

ORIGINAL ARTICLE

THE CEDAR PROJECT: CORRELATES OF ATTEMPTED SUICIDE AMONG YOUNG ABORIGINAL PEOPLE WHO USE INJECTION AND NON-INJECTION DRUGS IN TWO CANADIAN CITIES

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ABSTRACT

Objectives. Aboriginal leadership and families are deeply concerned about the rate of suicide attempt among their young people. The objectives of this study were to (a) describe the prevalence of suicide attempt and (b) to describe correlates of vulnerability to suicide attempts within a cohort of young Aboriginal people who use drugs in 2 Canadian cities. We aimed to situate the findings within the context of historical and lifetime trauma.

Study design. The Cedar Project is a prospective cohort study involving 605 young Aboriginal people aged 14–30 who use drugs in Vancouver and Prince George, British Columbia, Canada.

Methods. Multivariable logistic regression modelling identified independent predictors of suicide attempts. Estimates of adjusted odds ratios and 95% confidence intervals were calculated.

Result. In multivariable analysis, residing in Prince George (Adjusted Odds Ratio [AOR]: 1.80, 95% CI: 1.23, 2.64), ever having been sexually abused (AOR: 2.07, 95% CI: 1.39, 3.08), and ever having overdosed (AOR: 2.29, 95% CI: 1.53, 3.42) independently predicted lifetime attempted suicide.

Conclusions. Suicide prevention and intervention programs must address historical and lifetime trauma among Aboriginal young people who struggle with substance dependence.

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Keywords: Aboriginal young people, suicide attempts, sexual abuse

INTRODUCTION

Aboriginal oral history describes that prior to European contact suicide among Aboriginal peoples in North America was a rare occurrence. In the past, the few suicides that did occur were committed by the aged or sick as an act of self-sacrifice to release the family from the burden of caring for them (1,2). Today, however, suicide among Aboriginal peoples in Canada is far higher compared to non-Aboriginal peoples and most commonly an act of the young. The alarming rate at which young people are killing themselves is deeply demoralizing to Aboriginal families and communities (3). Indeed, a “significant number of Aboriginal people in this country believe they have more reasons to die than to live” (1, p. 89). As Aboriginal scholars have suggested, any discussion of suicide and associated vulnerabilities among Aboriginal peoples 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 histories of the residential school and child welfare systems.

Officially operating between 1874 and 1986, the residential school system in Canada institutionalized the devaluation of well over a hundred thousand Aboriginal children’s identities (4). Residential schools were the product of a church–state partnership that sought to enforce the cultural and spiritual alienation of Aboriginal children, in order to accelerate their Christianization and assimilation into Canadian society (5). In all, there were 28 residential schools in British Columbia (BC), more than any other Canadian 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” (6, p. 49) and taught students to be ashamed of their languages and cultures (7). Moreover, sexual abuse within the schools was pervasive and has been characterized as a systemic means of degrading the psyche of Aboriginal children and devaluing Aboriginal identity on the whole (4). An astonishing number of residential school survivors who have disclosed their experiences describe sexual molestation ranging from fondling to rape and sodomy (8). As former students raise their own children and grandchildren, the intergenerational effects of abuse and familial fragmentation are evident in families and communities where suicide, drug dependence, and interpersonal violence are pervasive (9,10).

As the Canadian federal government began phasing out residential schools in the 1950s, it devolved responsibilities to the provinces, including the welfare of Aboriginal peoples from the Indian Act (1876). With guaranteed payment for each Indian child they apprehended, provincial social workers capitalized on the socio-economic disparity between Aboriginal and non-Aboriginal families. From the 1950s through the 1960s, citing rationales that included poverty and neglect, the rate of child welfare apprehension of Aboriginal children grew from 1% to between 30% and 40% (3). Today, Aboriginal children continue to be over-represented within the foster care system. In BC, Aboriginal children accounted for approximately 9% of the child population in 2006, but comprised 49% of children-in-care and 42% of youth in custody (11). Aboriginal scholars suggest the combined intergenerational effects of the residential school and

child welfare systems are responsible for the loss of cultural identity and spiritual connection to the lands among young Aboriginal people (9,12). Combined, the painful feelings of hopelessness, helplessness, isolation and alienation resulting from a loss of identity in non-Aboriginal homes and institutions compel many Aboriginal young people to reject life (1,12).

