

**THE CEDAR PROJECT: UNDERSTANDING THE ASSOCIATION BETWEEN
CHILDHOOD MALTREATMENT AND PSYCHOLOGICAL DISTRESS, RESILIENCE,
AND HIV and HCV VULNERABILITY AMONG YOUNG INDIGENOUS PEOPLE
WHO USE DRUGS IN THREE CANADIAN CITIES**

by

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Abstract

Background: Indigenous leaders are deeply concerned about the adverse impacts of intergenerational and lifetime trauma on their young people, particularly those who use drugs and are vulnerable to HIV and HCV infection. However, few researchers have investigated the complex intersections of trauma, mental health, resilience, and HIV and HCV vulnerability among young Indigenous men and women in Canada.

Methods: This multidisciplinary research was based on information gathered by the Cedar Project, a cohort of young Indigenous people (aged 14-30) who use drugs in Vancouver, Prince George, and Chase, British Columbia. The qualitative analyses used an interpretive thematic approach to analyze in-depth interviews. The quantitative analyses first evaluated the construct validity of psychometric questionnaires that measured childhood maltreatment, psychological distress, and resilience. Next, those questionnaires were integrated with longitudinal Cedar Project data to assess associations between childhood maltreatment with HIV and HCV vulnerability, psychological distress, and resilience.

Results: The qualitative research highlighted participants' ongoing struggles with unaddressed childhood maltreatment and the association between emotional pain and HIV and HCV vulnerability. However, participants were actively resisting the negative effects of trauma maintaining hope for a better life. In quantitative analyses, each of the psychometric questionnaires had acceptable fit for the data. In total, 91.7% of the participants had experienced at least one form of childhood abuse/neglect. Longitudinal vulnerabilities associated with specific types of childhood trauma and cumulative trauma experiences included significant drug and sex-related HIV and HCV risks, in addition to HCV infection. Childhood maltreatment, sex work involvement, sexual assault, heavy alcohol use, and injection drug use increased

psychological distress, while living by traditional culture decreased psychological distress.

Resilience was increased by having grown up in a traditional family environment, and by having access to and being able to speak traditional languages.

Conclusion: This research supports the development of comprehensive, Indigenous-directed healing strategies for HIV/HCV prevention that are tailored for young Indigenous people who use drugs. These strategies must address concurrent trauma and mental health, support connections to Indigenous cultural identity, and facilitate understanding of the impacts of the residential school system and intergenerational trauma on family relationships.

Preface

This statement is to confirm that the work presented in this dissertation was conceived, conducted, analyzed, and written by Margo Elaine Pearce (M.E.P.). M.E.P. identified the design of the research program, collected significant parts of the data, and performed the analysis of the data. With the guidance and oversight of the Cedar Project Partnership, supervisor Dr. Patricia M. Spittal (P.M.S.), and committee members Dr. Martin T. Schechter (M.T.S.), Dr. Eugenia Oviedo-Joekes (E.O.J.), and Dr. Chris Richardson (C.R.), M.E.P. established the research objectives/hypotheses, conducted all of the analyses, and wrote each chapter. The quantitative data presented in Chapters 6 through 8 was gathered by Cedar Project study staff located in Vancouver, Prince George, and Chase, British Columbia. The qualitative data presented in Chapters 4 and 5 was gathered by M.E.P. Interpretation of the study results presented in Chapters 4 through 8 was helped greatly by the expertise of the Cedar Project Partnership, the Indigenous governance body that oversees all Cedar Project research, ethical, and knowledge translation activities. For the Conclusion chapter (Chapter 9), M.E.P. received a considerable amount of insight and guidance from Earl H. Henderson (Métis and Cree Heritage) who is an Elder, knowledge keeper, therapeutic counselor, scholar, and member of the Cedar Project Partnership. This research was given approval by the Cedar Project Partnership. In addition, it was given ethics approval from the Providence Health Care and University of British Columbia Research Ethics Board (REB certificate number: H11-02101).

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Glossary

Childhood maltreatment	The experience of emotional abuse, physical abuse, sexual abuse, emotional neglect, or physical neglect in childhood
Indigenous person	A descendant of the First Nations Peoples of North America; including Indigenous, Aboriginal, Métis, First Nations, Inuit and Status and non-Status Indians
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
Psychological distress	Unpleasant experience of an emotional, psychological, social, or spiritual nature that interferes with the ability to cope
Resilience	Positive adaptation despite adversity

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Dedication

This is dedicated to the memory of my Nana, whose compassion, wisdom, and generosity inspires me to this day.

Doris Anna Percy 1915-2006

Chapter 1: Background, rationale, and objectives

1.1 Background

1.1.1 Colonization and the residential school system

The colonization of North America has spanned over 500 years and involved aggressive political, legal, ideological, and economic agendas to control Indigenous lands and resources and to assimilate Indigenous peoples into European expectations of civilization. Numerous laws and policies – especially the *Indian Act* of 1876 – confined Indigenous peoples on resource-poor lands and outlawed Indigenous ceremonies and spirituality. The *Gradual Civilization Act* of 1857 was one of the most damaging pieces of legislation for Indigenous peoples in Canada because it formalized the church-state partnership that would establish the Indian residential school system. Between 1874 and 1996, over 150,000 Indigenous children as young as three years old were forcibly removed from their communities and placed in residential schools as part of a national strategy to “have the ‘Indian’ educated out of them” (Miller, 2009, p. 144). The stated intentions of the system were “Christianizing, moralizing, civilizing, and modernizing Indigenous children” in order to save them from the “inherent deviance” of their Indigenous heritage their Indigeneity (de Leeuw, Greenwood, & Cameron, 2010, p. 288). A key goal of the residential school system was to prevent the intergenerational transmission of Indigenous cultural knowledge, which included languages, ceremonies, spiritual practices, and traditions.

It has only been two decades since Canadian social and political discourses have acknowledged the atrocities committed against Indigenous children by the residential school system. Multiple commissions have been mandated to uncover the actions and impacts of the residential school system and confirmed that they were “opportunistic sites of abuse” (Hylton, 2002, p. 367) where children were routinely abused emotionally, physically and/or sexually

(Canada, 1996; Milloy, 1999). In addition, the schools instilled a sense of shame in the children about their Indigenous identities, which has resulted in extensive psychological trauma (Law Commission of Canada, 2000; Truth and Reconciliation Commission of Canada, 2012).

The experience of abuse within the residential school system was both widespread and long lasting. Four generations of some Indigenous families attended the residential schools and it is estimated that 70-100% of the children in the schools were abused physically and/or sexually, in addition to being deprived of emotional or physical nurturing (Canada, 1996; Chrisjohn & Young, 1991; Corrado & Cohen, 2003). Further, it is has been revealed that a staggering number of children died in residential schools due to neglect (Kelm, 1998). In British Columbia (BC) alone, at least 4,100 children ranging in age from four to 19 died while attending the schools between 1917-1956 (Walker, 2014).

An estimated 86,000 residential school survivors are currently living in Canada, 35,000 of whom live in BC (Aboriginal Healing Foundation, 2007). Health researchers have begun to investigate the impact of residential school experiences on the mental health effects of individual survivors and their communities. These effects include major depression (Froese et al., 2008; Public Health Agency of Canada, 2006b), post-traumatic stress disorder (Corrado & Cohen, 2003; Söchting, Corrado, Cohen, Ley, & Brasfield, 2007), problematic substance use (Chansonneuve, 2007; Yellow Horse Brave Heart, 2003), and suicidality (Canada, 1995). Further, the intergenerational effects of the system have been identified in younger generations of Indigenous peoples who did not themselves attend residential schools. For example, Bombay (2011) et al. conducted a study that involved 143 Indigenous people in Ontario, Canada, and demonstrated that participants who had at least one parent who had attended residential school

experienced significantly more depressive symptoms and greater reactivity to lifetime stressors than those whose parents had not attended residential school.

1.1.2 Intergenerational trauma and child maltreatment within Indigenous families

Researchers widely concur that maltreatment of Indigenous children was uncommon prior to European contact with North America (Gunn Allen, 1986; Manuel & Posluns, 1974; Miller, 2009). However, the abuses of Indigenous children and disruptions of cultural knowledge transmission that occurred during colonization and the subsequent introduction of the residential school system have had severe and enduring repercussions. Most residential school survivors found it tremendously difficult to return to their communities, reconnect with their families, and raise their own children (Chansonneuve, 2005; Lafrance & Collins, 2003; LaRocque, 1994). Many turned to substance use to cope with their stress and unintentionally reenacted what they had experienced in residential school within their own families (e.g. difficulty with demonstrating affection, emotional attachment, resorting to corporal punishment, and physical and/or sexual abuse) (Yellow Horse Brave Heart, 2003). This prompted the cyclical effect of historical and intergenerational trauma, which Indigenous scholars define as collective emotional and psychological injuries that accumulate over the lifespan and extend across generations (Yellow Horse Brave Heart, 2003).

Intergenerational trauma continues to manifest in Indigenous communities that struggle with the interrelated crises of family violence, family fragmentation, poverty, addictions, a lack of traditional skills, a lack of role models, and feelings of isolation (Chansonneuve, 2005; LaRocque, 1994; Tousignant & Sioui, 2009). Though there is a dearth of statistical information on the prevalence and rate of childhood maltreatment experienced by Indigenous people, governmental reports and inquiries made by Indigenous researchers have indicated that

childhood maltreatment is one of the most disastrous legacies of intergenerational trauma (Blackstock & Trocmé, 2004; Hylton, 2002; Trocmé et al., 2006). Studies carried out between 1989 and 2007 estimated that the prevalence of childhood sexual abuse within Indigenous communities ranged from 23% to 100% (Collin-Vézina, Dion, & Trocmé, 2009). Although these estimates were based on observational studies, they far exceeded the 10% prevalence of sexual abuse that was observed in a nationally representative Canadian sample (Afifi et al., 2014). In addition, the rate of substantiated maltreatment investigations involving Indigenous children conducted by child welfare agencies in Canada is vastly disproportionate to the rate for maltreatment investigations involving non-Indigenous children. The 2008 Canadian Incidence Study of Child Abuse and Neglect reported that the rate of substantiated cases of child abuse and/or neglect was 59.8 per 1000 Indigenous children compared to 11.8 per 1000 non-Indigenous children (Sinha et al., 2011).

1.1.3 The continuation of child apprehension via the child welfare system

The chronic overrepresentation of Indigenous children living in foster homes in Canada has been well documented (Blackstock, 2008; Canada, 1996). Since the 1950s, the Canadian child welfare system has responded to many families struggling with the aftermath of the residential school system by permanently removing tens of thousands of Indigenous children from their families, communities, and cultures and placing them in non-Indigenous foster or adoptive homes (Fournier & Crey, 1997). This process has been exacerbated by the federal government's per capita funding of provincial child welfare agencies, which incentivizes long-term separations of Indigenous children from their families, communities, and cultures (Blackstock & Trocmé, 2004; Fournier & Crey, 1997; Johnston, 1983; Trocmé et al., 2006).

Changes to child welfare policy in the 1990s expanded the number of First Nations child and family services agencies that managed the protection of Indigenous children, primarily for on-reserve families. As a result, successful community-directed models of child protection based on traditional Indigenous teachings and child-care customs have emerged, which have been shown to address familial issues while meeting children's cultural needs (Simard, 2009). However, the implementation of community services based on these models have been limited because they are required to adhere to provincial child welfare laws, receive little to no funding for preventing family violence or facilitating family reunification, and have little to no jurisdiction to serve off-reserve Indigenous families (Blackstock & Trocmé, 2004). At the same time, critical factors contributing to the overrepresentation of Indigenous children in the child welfare system – poverty, substance use, and inadequate housing – continue to go largely unaddressed (Blackstock & Trocmé, 2004). Consequently, in 2011, Indigenous children comprised 7% of children under age 14 in Canada, but accounted for 48% of all children in foster care (Statistics Canada, 2013). Similarly, in BC, Indigenous children comprised 8% of the population of children in the province but accounted for 52% of the children in foster care (Sinha et al., 2011).

Many Indigenous leaders and scholars perceive the current child welfare system in Canada as a reiteration of the residential school system as a means to dismantle Indigenous families and ways of life (Christian, 2010; de Leeuw et al., 2010; Fournier & Crey, 1997). Both systems forcibly removed children from their families, deprived them of their cultural identity, and prevented them from maintaining connections to family and community. As a result, the child welfare system can be viewed as contributing to new cycles of intergenerational trauma.

1.1.4 Trauma, stress-coping, and HIV and HCV vulnerability among young Indigenous people who use drugs

Epidemiological data from the Public Health Agency of Canada suggests that the rate of problematic substance use among Indigenous youth and adults in Canada is higher than non-Indigenous people (Public Health Agency of Canada, 2006a). Indigenous authors have explained that young Indigenous people often use substances as a method of stress-coping with historical, intergenerational, and lifetime trauma. Consequently, they may be self-medicating for trauma-related psychological distress symptoms (Barlow, 2003; Walters & Simoni, 2002). This is extremely concerning in light of the fact that Indigenous people in Canada have disproportionately high rates of HIV and/or HCV infection and contract HIV and HCV primarily as the result of injection drug use (Public Health Agency of Canada, 2010b, 2011).

Few studies in Canada and United States (U.S.) have begun to unravel the impacts of historical trauma, childhood maltreatment, and harmful stress-coping responses on Indigenous peoples' vulnerability to HIV and HCV infection (For the Cedar Project Partnership et al., 2008; Simoni, Sehgal, & Walters, 2004). For example, an analysis by the Cedar Project that involved 543 young Indigenous people who used drugs in Vancouver and Prince George, BC, found significant associations between sexual abuse, having a parent who had attended residential school, and having been in the child welfare system (For the Cedar Project Partnership et al., 2008). The same study found significant relationships between a history of sexual abuse and self-reports of mental illness, involvement in sex work, and vulnerability to HIV and HCV infection. Other research has confirmed that young urban Indigenous people are vastly overrepresented among people who use injection drugs, people involved in sex work, and people living with HIV and HCV infection (BC Centre for Disease Control, 2010; Chettiar, Shannon, Wood, Zhang, &

Kerr, 2010; Miller, Strathdee, Spittal, et al., 2006; Oviedo-Joekes et al., 2010; Public Health Agency of Canada, 2010b; Spittal et al., 2012). However, there is still very little understanding of the specific mechanisms through which the lived experiences of historical and lifetime stressors in childhood have influenced the vulnerabilities of young Indigenous people who use drugs over the life course and the subsequent association between these vulnerabilities and HIV and HCV risk patterns. Indigenous scholars recommend that researchers who aim to gain this understanding should use a decolonizing approach that addresses the adverse impacts of colonization, and address historical trauma and other adverse outcomes of colonization, as well as acknowledge the healing traditions and resilience that are inherent to Indigenous cultures (Kirmayer, Simpson, & Cargo, 2003; Lavalley & Clearsky, 2006; Smith, 1999; Walters, Simoni, & Evans-Campbell, 2002).

1.1.5 Resilience, trauma, and HIV and HCV vulnerability

Indigenous author Karina Walters described how the process of colonization eroded the “cultural buffers” that had traditionally helped Indigenous people to cope with stress and mediate risk (2002, p. 521). Walters defined cultural buffers as community resources that facilitate traditional health practices, spiritual coping mechanisms, cultural connectedness, and pride in Indigenous identities. In addition, Kirmayer et al. (2014) observed that the residential school and child welfare systems in Canada created significant adversity in Indigenous communities by fracturing the familial and community infrastructures that supported traditional child-rearing practices and the development of healthy individuals.

Nevertheless, Indigenous authors and Elders have also emphasized that many Indigenous cultures, traditions, languages, and identities have survived the devastation of 500 years of colonization (Dion-Stout, Kipling, & Stout, 2001; Henderson, 2008; Korhonen & Ajunniginiq,

2006; McIvor, Napoleon, & Dickie, 2009). Literature has suggested that concentrating on the renewal of these cultural resources (or buffers) may represent an effective approach to creating and supporting resilience and mental wellness at the individual, family, and community levels (Chandler & LaLonde, 1998; Dion-Stout et al., 2001; Korhonen & Ajunniginiq, 2006). This potential has reinforced the imperative to gain a better understanding of how access to cultural resources may mitigate the adverse health outcomes of traumatic life stressors among Indigenous peoples – including illicit drug use and HIV and HCV infection (Duran & Walters, 2004; Walters et al., 2002). Exploring cultural sources of resilience and strength may therefore inform the development of culturally-safe therapeutic interventions for healing young Indigenous people who use illicit drugs and may be disconnected from their families, communities, and cultures. As explained by Brascoupe and Waters (2009), cultural safety is based on the principles of respect, trust, and sharing. In health care practice for Indigenous peoples, cultural safety requires practitioners to not only be knowledgeable of Indigenous cultures, values, and traditions, but must also have awareness of the "history that contributes to the contemporary conditions" and ensure that the Indigenous recipient of care "has the power to make decisions regarding their health (or other matters) and also the power to judge if the interaction feels culturally safe" (p.29).

1.2 Rationale

Indigenous leaders are deeply concerned about the adverse impacts of intergenerational and lifetime trauma on their young people, particularly those who use drugs and are highly vulnerable to HIV and HCV infection (Christian, 2010; Christian & Spittal, 2008). However, few researchers have investigated the complex intersections of trauma, mental health, resilience, and HIV and HCV vulnerability among young Indigenous men and women in Canada. The following

four critical gaps were identified in the existent research that may inform the development of effective public health responses to young urban Indigenous people who use drugs in BC.

First, very little is understood about the childhood trauma experienced by young Indigenous people who use drugs (both early and later in life) and the stress-coping mechanisms they have subsequently developed. Indigenous scholars point out that it is essential to listen to the knowledge and experiences of young Indigenous people in order to understand where they are coming from (Brant Castellano, 2000). In addition, very little is known about how young Indigenous people are impacted by the interaction between childhood adversities and systemic or structural challenges, such as the child welfare system and poverty (Tousignant & Sioui, 2009). Consequently, there is a need for researchers to conduct research that acknowledges and explores the emotional and psychological impacts of intergenerational and lifetime trauma on young Indigenous people who use drugs and how these impacts shape pathways to HIV and HCV vulnerability.

Second, the impacts of childhood maltreatment on HIV and HCV risk behaviours among young Indigenous people have still not been clearly identified in research. There is a specific need for researchers to investigate the impacts of maltreatment over time among young Indigenous people who use drugs. In addition, as violence is often a gendered phenomenon, the Canadian Institutes of Health Research Institute on Gender and Health have highlighted the need to assess the presence of gender differences in the effects of violence on health over the life course (Canadian Institutes of Health Research, 2010). The epidemiological evidence produced by such studies will generate insight into the longitudinal effects of childhood maltreatment on HIV and HCV vulnerability and infection among young Indigenous people who use drugs in BC.

Third, very few studies have investigated the ongoing effects of historical and lifetime trauma and HIV and HCV vulnerability on the psychological health of young Indigenous people who use drugs. Research is needed that examines the temporal associations between vulnerability to HIV and HCV infection and psychological distress among young people who use drugs. Again, because of established differences in the prevalence of psychiatric symptoms between men and women (Derogatis, 1994), gender differences in the association must be examined.

Fourth, few studies have investigated the positive influence of Indigenous culture, language, and ceremony on the mental well-being of young, urban Indigenous people who use drugs. Indigenous scholars have long argued that it is critical for health researchers to focus on cultural factors that promote resilience among young Indigenous peoples as well as buffer the effects of historical and lifetime traumatic stressors and reduce vulnerability to HIV and HCV on young Indigenous peoples (Duran & Walters, 2004). The use of a multidisciplinary approach that combines qualitative and quantitative methods would facilitate the provision of critical information on the relationships among cultural factors and help determine how they enable young, at-risk Indigenous peoples to survive and adapt to the impacts of lifetime and historical adversities. This is particularly important for the health of young Indigenous people who are living in cities and may be disconnected from their home communities, languages, cultures, and spirituality (Andersson & Ledogar, 2008). It is therefore critically important to explore the associations of cultural factors, historical and lifetime traumas, and risk factors with resilience among young, urban Indigenous people who use drugs.

1.3 Objectives

The following study objectives and associated research hypotheses are addressed in Chapters 4 to 8.

- **O1:** To understand early childhood experiences, family relationships, and the subsequent trajectories that lead to HIV vulnerability over the life course among young Indigenous people who use drugs.
 - ▶ H1.1: Historical trauma plays a strong role in childhood maltreatment histories and family functioning.
 - ▶ H1.2: Histories of childhood maltreatment are strongly associated with the high-risk behaviours for HIV and HCV infection OR with vulnerability to HIV and HCV infection.
- **O2:** To gain a deeper understanding of the processes by which young, urban Indigenous people who use drugs have coped with the stresses of intergenerational and lifetime traumas while facing substantial institutional and structural barriers to positive health outcomes.
 - ▶ H2.1: Histories of childhood trauma are related to current challenges with stress-coping and ongoing vulnerabilities to HIV and HCV infection and other negative health outcomes.
 - ▶ H2.2: Positive stress-coping is associated with access to cultural resources and services that facilitate resilience and healing.
- **O3:** To test the validity of the Childhood Trauma Questionnaire (CTQ) for measuring childhood maltreatment among young urban Indigenous people who use drugs, to assess the association between parental history of residential school and childhood

maltreatment, and to explore the longitudinal outcomes (including HIV and HCV infection) associated with different childhood maltreatments and incremental increases in the number of maltreatments.

- ▶ H3.1: The CTQ has good construct validity for measuring childhood maltreatment.
- ▶ H3.2: Having at least one parent who attended residential school will be associated with the prevalence and severity of childhood maltreatment.
- ▶ H3.3: Childhood sexual abuse and physical abuse are the maltreatments that have the greatest effect on HIV and HCV vulnerability over time.
- **O4:** To test the validity of the Symptom Checklist-90-R (SCL-90-R) for measuring psychological distress among young urban Indigenous people who use drugs and to explore the association of historical and lifetime traumas, protective factors, and HIV and HCV-related related risk factors with psychological distress.
 - ▶ H4.1: The SCL-90-R has good construct validity for measuring psychological distress.
 - ▶ H4.2: Childhood maltreatment and high frequency drug use is significantly associated with elevated levels of psychological distress over time.
 - ▶ H4.3: Cultural factors and access to counseling are significantly associated with lower levels of psychological distress over time.
- **O5:** To test the validity of Connor-Davidson Resilience Scale's (CD-RISC) for measuring resilience among young urban Indigenous people who use drugs, and to explore the associations of historical and lifetime traumas, protective cultural connectedness factors, and HIV and HCV related risk factors on resilience.

- ▶ H5.1: The CD-RISC has good construct validity for measuring resilience.
- ▶ H5.2: Childhood maltreatment and high frequency drug use are significantly associated with diminished resilience over time.
- ▶ H5.3: Cultural factors and access to counseling and drug treatment are significantly associated with increased resilience over time.

1.4 Overview of dissertation

This dissertation is comprised of nine chapters and takes an multidisciplinary approach to addressing the five objectives listed above. As noted, the objectives are consecutively addressed in Chapters 4, 5, 6, 7, and 8. **These chapters were written as manuscripts intended for publication in peer-reviewed journals. Therefore, there is some repetition in terms of the historical context and study methods in each chapter.** There are four additional chapters in this thesis. This chapter (Chapter 1) presents the background, rational, and objectives of the research. Chapter 2 provides a review of the literature on HIV and HCV, childhood maltreatment, psychological distress, and resilience among young Indigenous people in Canada. Chapter 3 provides an overview of all the study methods used for this dissertation and describes the three study locations in which the Cedar Project carries out data collection. Finally, Chapter 9 provides a conclusion based on the research findings reported in Chapters 4-8, discusses the study's strengths and limitations, and makes recommendations for policy directions and public health interventions.

Chapter 2: Literature review

2.1 HIV and Hepatitis C vulnerability and infection among Indigenous people in Canada

2.1.1 Epidemiology of HIV infection among Indigenous people in Canada

The most recent information from the Public Health Agency of Canada (PHAC) (released in 2011) revealed that the incidence of HIV among Indigenous people in Canada was much higher than the incidence of HIV for all other Canadian ethnic groups and that the situation is worsening. Although Indigenous people comprised only 3.8% of the population in Canada in 2011, an estimated 8.9% (n=6380) of people living with HIV/AIDS were Indigenous people (Public Health Agency of Canada, 2011). This marked a 17% increase in the number of Indigenous people living with HIV/AIDS since 2008. In addition, Indigenous people are overrepresented among people in Canada who have been newly diagnosed with HIV infections. In 2011, Indigenous people constituted 12.2% (n=390) of all people in Canada newly diagnosed with HIV, which corresponded to an incidence that was 3.5 times higher than the incidence of new HIV infection among non-Indigenous people. The epicentre of the HIV/AIDS epidemic in Canada has historically been the province of British Columbia (BC), particularly the city of Vancouver. Although the BC Centre for Disease Control (BCCDC)'s finding that the rate of new infections in BC had reached the lowest point ever in 2012 was encouraging (5.2 per 100,000 population, or 238 cases), Indigenous people continued to be disproportionately over-represented in BC's HIV epidemic (21.2 per 100,000 population, or 29 new cases in 2012) (BC Centre for Disease Control, 2013). Indigenous people have comprised only about 5% of the province's total population for the last few decades, but consistently accounted for 12-15% of new HIV infections between 2003-2012.

Both the PHAC and the BCCDC have reported that Indigenous women are most severely impacted by the HIV epidemic. In 2010, women comprised 48.1% of all Indigenous people in Canada who newly tested positive for HIV, compared to only 20.7% of non-Indigenous people (Public Health Agency of Canada, 2010a). In 2012, Aboriginal women comprised only 8.6% of BC's population but accounted for 37.9% (n=11) of new HIV diagnoses for women in the province. In addition, reports have indicated that Indigenous people living with HIV in Canada are far younger than non-Indigenous people living with HIV. One third of the Indigenous people diagnosed with HIV between 1998 and 2006 were under the age of 30, whereas only 21% of non-Indigenous people who tested positive for HIV were in the same age group (Public Health Agency of Canada, 2010a). According to 2012 surveillance data in BC, the 30 to 39 age group had the highest rates of new infections among Indigenous men, (61.0 per 100,000 population) while the 25-29 age group had the highest rate of new infections among Indigenous women (53.6 per 100,000 population) (BC Centre for Disease Control, 2013).

Surveillance data since the 1990s has reported that injecting drugs with contaminated equipment (i.e. needles that have been previously used by someone who is HIV positive) is the primary HIV exposure category among Indigenous people in Canada. Between 1996 and 2006, injection drug use accounted for 53.7% and 64.4% of new HIV infections among Indigenous men and women, respectively. In stark contrast, injection drug use accounted for just 14% of new HIV infections among non-Indigenous people in Canada (Public Health Agency of Canada, 2010c). Studies based in BC have also suggested that Indigenous people who inject drugs have a higher likelihood of becoming infected with HIV than non-Indigenous people who inject drugs (Miller, Strathdee, Spittal, et al., 2006; Tyndall et al., 2006). For example, in 2003 a landmark analysis was published that examined HIV risk among 941 people who used injection drugs in

Vancouver, BC. The study demonstrated that the incidence of HIV infection among Indigenous participants was double the incidence of HIV infection among non-Indigenous participants (Craib et al., 2003). This research marked a turning point in the understanding of the epidemiology of HIV infection among Indigenous peoples who use drugs in Canada, as it strongly supported what Indigenous authors had long argued: that unaddressed historical, social, and structural determinants of health were escalating Indigenous people's vulnerability to HIV infection (Barlow, 2003). In addition, HIV/AIDS service organizations in the Northern Health Authority catchment areas in BC have been increasingly concerned about the limited harm reduction services available to the high numbers of Indigenous people who use injection drugs in the north. In 2012, the I-Track analysis of 144 people who injected drugs in the northern city of Prince George reported an HIV prevalence of 17.8% among Indigenous participants, compared to a prevalence of 11.6% among non-Indigenous participants (Shoemaker, Taylor, & Callaghan, 2013). This finding confirmed that the HIV epidemic among Indigenous people who use drugs is not restricted to the Vancouver area, but has extended to the northern regions of the province.

It is important to note that to date, there is little information about the prevalence or rate of HIV infection among Indigenous people who use injection drugs and live in the Interior region of the province, which includes the city of Kamloops and the township of Chase. However, in 2012 the Interior Health Authority reported that the overall HIV incidence in the Interior region was well below the provincial rate (1.5 per 100,000 vs. 6.5 per 100,000, respectively) (Interior Health Authority, 2012). That same year, three (10.3%) of the new HIV diagnoses among Indigenous people in BC lived in the Interior Health Authority catchment area (BC Centre for Disease Control, 2013).

2.1.1.1 HIV vulnerability and risk among Indigenous people

The epidemiology of HIV infection among populations who use drugs is complex, as research has identified sources of risk that extend beyond individual, social, and structural factors (Strathdee & Stockman, 2010). This has sparked considerable interest in understanding the *vulnerabilities* that precede HIV risk behaviours among populations who inject drugs or are at-risk for initiating injection drug use (Farmer, Connors, & Simmons, 1996; Fast, Small, Krusi, Wood, & Kerr, 2010; Shannon et al., 2008; Shannon et al., 2009; Spittal & Schechter, 2001). Research that addresses HIV vulnerability prioritizes “taking into account the characteristics and interactions in which risk takes place” (Delor & Hubert, 2000, p. 1558). HIV-related vulnerabilities therefore do not directly cause HIV infection per se, but rather create a susceptibility to HIV exposure via high-risk behaviours that characterize “risk environments” (Rhodes, 2002, p. 90). For example, studies have addressed the gendered HIV vulnerabilities that arise when younger populations of women who are involved in sex work also engage in drug injection – particularly needle sharing and the frequent use of heroin (Spittal et al., 2003), and the HIV vulnerabilities that arise due to a lack of control over the injection process – including drug binges (Miller, Kerr, et al., 2006; Miller, Strathdee, Kerr, Li, & Wood, 2006) and needing help injecting (Miller et al., 2002).

The above HIV research affirms that obtaining a deeper understanding of the specific vulnerabilities experienced by young, at-risk Indigenous people who use drugs is essential to the advancement of public health programming and HIV prevention efforts. As indicated, very few studies have pursued an in-depth investigation of HIV vulnerability and risk among Indigenous young people in Canada who use drugs, even though their HIV-rates are very high. The Cedar Project, a cohort study of 793 young Indigenous people in Vancouver, Prince George, and Chase,

BC, is the only study of its kind in Canada that has examined HIV vulnerabilities in this population. In multivariate analysis it was demonstrated that the participants who were injecting drugs at the 2003 baseline enrolment had increased *vulnerability* to HIV infection (i.e. higher probability of engaging in high risk behaviours) if they had a history of childhood sexual abuse (OR: 3.7), and were located in Vancouver (compared to Prince George) (OR: 3.2). These participants' *risk* for infection (i.e. higher risk of infection due to behaviours that create exposure to the virus) increased slightly with a longer duration of injection drug use (OR: 1.02) (Spittal et al., 2007). Subsequent analyses also revealed that the proportion of female Cedar Project participants who were HIV positive (13.1%) was significantly higher than the proportion of male participants who were HIV positive (4.3%) ($p < 0.001$) (Mehrabadi, Paterson, et al., 2008). Further, this significant difference between men and women remained when the analysis was restricted to only participants who used injection drugs: 8.5% of the male participants who injected drugs were HIV positive compared to 16.7% of the female participants who injected drugs were HIV positive ($p = 0.037$). This confirmed national and provincial epidemiological reports regarding the specific HIV vulnerability of Indigenous women who use drugs, Further, it was highly concerning that approximately 11 to 12 Cedar Project participants were transitioning to injection drug use per year and that vulnerability to initiating injection drug use was highest among those who were involved in sex work (Miller et al., 2011).

As explained by Indigenous authors and scholars, the origins of HIV-related vulnerabilities among Indigenous peoples are rooted in the much deeper issues of historical injustices and intergenerational trauma and therefore must be understood within that context (Barlow, 2003; Vernon, 2001; Walters, Beltran, Evans-Campbell, & Simoni, 2011). This is affirmed by the Cedar Project's finding that childhood sexual abuse and being female were

critical vulnerabilities that elevated the probability of HIV risk among young Indigenous people who use drugs. As Indigenous scholars have explained, these vulnerabilities are the outcome of colonization, cultural genocide, and the residential school system and the effect of these broad determinants on HIV risk among Indigenous young people must be taken into account (Gunn Allen, 1986; Walters & Simoni, 1999). However and as mentioned previously, very little is understood about precisely how the lived experiences of historical and lifetime stressors in childhood have created vulnerabilities over the life course that subsequently increase the risk of HIV among young Indigenous women and men who use drugs.

American Indigenous scholar Karina Walters has suggested that researchers who investigate HIV-related vulnerabilities among young Indigenous people who use drugs apply an ‘Indigenist’ stress-coping coping model. According to Walters, this model must consider that the “associations between traumatic life stressors and adverse health outcomes are moderated by cultural factors that function as buffers, strengthening psychological and emotional health, decreasing substance use, and mitigating the effects of the traumatic stressors” (2002, p. S105). There is a small but growing body of literature that has examined culture as intervention for problematic substance use and trauma among Indigenous people in Canada (McCormick, 2000). However in previous studies in Canada have explored the positive health effects of such cultural “buffers” among young Indigenous people who use drugs. It is therefore critical for public health and HIV prevention efforts to explore cultural sources of strength and resilience that may help promote health and healing among young, at-risk Indigenous people.

2.1.2 Epidemiology of HCV vulnerability and infection among Indigenous people in Canada

Though reporting Hepatitis C (HCV) infection is mandatory, there are very few sources of research that have investigated the epidemic among Indigenous people in Canada. Available information from PHAC estimated that the incidence of HCV infection was 4.7 fold higher among Indigenous people than non-Indigenous people in Canada between 2002 and 2008 (Public Health Agency of Canada, 2010b). PHAC also reported that, compared to non-Indigenous people living with HCV, a significantly greater proportion of Indigenous people newly diagnosed with HCV had used illicit non-injection drugs (43.8% vs. 52.0%, respectively), had injected drugs (53.6% vs. 67.3%, respectively), and had had more sexual partners (which meant more than one sexual partner) (52.5% vs. 61.3%, respectively).

Provincial surveillance reports from BC do not routinely collect ethnicity information for the prevalence and incidence of HCV. However, compared to the national statistics, studies in BC have suggested that although Indigenous people are overrepresented among individuals in the province who are HCV positive, the difference among Indigenous versus non-Indigenous people in terms of HCV prevalence and incidence is not statistically significant. One recent study conducted among 940 street-involved youth <30 years old (23.8% Indigenous ethnicity) in Vancouver who used drugs found that although HCV prevalence was higher for Indigenous than non-Indigenous participants (30% vs. 23.1%, respectively) the difference was non-significant (Hadland et al., 2014). Similarly, a Alavi et al. (2014) conducted a study of 2913 randomly selected adults (32% Indigenous ethnicity) in Vancouver's downtown east side community and reported that the prevalence of HCV was higher among Indigenous participants than non-Indigenous participants (66% vs. 62.6%, respectively), but the difference was not statistically

significant. Nevertheless, the authors reported that Indigenous participants who were HCV positive had a significantly decreased likelihood for HCV treatment uptake than non-Indigenous participants (OR: 0.26). This suggests that structural and social factors within the health care system (i.e. racism) may be contributing to young Indigenous people's reluctance to seeking HCV treatment (Browne & Fiske, 2001; Currie, Wild, Schopflocher, Laing, Veugelers, et al., 2013).

These results are also similar to the results of studies on HCV infection in northern BC. In Prince George, a report from the I-Track study of people who inject drugs also demonstrated that the difference in HCV prevalence between Indigenous and non-Indigenous people who used injection drugs in 2012 was non-significant (65.4% vs. 66.7%, respectively) (Shoemaker et al., 2013). There is no information regarding the ethnicity or mode of transmission for HCV infections in the Interior region of BC, which includes the city of Kamloops and the township of Chase. However, in 2011 the incidence of HCV infection in the Interior was slightly above the rate for the province (43.6 per 100,00 vs. 42.1 per 100,000, respectively) (Interior Health Authority, 2012).

Research from the Cedar Project has also contributed to what is known about the vulnerabilities associated with new HCV infections among young Indigenous people who use injection drugs in BC. For example, 34.8% of participants were HCV positive in the study's baseline analysis. When the analysis was stratified by injection drug use, HCV prevalence was 59.4% among participants who had ever injected drugs, which confirmed national reports regarding the elevated prevalence of HCV among Indigenous people who inject drugs. In multivariate analysis the risk of HCV infection at baseline was significantly increased by high

frequency opiate injection (OR: 2.7), reusing needles (OR: 2.4), and injecting drugs for a longer period of time (OR: 1.4).

One of the Cedar Project study's most important findings was that among the young Indigenous participants who injected drugs, vulnerability for HCV infection increased if they had at least one parent who had attended residential school (OR: 1.9) (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & Schechter, 2009). This supports the standpoint of Indigenous scholars and leaders who have long contended that young Indigenous people who use injection drugs are coping with unaddressed historical, social, and structural health stressors that have increased their vulnerability to sex- and drug-related risks for both HIV and HCV infection (Barlow, 2003; Vernon, 2001; Walters & Simoni, 2002).

An incidence analysis addressing HCV infection among Cedar Project participants demonstrated that the HCV rate was 26.3% per year for participants who had been injecting drugs for less than 2 years and 5.1% per year for participants who had been injecting for more than 5 years. Although this difference could be partially attributed to survivorship bias, the rapid acquisition of HCV within the former group was alarming. The adjusted analysis revealed that the incidence of HCV infection was also significantly higher among participants who were involved in sex work (Hazard Ratio (HR):1.59), had been injecting drugs for less than two years (HR: 4.1), injected cocaine daily or more (HR: 2.47), and shared needles (HR: 2.56) (Spittal et al., 2011).

In sum, the studies referenced in this section emphasize that the high prevalence and incidence of HCV among Indigenous young people who use drugs in BC is related to multiple vulnerabilities such as historical trauma, and risks such as injection use. The results of these studies provide a strong rationale for research focused on improving our understanding of the

pathways by which young Indigenous people who use drugs have become vulnerable to infectious disease is required.

2.2 Child maltreatment among Indigenous people in Canada

Scientific inquiry into childhood maltreatment among Indigenous people are scarce. However, Indigenous scholars have suggested that a disproportionately high number of Indigenous people in Canada have experienced childhood maltreatment as a consequence of historical and intergenerational trauma (Cedar Project et al., 2008; Chansonneuve, 2005; Hylton, 2002; Nechi Institute, 2002). A degree of insight into this issue has been provided by The Canadian Incidence Study of Child Abuse and Neglect (CISCAN), a PHAC-funded study that examined the incidence of reported child abuse and neglect in Canada (Public Health Agency of Canada, 2010a). The study gathered information about the first contacts between the families of children who entered the foster care system, the children themselves, and child welfare agencies over a three month period in 2008. In addition, the CISCAN included an Indigenous focus by gathering information on child welfare investigations involving Indigenous children that were conducted by 89 provincial/territorial agencies and 22 First Nations (on-reserve) and urban Indigenous agencies (Sinha et al., 2011). The final weighted sample included 14,114 investigations involving First Nations children and 83,650 investigations involving non-First Nations children.

The CISCAN demonstrated that the rate of substantiated cases of child maltreatment was higher for Indigenous children than to non-Indigenous children (Sinha et al., 2011). The rate of substantiated neglect for Indigenous children was 8 times higher than the rate of substantiated neglect for non-Indigenous children; the rate of exposure to intimate partner violence was 4.7

times higher, the rate of emotional maltreatment was 5.7 times higher, the rate of physical abuse was 2.1 times higher, and the rate of sexual abuse was 2.7 times higher. It should be noted that the CISCAN researchers identified limitations to the study sampling methods and believed that as a result, the rate of sexual abuse was likely much higher than what was reported during family intake interviews at child welfare agencies. In general, the rate of substantiated maltreatment investigations per 1000 children was 59.8 for Indigenous children versus 11.8 for non-Indigenous children.

The CISCAN also gathered information on concerns about children's behavior that were noted by social workers during the initial process of in-taking information on families' situations. The behaviours that social workers noted included depression/anxiety/social withdrawal symptoms, aggression, attachment issues, developmental issues, alcohol/drug use, self-harming, and suicidality (Sinha et al., 2011). Each of these concerns was recorded more frequently for Indigenous children than non-Indigenous children. In addition, the social workers expressed concerns about the children's caregivers, including their victimization or perpetration of domestic violence, engaging in problematic alcohol and/or drug use, having few social supports, having identified mental health issues, and having a history of being in foster care. Not surprisingly, each of these categories of concern were noted significantly more often for Indigenous caregivers than non-Indigenous caregivers.

One of the CISCAN's main inferences was that the disproportionately high numbers of Indigenous families who were living in conditions of poverty and household overcrowding may explain the disparity between the rates of substantiated neglect among Indigenous and non-Indigenous children (Sinha et al., 2011). These socially and structurally influenced conditions may also explain why Indigenous children accounted for 48% of all Canadian children in foster

care in 2011, even though they comprised just 7% of Canadian children in that age group (Statistics Canada, 2013). British Columbia statistics are equally daunting, as Indigenous children accounted for 52% of children in the foster care system in 2011, but represented only 8% of all the children in the province.

The CISCAN reports have been instrumental in providing an estimate of the number of Indigenous children and families who are impacted by family violence. However, the CISCAN is limited because it is based only on information that came to the attention of child protection agencies during initial intake interviews and did not include children who were already involved with the child welfare system. In addition, attempts to collect information on violence against children are further constrained by the fact that in most cases, it remains hidden and underreported (Pinheiro, 2006). It is therefore not surprising that other studies of family violence and abuse in Indigenous communities across Canada have produced highly inconsistent results. For example, estimates of the prevalence of childhood sexual abuse within Indigenous communities between 1989 and 2007 ranged from 23% to 100% of individuals sampled (Collin-Vézina et al., 2009). The 1991 Aboriginal People's Survey found that 39.2% of respondents aged 15 and over had experienced family violence, that 24.5% had experienced sexual abuse, and that 15% had experienced sexual assault (Statistics Canada, 1991).

Despite knowledge of the high levels of violence and abuse experienced by Indigenous young people, very little understanding of the pathways that guide Indigenous people from childhood trauma to health and healing. These pathways do exist, and gaining insight into them is essential to addressing issues of childhood maltreatment among Indigenous people. For example, McEvoy and Daniluk (1995) interviewed six Indigenous women who had experienced sexual abuse and were seeking therapy. The interviews demonstrated that their feelings of shame

related to sexual abuse had led them to use alcohol and drugs, and that their healing journey had included the reintegration of their Indigenous cultural identity. This study highlighted the need for greater clarity about how to support the healing of Indigenous women who have experienced childhood trauma and have struggled with substance use.

Lastly, the research reviewed in the preceding paragraphs suggests that sexual abuse is a significant issue for Indigenous people, but has provided virtually no information about other forms of child maltreatment and their relationship to health outcomes over time. Addressing this knowledge gap is critically important, particularly in light of the long-term impacts of childhood maltreatment and involvement in the child welfare system. Exposure to these factors are known to have damaging effects on mental, emotional, and physical health across the life course – including vulnerability to HIV and HCV infection (Fowler, Toro, & Miles, 2009; Pilowsky & Wu, 2006; Surratt & Kurtz, 2012).

2.3 Relationship between childhood maltreatment and HIV risk among Indigenous young people in Canada

Research has demonstrated that Indigenous people in Canada are overrepresented among people who have experienced childhood maltreatment as well as people living with HIV and HCV infection. However, there is a paucity of literature that has addressed the association between these childhood maltreatment and HIV and HCV vulnerability among Indigenous peoples. Scientific and theoretical literature on other populations has identified childhood maltreatment as a health determinant that increases vulnerability to drug and sex-related risk behaviours that in turn increase the risk of HIV and HCV infection (Allers & Benjack, 1991; Amaro, 1995; Arriola, Loudon, Doldren, & Fortenberry, 2005a; Browning & Laumann, 1997; Finkelhor & Browne, 1985; Meade, Kershaw, Hansen, & Sikkema, 2009). Further, the effect of childhood

maltreatment on increased vulnerability to HIV infection has proven to be extreme among populations of people who use illicit drugs (Braitstein et al., 2003; Kang, Deren, & Goldstein, 2002; Zierler et al., 1991). For example, an analysis by Braitstein et al. (2003) included 1437 adults who inject drugs in Vancouver, BC, and compared male and female participants who had been sexually abused with those who had not. The study found that men who had been sexually abused before the age of 13 years were 1.8 times as likely to share injection equipment than men who had not been sexually abused, while women who had been sexually abused were 2.8 times as likely to share injection equipment than women who had not been sexually abused. In addition, participants who had been sexually abused had a significantly higher prevalence of HIV infection than those who had not been sexually abused (25.3% vs. 19.1%, respectively).

Although most studies addressing vulnerability to HIV have focused exclusively on the uniquely damaging effects of sexual abuse, some researchers have begun to explore the effects of other types of abuse. For example, a cross-sectional analysis of 701 African American adolescent women who were at high risk for HIV found that participants who had experienced both emotional and physical abuse were less likely to use condoms consistently (Brown et al., 2014). Similarly, a cross-sectional sample of 553 adults who injected drugs in Washington, DC, U.S.A., physical and emotional abuse were associated with a 4.5-fold increase in the odds for women's risk of HIV infection (Magnus, Peterson, Opoku, & Wood, 2012). Researchers have also begun to recognize that multiple experiences of maltreatment may have a dose-response on adverse health outcomes, including HIV and HCV risk in adulthood. Dube et al. (2003) measured the effect of multiple forms of childhood abuse and neglect on the risk of illicit drug use among a sample of 8,618 adults in California, U.S.A. The authors demonstrated that each type of abuse

independently increased the risk of illicit drug use by 2-4 fold. When the abuse types were combined, each contributed to a graded increase in risk.

As previously stated, few studies have addressed the association between childhood trauma and HIV vulnerability among Indigenous young people who use drugs. One Cedar Project-based analysis that included 543 young Indigenous people who used drugs in Vancouver and Prince George, Canada found that 48% had been sexually abused. In addition, the study reported significant bivariate associations between sexual abuse, having had a parent who attended residential school, and having been in the child welfare system (For the Cedar Project Partnership et al., 2008). The analysis also demonstrated that sexual abuse increased Cedar Project participants' sexual vulnerability to HIV infection, which included a 49% greater likelihood of having a sexually transmitted infection; an 85% greater likelihood of having had over 20 sexual partners in their lifetime, and a 77% greater likelihood for involvement in sex work. Finally, the same analysis demonstrated that participants who had been sexually abused had a two-fold increase in likelihood of being HIV positive compared to participants who had never sexually been abused, after adjusting for demographic factors. Several studies in the United States that have included American Indian people have reported similar findings. For instance, Simoni et al. (2004) reported that 34% of 155 American Indian women in New York city had experienced sexual violence by a non-partner and 20% had experienced physical violence by a non-partner. Although the authors did not indicate how old the women were when they experienced trauma, it associated exposure to sexual and physical violence with increased injection drug use.

These epidemiological investigations have generated insight into the HIV vulnerability of Indigenous young people who use drugs, but they have been limited in that they have focused

solely on the effect of childhood sexual abuse; have been based only on cross-sectional data; or; involved female participants only. Further, the complex pathways by which childhood maltreatment experiences lead to the vulnerability to HIV risk behaviours and infection throughout the lives of young Indigenous people who use drugs are relatively uncharted. These knowledge gaps limit our understanding of childhood maltreatment and subsequent vulnerability to HIV risk among young Indigenous people – including the risks that arise for those who inject drugs and are involved in sex work.

2.4 Mental health and HIV vulnerability among young Indigenous people who use drugs in Canada

Most research that has addressed mental health among Indigenous peoples have focused on the association between childhood trauma and psychological distress. Duran et al. (2004) carried out a cross sectional study that included 234 urban American Indian women in New Mexico, U.S.A. The results indicated that severe maltreatment of any form increased the lifetime prevalence of mood disorders (Prevalence Ratio (PR): 2.10), anxiety disorder (PR: 1.65) and post-traumatic stress disorder (PR: 3.91). However, few studies have investigated the association between childhood trauma, psychological distress, and substance use among young Indigenous people who use drugs in Canada. Such research is essential to advancing an understanding of the association between mental health and HIV vulnerability among young Indigenous people who use drugs. In particular, there is need to investigate the temporal associations between childhood maltreatment, vulnerability to HIV infection and psychological distress among young people who use drugs. Psychological distress may be referred to as “an unpleasant experience of an emotional, psychological, social, or spiritual nature that interferes with the ability to cope” (NCCN, 1999).

Indigenous authors and Elders have explained that young Indigenous young people use substances to cope with stress, which indicates that they may be self-medicating for psychological distress (Walters & Simoni, 2002). These authors have also posited that co-morbid mental health conditions and problematic substance use among Indigenous peoples are under-diagnosed and arise from unaddressed historical and lifetime trauma (Walters et al., 2002). This is highly concerning for two primary reasons. First, psychological distress and substance use are often concurrent in populations who are at high risk for HIV and HCV infection (Bell & Britton, 2014; El-Bassel et al., 1997b; Meade et al., 2009; Strehlau, Torchalla, Kathy, Schuetz, & Krausz, 2012). For example, a cross-sectional study of 343 opioid-dependent adults in 12 cities across the United States found that having clinical depression was associated with high frequency injection drug use and needle sharing (Pilowsky, Wu, Burchett, Blazer, & Ling, 2011). Second, research has found that co-morbid mental health and substance use disorders often develop as the result of complex trauma (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Schilling, Aseltine, & Gore, 2007). Some researchers are beginning to address the complex intersections of trauma, mental health, and substance use and their potentiality for exacerbating vulnerability to HIV infection. One of these, the Adverse Childhood Experiences study, was conducted among 9323 adults in California, U.S.A. It demonstrated that there was a strong graded relationship between the number of childhood maltreatments that participants had experienced, mental health symptoms, and self-reported histories of sexually transmitted infections (and subsequent increased risk for HIV infection) (Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000).

There have been some research initiatives that have focused on Indigenous peoples and have been lead by Indigenous authors. For example, Evans-Campbell et al. (2006) explored the association between interpersonal violence, mental health and HIV vulnerability in a cross

sectional analysis of 112 adult American Indian women in New York City, U.S.A. The authors reported that 64.5% of the women had experienced major depression, 65.5% had experienced interpersonal violence, and 86.9% had engaged in unsafe sex. In adjusted analysis, the women who had experienced multiple victimization (at least 2 out of 3 categories of violence, including lifetime sexual assault, childhood physical abuse, or domestic violence) had significantly greater odds for ever having been depressed or dysphoric (OR: 3.19 and 2.73, respectively) and for engaging in sexual risk behaviours (OR: 10.00).

Libby et al. (2005) investigated the association between childhood maltreatment and subsequent lifetime psychological distress symptoms among 3084 American Indian people aged 15-54 years in the Plains region of the United States. In multivariate analysis, the authors demonstrated that childhood physical abuse significantly increased the likelihood for depression (OR: 2.14), post-traumatic stress disorder (PTSD) (OR: 2.87), and panic disorder (OR: 2.73). Childhood sexual abuse increased the likelihood for depression (OR: 2.45), PTSD (OR: 5.30) and panic disorder (OR: 2.30), while substance use disorder was significantly associated with depression (OR: 1.85), PTSD (OR: 1.94), and panic disorder (OR: 2.18). Finally, Pearce et al. (2008) carried out a cross-sectional analysis of 543 Cedar Project participants that addressed the associations between sexual trauma, addiction, and mental health. The adjusted analyses indicated that Cedar Project participants who had been sexually abused were significantly more likely to self-report that they had been diagnosed with a mental illness (OR: 2.0) than participants who had not experienced abuse and significantly more likely to have thought about suicide (OR: 2.68) and to have attempted suicide (OR: 2.68). Several researchers have added another dimension to this body of work by addressing the suggestions of Indigenous scholars regarding the impacts of lifetime and historical trauma. For example, researchers have explored

the association between these traumas, mental health problems and the suppression of Indigenous cultural teachings and traditions that promote mental wellness and healing (For the Cedar Project Partnership et al., 2008; Kirmayer et al., 2003; Moniruzzaman et al., 2009; Wexler, 2006). Additionally, Whitbeck et al. (2009) reported on the prevalence and correlates of perceived historical loss among 459 Indigenous youth living on reserves in the U.S. and Canada. The research found that between 10-25% of the youth thought daily about their community's cultural losses (i.e. land, language, traditional/spiritual ways) and losses due to alcoholism and early death in their communities. The multivariate modeling, it was revealed that the youth's perceived losses were significantly associated with symptoms of depression (β : 0.16). However, a paucity of literature that addresses cultural strengths that support young Indigenous people's mental health. This reflects an important gap in the literature, particularly in light of the many Indigenous cultures, spiritual traditions, and languages that have survived and clearly function to strengthen individuals' ability to cope with stress and promote mental wellness among communities as well as individuals (Dion-Stout et al., 2001; Kirmayer et al., 2003; Korhonen & Ajunniginiq, 2006; Lavalley & Clearsky, 2006).

2.5 Trauma, resilience and HIV vulnerability among Indigenous young people in Canada

As indicated in the previous section, there is a call for researchers to identify cultural factors and coping strategies that buffer the effects of historical and lifetime traumatic stressors on Indigenous people and potentially protect against substance use, mental health issues, and HIV and HCV infection (Duran & Walters, 2004; Walters et al., 2002). Such research is critical to public health interventions that aim to meaningfully address the root causes of HIV and HCV risk among young Indigenous people in Canada who use drugs and requires health researchers to find alternatives to the risk models of disease.

Indigenous authors have emphasized that resilience is a key cultural strength or buffer for Indigenous peoples that is inherent to their cultures and spiritual traditions (Lavallee & Clearsky, 2006) and as such, has withstood the devastation of colonization and its associated adversities (Fleming & Ledogar, 2008a; Henderson, 2008; Kirmayer et al., 2003; McIvor et al., 2009). The most accepted definition of resilience in psychological and health sciences research is *positive adaptation despite adversity* (Luthar, Cicchetti, & Becker, 2000). For resilience to be treated as a mental health outcome for an individual, family, or community, it must be understood to be a response to substantial risk, stress, or trauma (Luthar et al., 2000). Moreover, in order to be culturally relevant, resilience must be seen as a response motivated by personal aspirations to overcome adversity or trauma *and* as a health determinant that reflects access to culturally meaningful resources and as such, is highly sensitive to social and cultural ecology (Ungar, 2013). It follows that any consideration of resilience as a determinant of health for young Indigenous people in Canada must acknowledge the historical and present-day injustices that impede the full realization of resilience as well as the diminish the culturally-specific community strengths that support it (Tousignant & Sioui, 2009).

Existing empirical research on resilience among Indigenous peoples in North America has demonstrated significant associations between access to Indigenous cultures, languages, and spiritual traditions and positive health outcomes such as strong family relationships, cessation of alcohol use, decreased rates of youth suicide, increased emotional wellbeing, and decreased criminal activity (Andersson & Ledogar, 2008; Chandler & LaLonde, 1998; Currie, Wild, Schopflocher, Laing, & Veugelers, 2013; Torres Stone, Whitbeck, Chen, & Johnson, 2006). For example, a unique cross-sectional analysis that involved 311 Métis youth living on-reserve in Alberta, Canada found that having pride in Métis heritage was associated with 5-fold greater

odds of “feeling supported” by family or community members (Andersson & Ledogar, 2008). Chandler and Lalonde’s (1998) landmark research that involved 196 Indigenous bands within the jurisdiction of 29 tribal councils in BC, Canada, demonstrated that factors associated with cultural continuity – including self-governance, band-controlled health and education initiatives, and speaking traditional languages – were associated with lower rates of suicide among Indigenous youth.

Qualitative studies have also described how young Indigenous people develop and apply cultural strengths that help them to respond to adversity in healthy ways. For example, Wexler et al. (2014) carried out qualitative research among Inupiaq youth living in a village in Alaska, U.S.A. Although many of the youth’s relationships with friends and family had been fragmented due to alcohol/drug use and their being adopted out, they had found resilience when they accessed traditional activities in their community that instilled pride in their cultural identity and formed connections with Elders.

The aforementioned research provides essential information about how to support young Indigenous people who are coping with historical losses and personal/intergenerational trauma within their communities. However, Fleming & Ledogar (2008b) identified an important gap in research on the resilience involving Indigenous people in Canada: a specific lack of understanding about how to support the health of young Indigenous people who are living in cities and may be disconnected from their home communities, languages, cultures, and spirituality. To date, there is a paucity of research that has addressed this question. Currie et al. (2013) carried out a cross-sectional analysis of 371 Indigenous adults living in Edmonton, Alberta (62.5% of whom reported illicit drug use in the previous 12 months). The results demonstrated that every 1-point increase on a pan-Indigenous enculturation scale was associated

with a 1.7-point decrease on an illicit drug use scale (after adjusting for socioeconomic and childhood abuse factors). In addition, Andersson & Ledogar (2008) carried out research that involved 622 Indigenous adolescents and young adults in Winnipeg, Manitoba found that participants who felt that it was important to participate in traditional cultural activities were 2.6 times as likely to score higher on an emotional competence scale and less likely to use alcohol or be involved in crimes. Although these research endeavors have generated valuable insights, they did not explicitly identify culturally-based family or community strengths that are accessible to young Indigenous people living in cities. In addition, they did not specifically address the impact that historical and lifetime traumas have had on resilience or the relationship between HIV vulnerability and resilience among young, urban Indigenous people in Canada who use drugs.

2.6 Summary of literature review

The primary purpose of this literature review was to provide an overview of the literature that is relevant to the research conducted for this dissertation. It provided a summary of the available epidemiological and qualitative research on HIV and HCV vulnerability and risk, childhood maltreatment, mental health, and resilience among young, at-risk Indigenous people in Canada. In addition, the literature review highlighted studies that have addressed the complex intersections between these research dimensions and identified knowledge gaps that limit public health's capacity to meaningfully respond to the HIV and HCV epidemics among young urban Indigenous people who use drugs in Canada. Finally, qualitative health researchers who conduct future research involving young Indigenous people who use drugs and live in cities should be aware of the complex social and cultural ecology that informs their lived experience. In addition, they must recognize and investigate adaptations and resistance to adverse circumstances.

Chapter 3: Methodology

The candidate (M.E.P.) conducted this study within the existing research framework of the Cedar Project, a prospective cohort study involving young Indigenous people who use drugs in three cities in British Columbia (BC), Canada. Both secondary and primary data sources were used. The quantitative information was a secondary source, as the research tools were designed by study investigators and Indigenous collaborators (i.e. the Cedar Project main and nursing questionnaires) or other authors (i.e. the CTQ, SCL 90-R, and CD-RISC), and Cedar Project study staff recruited participants and carried out data collection. Completed questionnaires were entered into a database by one data entry person and managed by Cedar Project statisticians. The candidate independently carried out data cleaning, integration, and all statistical analyses. Interpretation of quantitative study findings was aided by the expertise of members of the Cedar Project Partnership. The qualitative information was a primary source, though gathered and interpreted with support and collaboration from the Cedar Project study team and members of the Cedar Project Partnership. The candidate independently funded the qualitative data collection, developed the topic guide, conducted 29 out of the 30 in-depth interviews, performed and supervised transcription, and coded and analyzed the qualitative data. This chapter describes the quantitative and qualitative study designs, sampling methods, quantitative and qualitative research instruments, data management decisions, approaches to analyses, and ethical considerations for this dissertation.

3.1 The Cedar Project methods

The following section outlines the overall Cedar Project study design, sampling methods, and describes the study locations where participants were recruited.

3.1.1 Study design

The Cedar Project is a prospective cohort study of young Indigenous people who use drugs in Vancouver, Prince George, and Chase, BC. Since 2003, the study has worked with young, at-risk Indigenous people to gather epidemiological and health information that may be used to better understand HIV and Hepatitis C (HCV) risk and other health outcomes. The primary goal of the study is to provide a robust scientific evidence base that is informed and governed by Indigenous people in order to effectively lobby for their youth.

Eligibility criteria for the Cedar Project included self-identifying as a descendant of the First Nations Peoples of North America (including Indigenous, Aboriginal, Métis, First Nations, Inuit and Status and non-Status Indians), being between 14 and 30 years old, and having smoked or injected illicit drugs (other than marijuana) in the month before enrolment. Drug use was confirmed using saliva screens (Oral-screen, Avitar Onsite Diagnostics). Participants were recruited with the help of health care providers and street outreach, and by word of mouth. At their baseline and follow-up visits (scheduled at 6-month intervals), participants were taken through the process of informed consent, whereby we explained the legal limitations of confidentiality in cases where the participant disclosed awareness of a child under the age of 19 years old who was being harmed, and the reportability of HIV, hepatitis B, C, and tuberculosis. Participants then completed a structured questionnaire administered privately by trained Indigenous and non-Indigenous staff that focused on historical and lifetime experiences and behaviours. Staff nurses then administered health questionnaires regarding clinical symptoms, and provided pre-and post-test counseling for drawing venous blood samples that were tested for HIV and HCV antibodies. Although not required, participants were requested and encouraged to return to receive their test results. Study staff worked actively with participants to secure any

physical, emotional, spiritual, or mental supports they needed. Each participant received a \$25 stipend for their time.

Since the inception of the Cedar Project, the study team has worked to assure that the study offices are culturally-safe environments for participants. All staff members are knowledgeable about the historical injustices of colonization and the residential school and child welfare systems in Canada and their effects on the health and wellbeing of Indigenous families and communities. Every interaction with participants therefore comes from this knowledgeable perspective. Time is taken with each participant to get to know them and to build a trust-based relationship. The participants' needs and safety are prioritized and they are routinely reminded that they are in control of whether they share their information with the Cedar Project or not. We also aim to create safety within the study offices themselves, by ensuring that each is a cheerful, non-judgmental, and police-free space. Participants are welcome to use the telephone, the internet, and have access to coffee and snacks. In addition, the participants are invited to attend special annual events including Christmas dinners and memorials for participants who have passed away. Optimized follow-up of participants has therefore been achieved through the prioritization of cultural safety and because of the vigilance of the study team in keeping in touch with participants via outreach on the street level and personal level (e.g. sending out birthday and Christmas cards).

3.1.2 Sampling methods and study locations

In 2006, the Census of Canada estimated population of Indigenous people under age 34 years in BC was 82,230, of whom 74% were living off-reserve (BC Stats, 2006). Cedar Project participants were recruited non-randomly in each of the study locations through referral by health care providers, community outreach, and by word of mouth. Attaining a probabilistic

sample for this population was not available due to young Indigenous people who use drugs being mostly hidden and marginalized from mainstream society. In addition, it is difficult to assess how many young Indigenous people were eligible but chose not to participate in this study. This potentiality increases the uncertainty of our results. Nevertheless, the Cedar Project research team includes members who are highly experienced and connected to the community, and went to great lengths to recruit street-involved young Indigenous people who use drugs and follow-up on participants in each of the three study locations.

Vancouver

The city of Vancouver is located on the unceded traditional territory of the Musqueam First Nation. Located within the catchment of the Vancouver Coastal Health Authority, the city is the largest metropolitan centre in BC, with an economy based primarily in industrial development, international port trading, and technology. According to the 2006 Statistics Canada Census, 2.4% of the population within the Vancouver Coastal Health Authority service area were Indigenous peoples (n=40,310) (Milligan, 2010b).

Since the mid-1980s, Vancouver has been the epicentre of HIV and HCV infections in Canada. The Downtown East Side (DTES) neighbourhood in particular was overwhelmed with the epidemics in the 1990s, as the number of people there struggling with severe addiction, psychological distress, and poverty were in the many thousands (Adilman & Kliewer, 2000). There are an estimated 18,000 residents of the DTES, of whom 10% identify as being Indigenous people (City of Vancouver, 2012). In 2003, an analysis published as part of the Vancouver Injection Drug User Study (VIDUS) demonstrated that among individuals who injected drugs in the DTES, Indigenous people were becoming HIV positive at twice the rate of non-Indigenous people (Craib et al., 2003). Due to concerted province-wide harm reduction, the expansion of

highly active antiretroviral therapy, and social justice efforts, the dual epidemics of HIV and HCV have been declining in BC (BC Centre for Disease Control, 2013; Grebely et al., 2014; Hogg et al., 2013). However, 2012 data revealed that Vancouver continued to have the highest incidence of HIV infections in BC (19.1 per 100,000) and Indigenous people living in Vancouver continue to be overrepresented among new HIV infections (BC Centre for Disease Control, 2013). The Cedar Project study office opened in the DTES in 2003, and as of 2012 had enrolled 369 participants. The average age of Vancouver participants at baseline was 23.9 years (standard deviation (SD): 3.6 years), 51% were female, and 61.5% had injected drugs at least once before they entered the study.

Prince George

The city of Prince George is located on the unceded traditional territory of the Lheidli T'enneh First Nation. The 2006 Statistics Canada Census estimated that Indigenous peoples comprised 11% (n=8,855) of the population of Prince George and 17.5% of the population of the Northern Health Authority service catchment (Milligan, 2010a). The city is the largest in northern BC, with an economy based on services, logging, and mining. Partly due to being a centre point along two major highways for transportation of materials from resource extraction industries, Prince George has one of the highest violent crime rates in Canada and is home to multiple gangs involved in drug trafficking and sex work (Brennan, 2012). In 2002, Indigenous HIV/AIDS service organizations and public health practitioners argued that they were witnessing a simmering epidemic of HIV and HCV infections in the north that seemed to be disproportionately impacting young Indigenous people who used drugs. The Cedar Project was therefore invited to open a storefront office in downtown Prince George in 2003 in order to provide an epidemiological evidence base to lobby for increased harm reduction and prevention

resources in the community. In 2012, the BC Centre for Disease Control reported that the Northern Health Authority had the second highest HIV incidence in the province (5.5 per 100,000), and that Indigenous people who use drugs were overrepresented among those newly diagnosed (BC Centre for Disease Control, 2013). As of 2012, the Prince George study office had enrolled 336 participants, of whom the mean age at baseline was 22.7 years (SD: 4.3 years), 47.9% were female, and 51.2% had ever injected drugs before their enrolment interview.

Chase

Chase is a rural community of 2,400 people located within the unceded traditional territory of Secwepemc Nation, in the south-western region of BC. Chase is located 45 km outside the mid-sized city of Kamloops, 50 km from the township of Salmon Arm, and within close proximity to the reserves of the Neskonlith Indian Band and Adams Lake Indian Band. The village of Chase has historically been based on the economy of forestry and tourism. The 2006 Statistics Canada Census estimated that Indigenous peoples comprised 11% (n=265) of the population of Chase (Statistics Canada, 2007), however community members have informed us that most Indigenous peoples live and travel frequently between surrounding First Nation communities and Kamloops and Salmon Arm. Chase and surrounding areas are served by the Interior Health Authority. In 2012, the Interior Health Authority reported that HIV incidence in the Interior region was well below the provincial rate (1.5 per 100,000 vs. 6.5 per 100,000, respectively), however incidence of HCV infection was above the rate for the province (43.6 per 100,00 vs. 42.1 per 100,000, respectively) (Interior Health Authority, 2012). Although no ethnicity information was available for these statistics, Secwepemc leadership have been deeply concerned about their young people who were using drugs and their vulnerability to infectious diseases. In 2011, the Cedar Project was therefore invited by the Shuswap Nation Tribal Council to open a study office in downtown Chase and to access surrounding areas

with a mobile van study unit. As of 2012, 88 participants were enrolled, among whom the mean age was 21 years old (SD: 4.9 years) and 49% were female. As of 2012, none of the Cedar Project participants in Chase had injected drugs before their baseline interview.

3.2 Dissertation methods

The following section outlines the multidisciplinary (qualitative and quantitative) methodological approaches that were undertaken to complete this dissertation.

3.2.1 Qualitative setting and participants

The qualitative portion of this study was an adjunct to the larger Cedar Project research study and therefore participants were recruited from and interviewed within the offices of each of the three study locations.

This qualitative study involved 30 young Indigenous people who were current participants in the Cedar Project study. Participants were eligible to participate in this study if they were returning to the Cedar Project study offices for a follow-up interview or had been newly recruited into the study and completed a Childhood Trauma Questionnaire (CTQ). We chose the requirement of having completed the CTQ so that we could use its results to triangulate our qualitative analysis and assess whether the richness of that information was enhanced by the CTQ. Participants were not required to have experienced childhood maltreatment because we had initially sought to compare those who had and had not experienced it and to identify any themes that emerged as a result of the comparison. Nevertheless, as the collection of qualitative and quantitative information proceeded, it became evident that all of the participants had experienced childhood maltreatment with the exception of one, a male participant who reported that he had no traumatic experiences in both the CTQ and his in-depth interview.

Purposive sampling was used to enroll 30 Cedar Project participants. This approach is considered acceptable because of the exploratory nature of our qualitative inquiry and because our purpose was to confirm patterns and establish the existence of variability in the experience of childhood maltreatment and subsequent HIV and HCV vulnerability among young Indigenous people who use drugs (Schensul, Schensul, & LeCompte, 1999). The qualitative researcher (M.E.P.) worked with Cedar Project study staff (interviewers and coordinators) to establish the sampling method by which they were requested to approach Cedar Project participants who: a) had completed a CTQ, and; b) were open to the idea of having a long conversation with a female researcher about their lives. Cedar Project participants who met the qualitative study enrolment criteria were approached by study staff and asked if they were interested in participating in an in-depth, open-ended interview. Cedar Project staff explained to the participants that the interview would involve conversations about family history and, if relevant, the context in which childhood maltreatment occurred. Study staff also informed participants that they would receive a \$20 stipend (in addition to the stipend received for their participation in the Cedar Project) for their time and transportation costs. Vancouver-based participants who were interested in the in-depth interview gave their phone number to the staff and understood that they would be contacted by a researcher (M.E.P.) to arrange the interview. The qualitative researcher then contacted the participants and arranged a time for the interview. For participants living in Prince George and Chase, the local Cedar Project study staff arranged the interview times and the researcher (M.E.P.) traveled to the study locations to carry out the interviews. All of the in-depth interviews took place between October 2011 and June 2013. Nearly all of the interviews were carried out in private offices at Cedar Project study sites; two took place in private meeting rooms at local service organizations. Interviews were typically booked in the evenings and on

weekends when the Cedar Project locations were closed. The first 2 interviews were facilitated by Nancy Laliberté (Métis ancestry), an experienced qualitative interviewer for the Cedar Project, who also trained M.E.P.. The rest of the interviews were conducted exclusively by M.E.P, with the exception of one interview with a Prince George participant. The participant was leaving town and eager to do the interview immediately, so it was conducted solely by Vicky Thomas (Wuikinuxv Nation), the Cedar Project Study Coordinator and an experienced interviewer.

Of the 30 participants who participated in this study, 18 (60%) were women and 12 (40%) were men. Seventeen participants (56.6%) were based in Vancouver, 11 (36.6%) were based in Prince George, and two (6.6%) were based in Chase. The participants' median age was 32 at the time of their in-depth interview, (Range: 21-39). In total, five participants (16.6%) were HIV positive, and 12 (40%) participants were HCV positive. Eighteen participants (60%) had ever used injection drugs.

3.2.2 Qualitative data collection

We decided to use the in-depth interview approach because so little is known regarding the lived experiences of childhood maltreatment and subsequent pathways to HIV and HCV vulnerability among young Indigenous people who use drugs. In-depth interviews are exploratory and therefore allow the researcher to be flexible in covering the topic of interest in addition to any new topics that might arise during the interviews (Schensul et al., 1999). Written informed consent was obtained prior to the interview in all cases and the consent form emphasized the limitations to confidentiality that arise when it is determined that child maltreatment is currently ongoing. The interviews were 45 minutes to 2 hours in length in order to give participants enough time to share their stories. Interviews relied on a loosely structured

topic guide that allowed participants to contextualize any experiences of childhood maltreatment, substance use, and HIV and HCV risk within temporal or causal sequences of events, individuals, and environments. We believe this approach was appropriate, as researchers have clarified that young Indigenous people often use narratives to bridge together various moments of their lives (Brant Castellano, 2000; Tousignant & Sioui, 2009).

The in-depth topic guide covered circumstances of childhood and adulthood, emphasizing participants' recollections of childhood experiences and emotional responses, family relationships, transitions into risk behaviours such as drug use and sex work involvement, intimate relationships, mental health issues, and sources of strength. The guide was followed loosely however the qualitative researcher (M.E.P.) prepared extensively prior to the interviews and memorized a set of general questions to guide the interview before they began. This approach also helped the interviewer to be reflexive and allowed participant's experiences to direct the interview process. The interviews were audio recorded using a digital recording device. With the aim of listening to narratives of experiences, participants were encouraged to 'start at the beginning' of their life story, but we did not enforce a set timeline because we wanted participants to articulate their complex and interwoven memories in a narrative that felt natural. The interviewer probed on various topics to aid with the flow and detail of the interviews and to address difficult subjects that participants did not bring up. For example, after the first two interviews, probes were included to recall their emotional responses to life events.

3.2.3 Qualitative data analysis

We chose to apply an interpretive thematic approach to the analysis of the qualitative data (Starks & Trinidad, 2007). This method of analysis allowed us to engage as witnesses of the accounts of childhood maltreatment and associated processes that prompted stress-coping

responses among Cedar Project participants. Stress-coping in this study refers to both the risk and protective strategies that Cedar Project participants used in order to adapt to – and survive – emotional, physical, mental, and spiritual stresses related to historical and lifetime traumas. Each participant was given a pseudonym in the analysis to protect their confidentiality. Extensive field notes were written after each interview in order to record observations that may not have been captured in the audio recording, develop new questions, and generate theoretical insights. Each participant’s audio interview was transcribed verbatim and read repeatedly to identify recurring and contradictory patterns and correlations with theory and literature. Codes were created by categorizing specific statements into groups of meaning that represented subjects of interest, exploring taken for granted assumptions, and paying special attention to the descriptions of *what* participants experienced and *how* they experienced it. The strategy of “constant comparison” (LeCompte & Schensul, 1999, p. 75) was used in the reintegration of the data, wherein central themes and relationships were drawn across all of the participants’ narratives (Starks & Trinidad, 2007). The data were organized and coded using NVivo 10, a qualitative software package (QSR International Pty Ltd., 2012). Words, phrases, and quotes that illustrated the concepts, patterns, and themes were drawn from the transcripts. The analysis was continually evaluated during frequent discussions with study staff thesis committee members, and the researcher’s mentors from the Cedar Project Partnership. This was done so that the researcher could remain vigilant about any preexisting thoughts and beliefs, for hypotheses development, and to strengthen the credibility of the analysis (Starks & Trinidad, 2007). In addition, cross comparisons with existing Cedar Project studies and the triangulation of quantitative and qualitative data enriched the rigor and trustworthiness of the analysis. The coding scheme and analysis were presented to the Cedar Project Partnership on December 6, 2012, and members provided critical feedback and

consensus about the themes to be interpreted and the associated recommendations. In the writing phase of the study the researcher aimed to compose a story that captured the most important elements of participants' lived experiences (Starks & Trinidad, 2007). Extensive notes and memos were taken to document all decisions and insights at each stage of the research and to establish an audit trail.

Combining epidemiologic and qualitative methods is a proven standard in conducting research involving people who use drugs (Bourgois, 2002; Maher, 2002). As previously mentioned, we aimed to use an interdisciplinary approach by triangulating the quantitative data generated from the CTQ with the information participants shared in their in-depth interviews. Following Denzin (1971), we use the term triangulation to mean both data triangulation (use of a variety of data sources within a study) and methodologic triangulation (use of multiple methods within a study). Methodologic triangulation uses both qualitative and quantitative methods to study similar questions. Specifically, we sought to use qualitative observation to validate the quantitative patterns of maltreatment that emerge in the CTQ, and to generate new hypotheses that may be subsequently tested using quantitative data.

3.2.4 Quantitative data collection instruments

Multiple quantitative tools were utilized in this research and were integrated to meet study objectives and test hypotheses. The following are descriptions of the study instruments, decisions regarding variable coding, and how missing data were handled.

3.2.4.1 The Cedar Project questionnaire

The Cedar Project questionnaire was administered by trained Indigenous and non-Indigenous interviewers and nurses in each study location for participants' baseline enrolment visit and at 6-month follow-up intervals. The questionnaire assessed sociodemographic

characteristics, drug use patterns and risk behaviours, sexual practices, service utilization, and experiences involving violence. In addition, a separate nursing questionnaire asked clinical questions to determine participants' general health status, including whether they had symptoms of sexually transmitted infections and tuberculosis or were on prescribed medications. The nurses also drew blood samples for HIV and Hepatitis C testing and carried out pre-and post-test counseling with the participants. Variables were chosen from the Cedar Project Questionnaire based on their theoretical and empirical importance to the study hypotheses. The cut-point for the longitudinal data in this research was November 2012.

Time-invariant factors

The time-invariant (i.e. asked only once at baseline) demographic and historical variables that were included this study included sex (male vs. female), study location (Chase, Prince George, Vancouver), having at least one parent who attended residential school (no vs. yes, no vs. unsure), having been taken away from biological parents and placed in foster care (no vs. yes), sexual identity (gay/lesbian/bi-sexual/transgender/queer (GLBTQ) vs. straight) and education level (less than high school vs. high school graduate).

Other time-invariant variables that were treated as potentially protective independent study variables pertained to the cultural environment participants grew up in and included how much their families lived by traditional culture (never/rarely vs. often/always) and how often their families spoke traditional languages at home (never/rarely vs. often/always). Finally, a time invariant study variable determined whether participants spoke their traditional language (no vs. a little bit vs. yes). Living by traditional culture was defined as living according to values that are inherent to customary Indigenous ways of life and taught by Elders. The values included humility, honesty, love, respect, loyalty, remembering where you are from, and putting family

first. These variables were defined by Earl Henderson (Métis and Cree Heritage) and Violet Bozoki (Lheidli T'enneh Nation) who are Indigenous Elders, traditional knowledge holders, and members of the Cedar Project Partnership.

Time-varying factors

Time-varying potential confounders were longitudinal variables that may have changed in the 6 months between follow-up interviews and included age as well as relationship status (single vs. in a relationship). Time varying independent variables that measured cultural activity in the past 6 months and were hypothesized as being potentially protective included frequency of living by traditional culture (never/rarely vs. often/always), and having participated in any traditional ceremonies (never/rarely vs. often/always). Participating in traditional ceremonies was defined as having attended or taken part in ceremonies such as: potlatch, feast, fast, burning ceremony, washing ceremony, naming ceremony, big/smoke house, rights of passage, smudge, dances (pow-wow, Ghost dance, Chicken dance, Round dance, Sun dance), or any other traditional Indigenous ceremony. Other potentially protective longitudinal study variables were having accessed alcohol or drug treatment (no vs. yes), having accessed counseling (no vs. yes), and having tried to quit using drugs (no vs. yes). Potential risk factors that applied to all participants in the context of the previous six months included having slept on the streets for more than three consecutive nights (no vs. yes), frequency of having smoked crack (less than daily vs. daily or more), any injection drug use (no vs. yes), and HIV and HCV serostatus (negative vs. positive). Drinking-related factors were assessed in the subset of participants who had drunk alcohol in the previous 6 months and included binge drinking (no vs. yes) and blackouts from drinking (no vs. yes). Binge drinking was defined as going on runs or binges and drinking more than usual. Sexual risk-related outcomes were a subset to participants who had sex

in the previous 6 months and included involvement in sex work (no vs. yes), consistency of condom use with regular sexual partners (always vs. not always), consistency of condom use with casual sexual partners (always vs. not always), sexual assault (no vs. yes), and any sexually transmitted infection (no vs. yes). Regular sexual partners were defined as partners with whom participants had had sexual relationships lasting 3 months or more, and casual sexual partners were defined as partners with whom participants had had sexual relationships lasting less than three months. Sexually transmitted infections were self-reported in the nursing questionnaire and may have included chlamydia, genital warts, gonorrhea, herpes, syphilis, or others.

3.2.4.2 Childhood Trauma Questionnaire

Beginning in 2011, Cedar Project study staff offered participants the option to complete the Childhood Trauma Questionnaire (CTQ). The CTQ is a widely used retrospective and self-reported 28-item inventory that measures five types of childhood maltreatment: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). Validation studies of the CTQ have demonstrated that it is a brief, reliable and valid instrument for screening histories of maltreatment as well as identifying minimization and denial (Bernstein & Fink, 1998).

Each type of maltreatment was measured with 5 items that were asked within the context of “when you were growing up”. Answers were endorsed using a 5-point Likert-type scale according to the frequency the experiences occurred. Scale options were: *Never True* [1], *Rarely True* [2], *Sometimes True* [3], *Often True* [4], and *Very Often True* [5]. The Minimization/Denial Scale is an additional 3 items in the CTQ and is used to detect false-negative reports of childhood trauma. In this study 19.5% (n=52) participants had low minimization/denial, 9% (n=24) had moderate minimization/denial, 1.9% (n=5) had high minimization/denial, and the

remaining 69.6% (n=185) had zero scores for minimization/denial. It should be noted that CTQ authors Bernstein & Fink recommend that results showing any level of minimization/denial should be treated with caution, but do not recommend that participants with minimization/denial be removed from analyses (1998).

Item scores for each CTQ subscale may be summed into a total score ranging between 5 and 25 in order to quantify the severity, frequency, and duration of maltreatment. In addition, Bernstein & Fink have suggested four pre-set thresholds to categorize the severity of childhood maltreatment experiences: None, Low, Moderate, and Severe. Previous studies using the CTQ have combined the categories of the maltreatment subscales in order to address the unbalanced response patterns that often arise in marginalized or drug using populations (Duran et al., 2004; Medrano, Hatch, Zule, & Desmond, 2002; Stoltz et al., 2007). Floor and ceiling effects (Hessling, Schmidt, & Traxel, 2004; Hessling, Traxel, & Schmidt, 2004) were observed for the maltreatment subscales in the Cedar Project sample. We therefore transformed the subscales into variables composed of three categories for levels of maltreatment – none (0), low/moderate (1), and severe (2) – and treated the subscales as continuous variables in the analyses. The odds ratio for the maltreatment subscales may therefore be interpreted as the likelihood of an outcome occurring for each one-level increase in severity (i.e. the increased likelihood of an outcome in the ‘low/moderate’ level vs. the ‘none’ level, and in the ‘severe’ level vs. the ‘none’ level of maltreatment).

Previous CTQ-based research has also examined the impact of multiple types of maltreatment by characterizing the impact of the total ‘dose’ of exposure to childhood maltreatment on health outcomes and creating a maltreatment summary score (Rodgers et al., 2004). Consequently, an additional maltreatment summary score variable was created for the

Cedar Project sample by first categorizing participants as “maltreated” or “not maltreated” on each of the five CTQ sub-scales (based on the clinical threshold scores), then summing the number of thresholds that were exceeded. The maltreatment summary score variable ranged from zero to five and was treated as a continuous variable. The odds ratio for this variable could then be interpreted as the likelihood of an outcome occurring for each incremental increase in the maltreatment summary score.

Because the CTQ is a retrospective inventory, the Cedar Project participants only completed it once. After giving their consent to answering the CTQ and receiving instructions on how to answer it, participants took approximately five minutes to complete it. The CTQ was self-administered unless participants requested assistance. Participants were given a stipend (\$10) for their participation and Cedar study staff made referrals to counseling or other services if they were requested.

Validation studies of the CTQ have demonstrated that it provides brief, reliable and valid screening for histories of maltreatment (Bernstein & Fink, 1998). The CTQ has demonstrated very good internal consistency reliability according to Cronbach’s alpha, and has good test-retest reliability suggesting that it is stable over time in relatively uncontrolled settings (Bernstein & Fink, 1998). The CTQ has been validated among adults who use drugs (Thombs, Lewis, Bernstein, Medrano, & Hatch, 2007), and homeless young people in Canada (of whom 12% identified as Aboriginal people) (Forde, Baron, Scher, & Stein, 2012). Although the CTQ has not yet been validated exclusively for Indigenous people, it has been utilized to measure childhood maltreatment in a study of American Indian Women in New Mexico, USA (Duran et al., 2004), and among men and women in seven different Native American tribes in the United States (Koss, 2003).

3.2.4.3 Symptom Checklist-90 Revised

Since 2010, the Symptom Checklist-90-R (SCL-90-R) has been administered at 6-month intervals together with the main Cedar Project Questionnaire follow-up interviews. The SCL-90-R is a 90-item self-reported symptom inventory that has been designed to measure the intensity or severity of nine dimensions of psychological distress symptoms as well as seven additional clinical items (Derogatis, 1994). The psychological distress dimensions are somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. After participants gave consent and received instructions on how to answer the SCL-90-R, they took between 12 and 20 minutes to complete the questionnaire. Cedar study staff made referrals to health and social service providers if they were requested.

Each of the 90 items in the SCL-90-R questionnaire were scored on a five-point Likert scale that quantified how distressed participants were by their symptoms in the past three months: *Not at all* [0], *A little bit* [1], *Moderately* [2], *Quite a bit* [3], and *Extremely* [4]. The raw scores for each dimension were calculated by summing the values of the item responses, then dividing that sum by the number of endorsed items in that dimension. In addition, each participant's SCL-90-R score was transformed into an average Global Severity Index (GSI), providing a single average measure that represents overall degree of psychological distress. The GSI is computed by summing the scores on the nine symptom dimensions and the additional clinical items, then dividing that sum by the total number of endorsed responses. Higher scores for the GSI indicate a higher level of overall psychological distress.

The SCL-90-R has demonstrated good internal consistency and reliability according to Cronbach's alpha in addition to satisfactory test-retest reliability (Derogatis, 1994). The SCL-90-

R has been validated in multiple studies including research with adults accessing treatment for drug and alcohol dependency in the U.S. (Kleinman et al., 1990) and young people who had experienced childhood physical and sexual abuse and been in foster care in Missouri, U.S. (Williamson, Borduin, & Howe, 1991). The GSI is considered to be the best single score of psychological distress (Derogatis, 1994) and has been used successfully in studies that measured psychological distress among people who have experienced childhood maltreatment and people who use drugs (Dobkin, De, Paraherakis, & Gill, 2002; Fridell & