800
Ever on streets for >3 nights	190 (74)	175 (62)	0.003
Ever been in prison overnight	163 (63)	198 (70)	0.121
Age first in prison overnight under cohort median (16 years)	70 (45)	97 (52)	0.217
Been in the emergency department last 6 months	95 (37)	72 (25)	0.005
Ever self-harm	111 (43)	86 (30)	0.002
Ever attempt suicide	117 (45)	78 (27)	<0.001
Ever diagnosed with mental illness	85 (33)	71 (25)	0.041
Ever hospitalized for mental illness	49 (19)	34 (12)	0.026
Ever involved in survival sex	156 (61)	58 (55)	<0.001
Age first involved in survival sex under cohort median (16 years)	71 (46)	27 (34)	0.088
HCV-positive antibody status	95 (37)	82 (29)	0.041
HIV-positive antibody status	34 (13)	12 (4)	<0.001

Table 2
Comparison of factors related to sex and drug-related vulnerabilities between participants who reported sexual abuse ($n = 258$) and those who did not ($n = 285$)

Variable	Sexually abused *n* (%)	Never sexually abused *n* (%)	*p* Value
Age of first willing sex under cohort median (14 years)[a]	87 (34)	82 (30)	0.299
Ever been pregnant (females only)	144 (81)	56 (68)	0.017
Ever had an STI	133 (52)	94 (33)	<0.001
Number of lifetime sexual partners over 20	172 (67)	120 (42)	<0.001
Inconsistent condom use for insertive sex with regular partner	103 (85)	109 (80)	0.295
Inconsistent condom use for insertive sex with casual partner	40 (44)	48 (45)	0.852
Sex with an injection drug user in last 6 months	52 (20)	50 (18)	0.437
Had an STI in the last 6 months	25 (10)	22 (7)	0.415
Ever sex with HIV + regular/ casual partner	10 (5)	2 (1)	0.012
Daily or more smoking crack	151 (58)	146 (51)	0.088
Daily or more smoking cocaine	30 (12)	33 (12)	0.986
Daily or more smoking heroin	16 (6)	28 (10)	0.122
Daily or more smoking crystal methamphetamine	16 (6)	27 (10)	0.159
Binge drug smoking	136 (53)	145 (52)	0.688
Ever overdose	91 (35)	65 (23)	0.001
Ever inject drugs	163 (63)	138 (48)	0.001
Age of first injection under cohort median (17 years)[a,b]	79 (48)	66 (48)	0.912
Ever needed help injecting[b]	93 (57)	77 (56)	0.826
Daily or more injection cocaine[b]	42 (26)	36 (26)	0.950
Daily or more injection heroin[b]	51 (31)	37 (27)	0.395
Daily or more injection methamphetamine[b]	9 (6)	11 (8)	0.395
Daily or more injection speedballs[b]	21 (13)	7 (5)	0.020
Ever need help injecting[b]	93 (57)	77 (56)	0.826
Need help injecting in the last 6 months[b]	53 (59)	38 (48)	0.187
Binge injection drug use last 6 months[b]	33 (20)	20 (15)	0.192
Ever fixed with a used rig[b]	58 (36)	46 (33)	0.683
Fixed with a used rig last 6 months[b]	30 (18)	21 (15)	0.463

[a] Dichotomized at the cohort median.
[b] Restricted to participants who reported injection drug use ($n = 301$).

HIV and HCV prevalence

At the time of analysis there were 46 HIV-positive participants, yielding an HIV prevalence of 8.5% (95% CI: 6.41–11.11). Among participants who reported a history of sexual abuse, 34 were HIV-positive, a prevalence of 15.2% (95% CI: 10.8–20.56%). Among participants who reported no sexual abuse history, 12 were HIV-positive, making the prevalence of HIV among individuals who reported never having experienced sexual abuse 4.4% (95% CI: 2.31–7.61%). This difference is statistically significant (see Table 1).

In total, there were 177 HCV-positive participants, yielding a prevalence of 32.6% (95% CI: 28.79–36.65). Among those who were sexually abused, 95 were HCV-positive, a prevalence of 36.82% (95% CI: 30.92–43.03%). Among participants with no reported history of sexual abuse, 82 were HCV-positive, making the HCV prevalence rate 29.08% (95% CI: 23.85–34.76%). This difference is also statistically significant (see Table 1).

Univariate analysis

Results from the univariate and multivariable logistic regression analyses are found in Table 3. Univariate statistical comparisons were made of the sexually abused group as a whole, with the non-abused comparison group. The reference category in all cases is individuals who reported never having experienced sexual abuse. In univariate analysis, a history of sexual abuse was associated with ever being on the streets for more than three nights, self-harm, suicide ideation, attempted suicide, having been in an emergency department in the previous 6 months, ever having been diagnosed with a mental illness, ever having been hospitalized for mental illness including suicide attempt, HCV-positive antibody status, HIV-positive antibody status, over 20 lifetime sexual partners, ever having been paid for sex, ever having an STI, having sex with an HIV-positive partner, ever having overdosed, and ever injected drugs. Within the sub-analysis of participants who inject drugs, sexual abuse was a significant predictor of injecting speedballs daily or more (unadjusted OR 2.77, 95% CI 1.14–6.72).

Multivariate analysis

All sociodemographic variables that were significant at the 0.05 cut-off in univariable analysis with sexual abuse were entered in Model I. After controlling for age (UOR: 1.07, 95% CI: 1.0–1.1), employment status (UOR: 0.53, 95% CI: 0.3–0.9), gender (UOR: 5.5, 95% CI: 3.8–7.9), and marital status (UOR: 0.6, 95% CI: 0.4–0.9) having ever experienced sexual abuse was associated with the following outcomes listed under Model I in Table 3. Model I demonstrated that sexually abused participants were independently more likely to have ever been on the streets for more than three nights, ever self-harmed, ever thought seriously about suicide, ever attempted suicide, ever diagnosed with mental illness, been in the emergency department in the last 6 months, ever involved in survival sex work, and greater than 20 lifetime sexual partners. Finally, a history of sexual abuse was independently associated with HIV-antibody status in Model I.

After controlling for sociodemographic factors described above, as well as having been taken from biological parents (UOR: 2.1, 95% CI: 1.4–3.0), and having at least one parent who attended a residential school (UOR: 1.4, 95% CI: 1.0–2.0), a history of sexual abuse was associated with outcomes listed under Model II in Table 3. Sexual abuse was independently associated with ever been on the streets for more than three nights, ever self-harmed, ever thought seriously about suicide, ever attempted suicide, ever diagnosed with mental illness, been in the emergency department in the last 6 months, ever involved in survival sex work and greater than 20 lifetime sexual partners.

Table 3
Univariate and multivariable logistic regression analyses of health outcomes and HIV vulnerabilities for antecedent sexual abuse among Cedar Project participants ($n = 543$)

Outcome variable	UOR (95% CI)	Model I AOR[a] (95% CI)	Model II AOR[b] (95% CI)
Ever on streets for >3 nights	1.75* (1.21–2.53)	2.08* (1.36–3.12)	2.02* (1.30–3.12)
Ever self-harm	1.97* (1.22–3.19)	2.23* (1.32–3.78)	2.25** (1.48–3.42)
Ever seriously thought about suicide	2.24** (1.59–3.16)	2.68** (1.81–3.98)	2.50** (1.67–3.74)
Ever attempted suicide	2.20** (1.54–3.15)	2.02* (1.36–3.01)	1.91* (1.27–2.87)
Ever diagnosed with mental illness	1.48* (1.02–2.14)	2.00* (1.30–3.10)	2.05* (1.32–3.19)
Ever hospitalized for mental illness	1.71* (1.06–2.74)	1.66 (0.98–2.83)	1.51 (0.88–2.62)
Been in emergency in last 6 months	1.70* (1.18–2.46)	1.80* (1.19–2.72)	1.74* (1.14–2.65)
Ever been in prison overnight	0.75 (0.53–1.08)	0.99 (0.66–1.51)	0.97 (0.64–1.49)
Ever involved in survival sex	4.01** (2.80–5.75)	1.92* (1.25–2.96)	1.77* (1.14–2.77)
Age first involved in survival sex under cohort median (16 years)[c]	1.63 (0.928–2.86)	1.79 (0.95–3.37)	1.69 (0.88–3.26)
Ever been pregnant (females only)	2.04* (1.13–3.67)	1.76 (0.93–3.32)	1.89 (0.96–2.73)
Ever had an STI	2.16* (1.53–3.06)	1.44 (0.97–2.12)	1.49 (0.99–2.23)
Sex with HIV + partner	5.78* (1.25–26.72)	0.24 (0.05–1.24)	2.67 (0.50–14.1)
Number of lifetime sexual partners > 20	2.75** (1.94–3.91)	1.78* (1.20–2.64)	1.85* (1.23–2.78)
Daily or more smoking crack	1.34 (0.96–1.89)	0.81 (0.55–1.21)	0.78 (0.52–1.18)
Daily or more smoking heroin	0.61 (0.32–1.15)	0.389* (0.19–0.79)	0.39* (0.19–0.81)
Ever overdose	1.84* (1.27–2.69)	1.48 (0.98–2.25)	1.39 (0.90–1.14)
Ever inject drugs	1.83* (1.30–2.58)	1.08 (0.72–1.62)	1.06 (0.70–1.60)
HCV-antibody status	1.46* (1.02–2.09)	0.78 (0.51–1.20)	0.75 (0.48–1.17)
HIV-antibody status	3.43** (1.73–6.77)	2.09* (1.00–4.34)	1.72 (0.81–3.69)

UOR = unadjusted odds ratio; AOR = adjusted odds ratio; 95% CI = 95% confidence interval.
*$p < 0.05$; **$p < 0.001$.
[a] Model I adjusts for sociodemographic variables including gender, age, marital status, employment status.
[b] Model II adjusted for sociodemographic and historical trauma variables including having at least one parent who attended residential school and ever been taken from biological parents.
[c] Dichotomized at cohort median.

Discussion

Prevalence of sexual abuse

Aboriginal and non-Aboriginal scholars agree that the relationship between the cumulative effects of historical trauma and current trauma, including sexual abuse, are directly related to the HIV epidemic among Indigenous peoples in North America (Barton, Harvey, Thommasen, Zhang, & Michalos, 2005; Braitstein et al., 2003; Duran, Duran, Yellow Horse Brave Heart, & Yellow Horse-Davis, 1998; Robin, Chester, Rasmussen, Jaranson, & Goldman, 1997a; Wesley-Esquimaux & Smolewski, 2004). We found significant univariate associations between having at least one parent who attended residential school and involvement in the child welfare system with sexual abuse among Cedar Project participants. It is shocking that nearly half of the participants reported that they had experienced sexual abuse and that the median age of first experience of sexual abuse was 6 years. While controlling for sociodemographic and historical trauma variables, survivors of childhood sexual abuse in this cohort were found to be at significantly higher risk of serious negative health outcomes. These findings point to the urgency with which the issue of sexual abuse must be addressed. To our knowledge this is the first study comparing the impact of antecedent sexual abuse on HIV-related vulnerability among young Aboriginal people who use drugs in Canada.

Sexual abuse and vulnerability to HIV infection

Cedar Project participants who reported a history of sexual abuse were more likely to have faced serious physical and social vulnerabilities including homelessness and needing immediate medical attention in the previous 6 months. In addition, sexually abused participants were twice as likely to have ever self-harmed and to have seriously thought about suicide and attempted suicide. There is an established body of literature that links sexual abuse with suicidality and mental health issues in adult life both among Aboriginal people (Brant, 1994; Elias & Greyeyes, 1999; Grossman, Miligan, & Deyo, 1991; Robin, Chester, Rasmussen, Jaranson, & Goldman, 1997b) and non-Aboriginal people (Steel, Sanna, Hammond, Whipple, & Cross, 2004). However, in Canada rates of suicide among young Aboriginal people are over four times higher than among non-Aboriginal people (Health Canada, 2003) and are often attributed to vast social and economic disparities and intergenerational trauma. These findings have clear implications for clinicians, outreach workers, and program planners. Many Aboriginal organizations recognize the importance of "culture as intervention" and support suicide intervention programming based upon histories of resilience and resistance (Duran & Walters, 2004; Majumdar, Chambers, & Roberts, 2004; Spittal et al., 2007). However, very few programs address the relationship between unresolved emotional trauma related to childhood sexual abuse, and suicide. Meaningful and effective suicide prevention programming must address the roles of intergenerational trauma, unresolved grief and sexual trauma among young Aboriginal people (Mitchel & Maracle, 2005). Further, young Aboriginal people must be meaningfully involved and provide leadership in the design of all programming, in particular, suicide interventions that address the relationship between sexual trauma, mental health and suicide in both rural and urban settings.

Young people with a history of sexual abuse in this study were more likely to have greater sexual vulnerability in young adulthood. Over half of sexually abused participants reported ever having a sexually transmitted infection, and in multivariable analysis we found that sexually abused participants were nearly twice as likely to have more than 20 lifetime sexual partners. Although consistent condom use among sexually abused and non-sexually abused participants was not significantly different, the fact that only a small proportion of participants reported consistent use of condoms with their regular intimate partners is of great concern. These data are consistent with studies that have identified sexual vulnerability related to sexual trauma among American Indian youth in New York (Evans-Campbell et al., 2006) as well as Aboriginal women in Winnipeg (Young & Katz, 1998). In recent studies conducted in Vancouver, for Aboriginal women who use injection drugs, irregular condom use with regular sexual partners was found to be predictive of HIV seroconversion (Miller, Strathdee, et al., 2006; Spittal et al., 2002). The majority of sexual health programs focus solely on the circumstances of consensual sex and often ignore the effects of early sexual abuse and sexual violence in relationships on sexual decision-making (Amaro, 1995; Craib et al., 2003; Wyatt et al., 2002). Taken together, these findings suggest that antecedent sexual abuse has profound effects on the sexual health and safety of survivors later in life.

Participants with sexual abuse histories were more likely to be involved in survival sex work. Among participants who had ever been involved in survival sex, most reported that they had been sexually abused and the majority (71%) was young women. In 2000, Save the Children Canada reported that Aboriginal youth comprise 90% of the visible sex trade in various Canadian cities (Save the Children Canada, 2000). Indeed, in a qualitative study of survival sex workers in Vancouver, Farley, Lynne, and Cotton (2005) reported that the majority of participants had experienced sexual abuse and most required treatment for post-traumatic stress disorder. Young Aboriginal people who participate in survival sex work in Canadian urban settings continue to be exposed to appalling levels of drug-related harm, predation, violence and HIV-related vulnerability (Spittal et al., 2003; Spittal et al., 2006). Presently, however, in the cities studied here, Aboriginal young people have very limited opportunity to access adequate services at night and in appropriate locations (Spittal et al., 2006).

Vulnerability to drug-related HIV risk appears to be greater among sexually abused youth in the Cedar Project. While no drug use variables were significant in the multivariable models, in bivariate analyses, sexually abused participants were more likely to have ever overdosed, ever injected drugs and to inject speedballs daily or more. Because participation in the Cedar Project required testing positive for drug use within the previous month, the sample is homogenous for drug use, which may have attenuated associations between sexual abuse and drug use patterns and practices. Nonetheless, the high levels of injecting, needle borrowing and lending, and binge injecting are causes for concern (Miller, Kerr, et al., 2006; Miller, Strathdee, et al., 2006; Tyndall et al., 2003; Wood et al., 2003).

Adjusting for sociodemographic variables, sexual abuse survivors were twice as likely to be HIV-positive compared to those who did not report any sexual abuse. Considering that the median age of first sexual abuse experience was six years old, it is unlikely that sexual abuse was the mechanism for HIV acquisition. Instead, it is likely that HIV-positive survivors of sexual abuse in our cohort were infected later in life, via sexual contact or injection drug use. The associations reported here strongly suggest that mental health and continued exposure to sexual risk are the mediators that increased their rate of HIV infection. Most epidemiologic models addressing predictors of HIV infection are based on limited understanding of the post-colonial reality of young at-risk Aboriginal people living in Canada (Adelson, 2005). Indeed, policies aimed at reducing HIV risk fail to consider the psychological consequences of imposed sexual activity that has roots in historical trauma (Walters & Simoni, 1999). Clearly, the rate of sexual abuse among Cedar Project participants serves as an ominous warning for even greater negative health outcomes in the future.

Limitations

Attaining a probabilistic sample is a challenge with this population. However, as already described we used a variety of recruitment methods to acquire a representative sample including snowball sampling. Studies have shown that if referral chains are sufficiently long to penetrate deeply into the networks of a hidden population, snowball sampling can draw non-biased samples of the population (Magnani, Sabin, Saidel, & Heckathorn, 2005). Thus, while we cannot rule out selection bias and its impact on our parameter estimates, we are confident that our sample is representative of Aboriginal young people who use illicit drugs in both cities. Nevertheless, it should be noted that Indigenous communities all over the world have a diversity of experience in relation to drug use; therefore, patterns of drug use observed in this study may not necessarily be reflected among other Indigenous peoples living in resource rich or poor countries.

We must acknowledge that the complexity of risk factors within vulnerable sub-populations such as Aboriginal young people who use drugs may not be measured adequately with our current instruments. For example, different interpretations of the variable measuring sexual abuse may have had an effect on the abuse being reported (Young & Katz, 1998). In addition, the data are self-reported, therefore, variables such as lifetime diagnosis of a mental disability/disorder may be imprecise. What is more, participants may also under-report experiences and behaviours that are too painful to recall or are illegal or stigmatizing. Indeed, we suspect that the prevalence of sexual abuse and HIV risk-behaviours may have been substantially under-reported. We have attempted to minimize this limitation through repeated assurances of confidentiality and through establishment of rapport between participant and Aboriginal interviewer over time. We recognize that our indicators of historical trauma, having parents who attended residential school and being taken from parents

into care, are limited in that they do not directly assess the extent of the historical trauma experienced by the youth in our study. However, these measures do provide information on the effect of specific events (e.g., having a parent who experienced residential school) associated with colonization in Canada. Future developments for the Cedar Project initiative include integrating the recent work of Whitbeck, Adams, Hoyt, and Chen (2004) on the conceptualization and measurement of historical loss to further understand the role of historical trauma on the health and wellbeing of Aboriginal youth. Finally, because the design is cross-sectional, the associations cannot be inferred as causal.

In conclusion, we have found evidence that young at-risk Aboriginal people in two Canadian cities are experiencing several devastating sequelae of sexual abuse that signify continuing intergenerational transmission of trauma. The association between sexual abuse and vulnerability to negative sexual and mental health outcomes including HIV suggests that healing the "soul wound" (Duran et al., 1998) is far more than simply a matter of time. For more comprehensive public health benefits, Indigenous scholars have suggested a dynamic, multilevel approach to addressing historical trauma among Indigenous peoples at the individual, family, organizational, community and policy levels (Oetzel & Duran, 2004).

References

Adelson, N. (2005). The embodiment of inequity: health disparities in Aboriginal Canada. *Canadian Journal of Public Health, 96*, S45–S61.

Amaro, H. (1995). Love, sex and power. *American Psychologist., 50*(6), 437–447.

Barlow, K. J. (2003). Examining HIV/AIDS among the Aboriginal population in Canada: in the post-residential school era. *Aboriginal Healing Foundation*. <http://www.ahf.ca/assets/pdf/english/hiv_legacy.pdf> (Accessed 21.10.05).

Barton, S. S., Harvey, V., Thommasen, B. T., Zhang, W., & Michalos, A. C. (2005). Health and quality of life of Aboriginal residential school survivors, Bella Coola Valley, 2001. *Social Indicators Research, 73*, 295–312.

Braitstein, P., Li, K., Tyndall, M., Spittal, P., O'Shaughnessy, M. V., & Schilder, A., et al. (2003). Sexual violence among a cohort of injection drug users. *Social Science & Medicine, 57*, 561–569.

Brant, C. (1994). Native issues. In R. Grant (Ed.), *Images in psychiatry*. Canada: World Psychiatric Association.

British Columbia. (1999). *The Children's Commission Annual Report 1998*. Vancouver: The Children's Commission.

British Columbia. (2006). Ministry of children and family development, 2006/07–2008/09 service plan. <http://www.bcbudget.gov.bc.ca/2006/sp/cfd/cfd.pdf> (Accessed 30.05.07).

Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council of Canada. (1998). *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

Chester, B., Robin, R. W., Koss, W., Lopez, J., & Goldman, D. (1994). Grandmothers dishonoured: violence against women by male partners in American Indian communities. *Violence & Victims, 9*(3), 249–258.

Craib, K., Spittal, P. M., Wood, E., Laliberte, N., Hogg, R. S., & Li, K., et al. (2003). Risk factors for elevated HIV incidence among Aboriginal injection drug users in Vancouver. *Canadian Medical Association Journal, 168*(1), 19–24.

Duran, B., & Walters, K. L. (2004). HIV/AIDS prevention in "Indian Country": current practice, Indigenist etiology models, and postcolonial approaches to change. *AIDS Education and Prevention, 16*(3), 187–201.

Duran, E., Duran, B., Yellow Horse Brave Heart, M., & Yellow Horse-Davis, S. (1998). Healing the American Indian soul wound. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 341–354). New York: Plenum Press.

Elias, J. W., & Greyeyes, D. J. (1999). *Draft report on an environmental scan of mental health services in First Nations communities in Canada*. Ottawa: Assembly of First Nations.

Evans-Campbell, T., Lindhorst, T., Huang, B., & Walters, K. (2006). Interpersonal violence in the lives of urban American Indian and Alaska native women: implications for health, mental health, and help-seeking. *American Journal of Public Health, 96*, 1416–1422.

Farley, M., Lynne, J., & Cotton, A. J. (2005). Prostitution in Vancouver: violence and the colonization of First Nations women. *Transcultural Psychiatry, 42*(2), 242–271.

Fournier, S., & Crey, E. (1997). *Stolen from our embrace: The abduction of First Nations children and the restoration of Aboriginal communities*. Vancouver: Douglas & McIntyre.

Frank, S. (1992). *Family violence in Aboriginal communities: A First Nations report*. Ministry of Women's Equity, Taskforce on Family Violence. Victoria, B.C.: Queen's Printer.

Furniss, E. (1995). *Victims of benevolence: The dark legacy of the Williams Lake residential school*. Vancouver: Arsenal Pulp Press.

Gagné, M. (1998). The role of dependency and colonialism in generating trauma in First Nations citizens. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 355–372). New York: Plenum Press.

Grossman, D. C., Miligan, B. C., & Deyo, R. A. (1991). Risk factors for suicide attempts among Navajo adolescents. *American Journal of Public Health, 81*(7), 870–874.

Health Canada. (2003). *Acting on what we know: Preventing youth suicide in First Nations*. Ottawa: Advisory Group on Suicide Prevention.

Hylton, J. H. (2002). *Aboriginal sexual offending in Canada*. The Aboriginal Healing Foundation. <http://www.ahf.ca/assets/revised-sexual-offending_reprint.pdf> (Accessed 03.06.06).

Indian Residential Schools Resolution Canada. (unknown date). The residential school system historical overview. Retrieved December 7, 2006, from: http://www.irsr-rqpi.gc.ca/english/history.html.

Karmali, S., Laupland, K., Harrop, A., Findlay, C., Kirkpatrick, A., & Winston, B., et al. (2005). Epidemiology of severe trauma among status Aboriginal Canadians: a population-based study. *Canadian Medical Association Journal, 172*(8), 1007–1011.

LaRocque, E. (1994). *Violence in Aboriginal communities*. Ottawa: Public Health Agency of Canada, National Clearinghouse on Family Violence. <http://www.phac-aspc.gc.ca/ncfv-cnivf/familyviolence/html/fvaborcommunit_e.html> (Accessed 15.07.06).

Law Commission of Canada. (2000). *Restoring dignity: Responding to child abuse in Canadian institutions*. Ottawa: Minister of Public Works and Government Services Canada.

Libby, A. M., Orton, H. D., Novins, D. K., Beals, J., Manson, S. M., & AI—SUPERPFP Team. (2005). Childhood physical and sexual abuse and subsequent depressive anxiety disorders for two American Indian tribes. *Psychosocial Medicine, 35*, 329–340.

Magnani, R., Sabin, K., Saidel, T., & Heckathorn, D. (2005). Review of sampling hard-to-reach and hidden populations for HIV surveillance. *AIDS, 19*(Suppl. 2), S67–S72.

Majumdar, B., Chambers, T., & Roberts, J. (2004). Community based, culturally sensitive HIV/AIDS education for Aboriginal adolescents: implications for nursing practice. *Journal of Transcultural Nursing, 15*(1), 187–201.

Miller, C. L., Kerr, T., Frankish, J. C., Spittal, P. M., Li, K., & Schechter, M. T., et al. (2006). Binge drug use independently predicts HIV seroconversion among injection drug users: implications for public health strategies. *Substance Use and Misuse, 41*(6–7), 841–843.

Miller, C. L., Strathdee, S. A., Spittal, P. M., Kerr, T., Li, K., & Schechter, M. T., et al. (2006). Elevated rates of HIV infection among young Aboriginal injection drug users in a Canadian setting. *Harm Reduction Journal, 3*(9). <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1431516> (Accessed 19.01.07).

Miller, J. R. (1996). *Shingwauk's vision*. Toronto: University of Toronto Press.

Mitchel, T., & Maracle, D. (2005). Healing the generations: post-traumatic stress and the health status of Aboriginal populations in Canada. *Journal of Aboriginal Health, 2*(1), 14–24.

Oetzel, J., & Duran, B. (2004). Intimate partner violence in American Indian and/or Alaska native communities: a social ecological framework of determinants and interventions. *American Indian and Alaska Native Mental Health Research, 11*(4), 49–68.

O'Neil, J. (1986). The politics of health in the fourth world: a Northern Canadian example. *Human Organization, 45*, 119–128.

Public Health Agency of Canada. (2006). *HIV/AIDS among Aboriginal peoples in Canada: A continuing concern*. HIV/AIDS Epi Update. Centre for Infectious Disease Prevention and Control. <http://www.phac-aspc.gc.ca/publicat/epiu-aepi/epi-06/pdf/epi06_e.pdf> (Accessed 09.09.06).

Robin, R. W., Chester, B., Rasmussen, J. K., Jaranson, J. M., & Goldman, D. (1997a). Prevalence and characteristics of trauma and posttraumatic stress disorder in a southwestern American Indian community. *American Journal of Psychiatry, 154*, 1582–1588.

Robin, R. W., Chester, B., Rasmussen, J. K., Jaranson, J. M., & Goldman, D. (1997b). Factors influencing utilization of mental health and substance abuse services by American Indian men and women. *Psychiatric Services, 48*, 826–832.

Ross, R. (2006). Traumatization in remote First Nations: an expression of concern. Unpublished manuscript.

Royal Commission on Aboriginal Peoples. (1996). *Report of the Royal Commission on Aboriginal peoples*. Ottawa: Minister of Supply and Services, ISBN 0-660-16413-2.

Save the Children Canada. (2000). *Year one: 1999–2000; Out of the shadows and into the light: A project to address the commercial sexual exploitation of girls and boys in Canada first year end report*. Vancouver, B.C.: Save the Children Canada.

Schechter, M. T., Strathdee, S. A., Cornelisse, P. G., Currie, S., Patrick, D. M., & Rekart, M. L., et al. (1999). Do needle exchange programmes increase the spread of HIV among injection drug users? An investigation of the Vancouver outbreak. *AIDS, 13*(6), F45–F51.

Simoni, J., Sehgal, S., & Walters, K. (2004). Triangle of risk: urban American Indian women's sexual trauma, injection drug use, and HIV sexual risk behaviours. *AIDS and Behaviour, 8*(1), 33–45.

Smith, L. T. (1999). *Decolonizing methodologies. Research and Indigenous peoples*. London: Zed Books.

Spittal, P. M., Bruneau, J., Craib, J. P., Miller, C., Lamothe, F., & Weber, A. E., et al. (2003). Surviving the sex trade: a comparison of HIV risk behaviours among street-involved women in two Canadian cities who inject drugs. *AIDS Care, 15*(2), 187–195.

Spittal, P. M., Craib, K. J. P., Teegee, M., Baylis, C., Moniruzzaman, A., & Schechter, M. T. (2007). The Cedar Project: prevalence and correlates of HIV infection among young Aboriginal people who use drugs in two Canadian cities. *International Journal of Circumpolar Health, 66*(3).

Spittal, P. M., Craib, K. J. P., Wood, E., Laliberte, N., Li, K., & Tyndall, M. W., et al. (2002). Risk factors for elevated HIV incidence rates among female injection drug users in Vancouver. *Canadian Medical Association Journal, 166*(7), 894–899.

Spittal, P. M., Hogg, R. S., Li, K., Craib, J. P., Recsky, M., & Johnston, C., et al. (2006). Drastic elevations in mortality among female injection drug users in a Canadian setting. *AIDS Care, 18*(2), 101–108.

SPSS 14.0 for Windows, Release 5 (September 2005). Chicago: SPSS Inc.

Steel, J., Sanna, L., Hammond, B., Whipple, J., & Cross, H. (2004). Psychological sequelae of childhood sexual abuse: abuse-related characteristics, coping strategies, and attributional style. *Child Abuse & Neglect, 28*, 785–801.

Trocmé, N., Fallon, B., MacLaurin, B., Daciuk, J., Felstiner, C., & Black, T., et al. (2005). *Canadian incidence study of reported child abuse and neglect—2003: Major findings*. Ottawa, ON: Minister of Public Works and Government Services, Canada.

Trocmé, N., MacLauren, B., Fallon, B., Daciuk, J., Billingsley, D., Tourigny M, et al. (2001). Canadian incidence study of reported child abuse and neglect: Final report.

Tyndall, M. W., Currie, S., Spittal, P., Li, K., Wood, E., & O'Shaughnessy, M. V., et al. (2003). Intensive injection cocaine use as the primary risk factor in the Vancouver HIV-1 epidemic. *AIDS, 17*(6), 887–893.

Vernon, I. S. (2001). *Killing us quietly: Native Americans and HIV/AIDS*. University of Nebraska Press.

Walters, K. L., & Simoni, J. M. (1999). Trauma, substance abuse, and HIV risk among urban American Indian women. *Cultural Diversity and Ethnic Minority Psychology, 5*(3), 236–248.

Walters, K. L., & Simoni, J. M. (2002). Reconceptualising native women's health: an "Indigenist" stress-coping model. *American Journal of Public Health, 92*(4), 520–524.

Wesley-Esquimaux, C., & Smolewski, M. (2004). *Historic trauma and Aboriginal healing*. Ottawa: Aboriginal Healing Foundation.

Whetton, K., Leserman, J., Lowe, K., Stangl, D., Thielman, N., & Swartz, M., et al. (2006). Prevalence of childhood sexual abuse and physical trauma in an HIV-positive sample from the deep south. *American Journal of Public Health, 96*(6), 1028–1030.

Whitbeck, L. B., Adams, G. W., Hoyt, D. R., & Chen, X. (2004). Conceptualizing and measuring historical Trauma among American Indian people. *American Journal of Community Psychology, 33*(3/4), 119–130.

Wood, E., Spittal, P. M., Kerr, T., Small, W., Tyndall, M. W., & O'Shaughnessy, M. V., et al. (2003). Requiring help injecting as a risk factor for HIV infection in the Vancouver epidemic: implications for HIV prevention. *Canadian Journal of Public Health, 94*(5), 355–359.

Wyatt, G. E., Myers, H. F., Williams, J. K., Kitchen, C. R., Loeb, T., & Carmona, J. V., et al. (2002). Does a history of trauma contribute to HIV risk for women of color? Implications for prevention and policy. *American Journal of Public Health, 92*(4), 660–666.

Yellow Horse Brave Heart, M. (2003). The historical trauma response among natives and its relationship with substance abuse: a Lakota illustration. *Journal of Psychoactive Drugs, 35*(1), 7–13.

Young, T. K., & Katz, A. (1998). Survivors of sexual abuse: clinical, lifestyle and reproductive consequences. *Canadian Medical Association, 159*(4), 239–334.