Most recent data from the Canadian Institute of Child Health compared suicide rates of Aboriginal and non-Aboriginal youth in Canada between the ages of 15 and 24 from 1989 to 1993 (13). The report indicated that the suicide rate among Aboriginal men was 126 per 100,000, compared to 24 per 100,000 for non-Aboriginal men and 35 per 100,000 versus only 5 per 100,000 for non-Aboriginal women. Other data demonstrate that suicide rates among Aboriginal young people aged 15–24 are consistently high in BC. In 1987 and 1992, there were 108.4 suicides per 100,000 among Aboriginal young people compared to 24.0 suicides per 100,000 among non-Aboriginal young people (14). In the same 5-year period, Aboriginal youth suicide was five times that of non-Aboriginal youth (14). In a study of 4,800 Aboriginal students who took part in a young people's health survey in BC between 1992, 1998, and 2003, trends of suicide attempt did not improve (15). Indeed, the study demonstrated that in 1992 and in 2002, the rate of suicide ideation was consistent at 22% and the rate of suicide attempt among participants was 12%. Risk factors for suicide attempts in this study included sexual abuse, emotional distress and substance use among others.

Aboriginal authors argue that young Aboriginal people who use drugs are numbing

themselves from painful feelings associated with historical and lifetime stressors and are at high risk for suicide attempts (16–18). For example, Yoder et al. (17) found that drug use was the strongest predictor of suicide ideation within a sample of American Indian youth. Freedenthal and Stiffman (19) determined a significant univariate association between substance dependence and suicide among American Indian youth in a south-western city. In addition, Borowsky et al. (20) established that frequent use of alcohol and marijuana or any uses of other drugs were significant risk factors for suicide attempts among American Indian and Alaska Native youth.

There is a paucity of scientific research in Canada that focuses on the vulnerability of young Aboriginal people who use drugs to attempted of suicide. This analysis investigates correlates of suicide attempts among a cohort of young Aboriginal people from the Cedar Project who use drugs in Vancouver and Prince George, BC. Our objectives were (a) to describe the prevalence of suicide attempts and (b) to describe correlates of vulnerability to suicide attempts within a cohort of young Aboriginal people who use drugs in Vancouver and Prince George. 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 (21,18).

MATERIAL AND METHODS

The Cedar Project is an ongoing prospective cohort study of young Aboriginal people who use drugs in BC. Eligibility criteria for this cohort stipulated that participants had to be

between 14 and 30 years of age and had to have either 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 had to be residing in the greater Vancouver or Prince George regions and had to provide written informed consent. Participants in both cities were recruited through referral by health care providers, community outreach, and word of mouth. All participants met with one study co-ordinator who explained procedures, sought informed consent and confirmed study eligibility. The term "Aboriginal status" was based on self-report and is inclusive of individuals who identify as Métis, Aboriginal, First Nations, Inuit and non-status Indians, groups which share a common heritage.

Guidelines provided in the *Canadian Institutes of Health Research Guidelines for Health Research Involving Aboriginal People* (2007) were followed in the development and conduct of this study. Our First Nation's collaborators, including Aboriginal leadership and AIDS Service Organizations, were involved in the conception, design and implementation of the Cedar Project. Our collaborators have authority over the dissemination of the study results; therefore, they reviewed the results of this analysis and approved this manuscript for publication. The Cedar Project was approved by the University of British Columbia/Providence Health Care Research Ethics Board.

At enrolment, participants completed a detailed interviewer-administered questionnaire that included questions on sociode-

mographic characteristics, historical and lifetime traumatic life events, non-injection and injection drug-use practices and sexual vulnerabilities. Interviews were conducted by trained Aboriginal interviewers. Venous blood samples were drawn and tested for HIV and HCV (hepatitis C) antibodies. All eligible participants had private interviews, including pre- and post-test counselling with trained nurses. Participants were given a small stipend at each study visit as compensation for their time and to facilitate transportation. This analysis is based upon data from the baseline questionnaires of 605 participants recruited from the study's inception in October 2003 to November 2007. To measure suicide attempts, participants were asked if they had "ever attempted suicide." If the participant answered yes, the most recent attempt was recorded as well as the method of attempt. Referrals to mental health services were provided where appropriate.

Variables of interest

Self-reported sexual identity was defined as being either straight (heterosexual) or gay/lesbian/bisexual/transgendered/questioning (GLBTQ). Having at least one parent who attended residential school was measured by asking participants, "Do you know if your biological parents attended residential school?" Ever having been involved in the child welfare system was measured by asking participants, "Were you ever taken from your biological parents?" 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). Survival sex work was defined as receiving money, shelter,

food or drugs for sex. Lifetime (ever) sexually transmitted infections (STI) and STI infection within the previous six months were self-reported. Vulnerability to homelessness was measured by asking participants if they had ever been on the streets for three nights or longer without a place to sleep. Drug use variables examined participants' patterns of smoking and injection drug use, overdose experiences and bingeing behaviour. Binge injection drug use was defined as periods when drugs were smoked and/or injected more frequently than usual. Participants were asked, "In the past six 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 (22). Participants were also asked if they had ever overdosed. We defined frequent drug smokers or injection users as those who reported smoking or injecting drugs once or more per day (daily or more vs. less than daily). Speedball injection was defined as injecting cocaine and heroin combined. Opiate use was defined as smoking or injecting morphine, dilaudid, heroin, morphine or methadone. Baseline point-estimates of HIV and HCV prevalence among participants were used.

Statistical analyses of bivariable categorical data were conducted using Pearson's chi-square test. Fisher's exact test was used to analyze bivariable categorical data when 25% or more of the expected cell frequencies in a contingency table were less than 5. All reported p-values are two-sided. Non-parametric tests (Wilcoxon rank-sum) were used for continuous variables. Single variable and multivariable logistic regression

analyses were used to model independent risk factors for suicide attempt. Variables entered into multivariable regression using SPSS (23) were chosen based on statistical significance in bivariable analysis and relevant literature. Odds ratios and 95% confidence intervals were obtained using logistic regression.

RESULTS

In total, 605 participants completed the baseline questionnaire, 313 (52%) were male. The mean age was 23.5 (SD=4) years, and 305 participants (50%) resided in Prince George. Table I demonstrates characteristics of suicidality among Cedar Project participants. Out of 605 participants who completed the baseline questionnaire, 224 (37%) had attempted suicide. In addition, over half (53%) of the participants responded positively to the question, "Have you ever seriously thought about taking your own life?" The median age of participants when they had last attempted suicide was 20 years (Inter Quartile Range [IQR]: 16–24), and the median time since the last attempt was 26 months (IQR: 7–64). The most common methods of attempting suicide were cutting (35%) and overdose (35%), followed by hanging (19%), jumping (5%), using firearms (1%), unspecified methods (1%), drowning (1%) and poisoning (1%). Gender differences (data not shown) for method of suicide attempts demonstrated that a greater proportion of women had attempted suicide by having cut themselves (44% vs. 34%) or having overdosed (55% vs. 24%), while men were more likely to have hanged themselves (26% vs. 13%), used firearms (5% vs. 0%) or poisoned themselves (3% vs. 0%).

Table I. Characteristics of suicide attempt among 605 young Aboriginal people who use drugs.

Variable	n (%)
Ever seriously thought about taking own life	
Yes	319 (53)
No	286 (47)
Ever attempted suicide	
Yes	224 (37)
No	380 (63)
Refused	1 (<1)
Median age at last suicide attempt (IQR)	20 (16-24)
Median number of months since last suicide attempt (IQR)	26 (7-64)
Methods of last suicide attempt	
Cutting	78 (35)
Drugs/pills overdosing	79 (35)
Hanging	43 (19)
Jumping	10 (5)
Firearms	5 (2)
Other	3 (1)
Drowning	2 (1)
Poisoning	3 (1)

Table II. Demographic, historical and lifetime traumatic life events among Cedar Project participants who reported ever having attempted suicide (n=224) and those who reported never having attempted suicide (n=380).

Variable	Has attempted suicide n (%)	Never attempted suicide n (%)	p value
Median age at enrolment visit	24	23	0.470
(Inter Quartile Range)	(20-27)	(20-26)	
Location Prince George	124 (55)	100 (45)	0.058
Female biological gender	124 (55)	168 (44)	0.008
GLBTQ sexual identity*	35 (16)	32 (8)	0.007
Single marital status	163 (73)	278 (79)	0.101
At least one parent attended residential school	114 (51)	163 (43)	0.061
Ever taken from biological parent	156 (70)	234 (62)	0.045
Median age first taken from biological parent (IQR)	4 (1-8)	5 (2-8)	0.349
Ever sexually abused	138 (63)	150 (40)	<0.001
Median age first experienced sexual abuse (IQR)	6 (4-8)	7 (4-10)	0.023
Unstable housing	101 (48)	162 (45)	0.435
Ever on the street >3 nights	161 (73)	243 (64)	0.034
Ever involved in survival sex	120 (54)	137 (36)	<0.001
Median age first paid by someone for sex (IQR)	16 (14-18)	16.5 (15-19)	0.121
Ever been in jail/prison	146 (66)	248 (65)	0.959
Age first in jail/prison	16 (13-19)	15 (13-18)	0.197
Been in jail/prison last 6 months	53 (24)	76 (20)	0.289
Positive HIV antibody status	17 (8)	30 (8)	0.894
Positive HCV antibody status	73 (34)	115 (33)	0.662

*Gay/Lesbian/Bisexual/Transgendered/Questioning

All bivariable comparisons between participants who had attempted suicide and those who had not are summarized in Tables II and III. In the bivariable analysis, a suicide attempt was significantly associated with the female gender (55% vs. 44%, $p=0.00$), GLBTQ sexual identity (16% vs. 8%, $p=0.007$), ever having been taken from biological parents (70% vs. 62%, $p=0.045$), ever having been sexually abused (63% vs. 40%, $p<0.001$), younger age of first experiencing sexual abuse (6 vs. 7 years, $p=0.023$), ever having been on the streets for

more than three nights (73% vs. 64%, $p=0.034$), younger age of first willing sex (14 vs. 15 years, $p=0.001$), ever having had an STI (46% vs. 38%), ever having injected drugs (61% vs. 52%, $p=0.040$), ever having overdosed (42% vs. 22%, $p<0.001$), bingeing with drugs in the previous 6 months (13% vs. 7%, $p=0.011$) and smoking opiates on a less than daily basis (6% vs. 12%, $p=0.001$). Residing in Prince George (55% vs. 44%, $p=0.058$) and having at least one parent who attended residential school were marginally significant (51% vs. 43%, $p=0.061$).

Table III. Comparisons of drug use and sexual vulnerabilities between Cedar Project participants who reported ever having attempted suicide ($n=224$) and those who reported never having attempted suicide ($n=380$).

Variable	Has attempted suicide n (%)	Never attempted suicide n (%)	p value
Age of first willing sex(IQR)	14 (13-16)	15 (13-16)	0.001
Ever had an STI	104 (46)	143 (38)	0.034
Had an STI in the past 6 months	25 (11)	30 (8)	0.178
Ever injected drugs	136 (61)	198 (52)	0.040
Age first injected drugs	17 (15-21)	18 (15-21)	0.465
Ever overdosed	94 (42)	83 (22)	<0.001
Binged with drugs last 6 months	30 (13)	27 (7)	0.011
Smoked cocaine last 6 months	104 (46)	149 (39)	0.082
Smoked cocaine daily or more	24 (11)	45 (12)	0.098
Smoked crack last 6 months	199 (89)	342 (90)	0.652
Smoked crack daily or more	123 (55)	206 (54)	0.774
Smoked crystal methamphetamine last 6 months	73 (33)	118 (31)	0.695
Smoked crystal methamphetamine daily or more	18 (8)	29 (8)	0.082
Smoked opiates last 6 months‡	74 (33)	107 (28)	0.206
Smoked opiates daily or more	14 (6)	47 (12)	0.001
Injected cocaine last 6 months	75 (34)	101 (27)	0.071
Injected cocaine daily or more	37 (17)	48 (13)	0.191
Injected speedballs last 6 months	31 (14)	42 (11)	0.310
Injected speedballs daily or more	12 (5)	18 (5)	0.483
Injected crystal methamphetamine last 6 months	23 (10)	31 (8)	0.380
Injected crystal methamphetamine daily or more	9 (4)	11 (3)	0.654
Injected opiates last 6 months	79 (35)	108 (28)	0.079
Injected opiates daily or more	53 (14)	63 (17)	0.098

‡- Opiates defined as use of morphine, dilaudid, heroin and methadon.

Residing in Prince George (Unadjusted Odds Ratio [UOR]: 1.38, 95% CI: 0.98, 1.92), gender (UOR: 1.57, 95% CI: 1.12, 2.18), GLBTQ sexual identity (UOR: 2.01, 95% CI: 1.20, 3.35), ever having been taken from biological parents (UOR: 1.43, 95% CI: 0.98, 1.91), ever having been sexually abused (UOR: 2.58, 95% CI: 1.83, 3.63), ever having been on the streets for 3 nights or longer (UOR: 1.48, 95% CI: 1.03, 2.12), ever having been involved in survival sex (UOR: 2.03, 95% CI: 1.45, 2.84), ever having injected drugs (UOR: 1.42, 95% CI: 1.02, 1.99), having binged with drugs in the previous 6 months (UOR: 1.38, 95% CI: 0.99, 1.93) and ever having overdosed (2.58, 95% CI: 1.80, 3.70) were entered into

the multivariable model. In multivariable analysis, residing in Prince George (Adjusted Odds Ratio [AOR]: 1.80, 95% CI: 1.23, 2.64), ever having been sexually abused (AOR: 2.07, 95% CI: 1.39, 3.08), and ever having overdosed (AOR: 2.29, 95% CI: 1.53, 3.42) independently predicted lifetime attempted suicide (Table IV). Female gender, ever involved in survival sex, GLBTQ sexual identity, ever having been taken away from biological parents, binging with non-injection or injection drugs, having at least one parent who attended residential school, having ever been on the streets for 3 nights or longer, and ever having injected drugs did not reach statistical significance at the p= 0.05 level.

Table IV. Univariable and multivariable logistic regression analysis for factors of suicide attempt among Cedar Project participants.

Variable	UOR (95% CI)	AOR (95% CI) ^a
Location Prince George	1.38 (0.98,1.92)	1.80 (1.23, 2.64)
Female Gender	1.57 (1.12, 2.18)	1.52 (0.87, 2.68)
GLBTQ sexual identity	2.01 (1.20, 3.35)	1.42 (0.78, 2.58)
Ever taken from biological parents	1.43 (1.01, 2.03)	1.14 (0.77, 1.69)
At least one parent attended residential school	1.37 (0.98, 1.91)	1.24 (0.86, 1.78)
Ever sexually abused	2.58 (1.83, 3.63)	2.07 (1.39, 3.08)
On the street for >3 nights previous six months	1.48 (1.03, 2.12)	1.38 (0.90, 2.10)
Ever involved in survival sex	2.03 (1.45, 2.84)	3.00 (1.49, 6.01)
Ever inject drugs	1.42 (1.02, 1.99)	0.99 (0.67, 1.45)
Binged with non-injection/injection drugs previous six months	1.38 (0.99, 1.93)	1.40 (0.97, 2.01)
Ever overdosed	2.58 (1.80, 3.70)	2.29 (1.53, 3.42)
Female gender * Survival sex work ^b	0.36 (0.16, 0.80)	0.31 (0.13, 0.75)

UOR: Unadjusted Odds Ratio; **AOR:** Adjusted Odds Ratio; **CI:** Confidence Interval

^aThis model included an interaction term between female gender and survival sex.

^bThe Odds Ratio for survival sex after considering the interaction term between female and sex work was 0.93 (95% CI: 0.19, 4.50). When the interaction term between male and sex work was included, the OR for survival sex was 3.00 (95% CI: 0.70, 12.80).

DISCUSSION

On June 11, 2008, the Prime Minister of Canada, Stephen Harper, made an apology in the House of Commons to former students of residential schools (24). He acknowledged that “these institutions gave rise to abuse or neglect and were inadequately controlled” and that as former students “became parents, (they) were powerless to protect (their) own children from suffering the same experience, and for this we are sorry” (24). Aboriginal and non-Aboriginal scholars agree that the relationship between the cumulative effects of historical trauma are directly associated to the epidemic of suicide among Indigenous people in North America (25–29). Indeed, there perhaps is no greater evidence of the legacy Canada has left Aboriginal children than their rejection of life itself (3). We found significant and marginal univariable associations between having ever been taken from biological parents and having at least one parent who attended residential school, respectively. In the multivariable model, suicide survivors in this cohort were at significantly greater risk for serious sexual trauma and addiction concerns. These findings point to the urgency with which the issue of suicide among young Aboriginal people must be addressed. While there is an abundance of literature in Canada pointing to the urgency of addressing suicide among young Aboriginal people (14,29,30), to our knowledge this is the first study addressing suicide risk among young Aboriginal people who use drugs in this country.

The prevalence of suicide attempt in our study (37%) was higher than was previously identified in other studies that included Inuit youth in Quebec (22%) (29), Aboriginal

students across British Columbia (12%) (15), adolescents living on First Nation reserves across Canada (22%) (30), Navajo adolescents on a large reservation in the United States (15%) (31), American Indian adolescents in rural (non-reservation) Minnesota (17%) (32) and urban American Indian youth in a south-western state (14%) (18).

We found an independent association between ever having had a drug overdose with suicide attempt. This is clear evidence that high-risk, potentially fatal drug use heightens vulnerability to suicide attempt among young Aboriginal people in the Cedar study. In a special report on suicide among Aboriginal people in Canada, the Royal Commission on Aboriginal Peoples expressed that the damaging effects of chronic and heavy drug use is now so widespread in most Aboriginal communities that continued abuse can be considered a kind of slow suicide (1). Aboriginal scholars have argued that incorporating awareness and acknowledgement of the legacy of colonization, residential school and foster care systems will aid in the revitalization of cultural identity and provide a meaningful foundation for healing (33,34). Indeed, treatment for drug dependence among Aboriginal young people should incorporate methods for understanding and coping with the helplessness and hopelessness associated with both historical and lifetime trauma that may lead to suicide attempt (18).

Cedar Project participants who reported ever having been sexually abused were nearly two times more likely to have attempted suicide. Considering the reported median age of first experience of sexual abuse was only 6 years old, sexual abuse was likely an antecedent event to suicide attempt. Government

reports and scientific research 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 (1,7,10,35,36). The Royal Commission on Aboriginal Peoples (36) described how the lessons learned in residential schools were often brought back to the communities from which the children were taken and inflicted upon their own children. Specific programming that increases the understanding of intergenerational trauma and the role of sexual trauma in suicidality tendencies among Aboriginal peoples is lacking (12). The failure to address the mediating role that historical trauma has on sexual trauma and suicide attempts signals a missed opportunity to design meaningful strategies that concentrate on sexual abuse as a root cause of deep-seated pain among Aboriginal peoples.

Participants who were residing in Prince George were nearly two times more likely to have attempted suicide compared to participants residing in Vancouver. In November 2007, community leaders from the Hazelton area in northern BC called on the Canadian government for help after an unprecedented number of their young people attempted to take their own lives in a very short period of time (38). According to the Gitksan Health Society, the majority of the young people who had attempted suicide were involved with drugs and alcohol (38). This paper further demonstrates that many young Aboriginal people residing in northern communities in BC are in crisis. Research is needed that demonstrates how traditional health practices might prevent suicide or facilitate suicidal healing (39). In one study of Aboriginal

students in BC, protective factors for suicide attempt included reducing sexual violence and victimization, supporting strong and nurturing families and promoting positive and safe learning environments (15, p. 32). What is more, there is a clear need to undertake a more in-depth, participatory, community-based initiative to determine the particular cultural assets essential to understanding how to rebuild resilient communities (39,40). Such efforts must include the perspectives of young Aboriginal people (41). It is essential that young Aboriginal people, including sexual abuse and suicide survivors, are meaningfully involved and have the opportunity to provide leadership when it comes to designing programming so that the programming reflects their needs (38,42).

The risk of suicide attempts among Aboriginal women in this study must be highlighted. The significant interaction between female gender and survival sex work indicates a difference in the effect of sex work on suicide attempts between men and women in this study. Among women, survival sex work appeared to have had a protective effect on suicide attempts while the likelihood of suicide attempts increased for men. Although, in both cases, the odds ratio did not achieve statistical significance (CI included one). A descriptive analysis demonstrated differences between the severity of methods in which women and men in the cohort attempted suicide, which correspond with national trends (43). In a univariable analysis, female participants and those who had ever been involved in sex work were more likely to have attempted suicide. This finding corresponds to trends of suicide described by the Canadian Institute of Child Health (13) where young Aboriginal women

were eight times more likely than non-Aboriginal women to die from suicide attempts. Young Aboriginal people in Vancouver and Prince George who are involved in survival sex work are routinely subjected to physical and sexual violence (44). These experiences are often compounded by histories of childhood sexual abuse that may over time decrease their willingness to live (18). Culturally responsive and peer-driven programming that prioritizes the physical, emotional and mental safety of young Aboriginal women is urgently required. It must also be noted that GLBTQ participants were more likely in a univariate analysis to have attempted suicide. The absence of suicide prevention programming for GLBTQ Aboriginal young people is highly concerning and points to the urgency of better understanding how they experience isolation and stigma in their own communities (45).

Our findings are subject to several potential limitations. Attaining a probabilistic sample is considered a challenge with this population. Therefore, we cannot discount the possibility that our recruitment method was biased towards particularly vulnerable young Aboriginal men and women using drugs. 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 Indigenous peoples living in other resource-rich or resource-poor countries. In addition,

Cedar Project data are from a cross-sectional survey and therefore cannot determine if suicide attempts preceded or followed risk behaviours. The associations between suicide attempts and risk factors do not inform us of their relative temporal sequence. Finally, because the data are based on self-reporting, we must acknowledge that the complexity of risk factors within vulnerable subpopulations such as Aboriginal young people who use drugs may not be measured adequately with our current instruments. We suspect that, because of the rate of overdose within the cohort, the prevalence of suicide was under-reported. Some participants may not have reported an attempted suicide but instead reported a history of drug overdose that may have been intentional. We have attempted to minimize these limitations through repeated assurances of confidentiality, extensive training of Aboriginal interviewers and the establishment of a strong rapport between participant and interviewer.

Conclusions

In conclusion, we have found evidence that young at-risk Aboriginal people in 2 cities in BC are seriously vulnerable to suicide attempts that may signify continuing intergenerational transmission of trauma. The association of suicide attempts with several negative health issues suggests that healing the “soul wound” (26) among young Aboriginal people is far more than simply a matter of time (18). For more comprehensive public health benefits, Indigenous scholars have suggested a dynamic, multilevel approach to addressing historical trauma among Aboriginal peoples at the individual, family, organizational, community and policy levels (46).

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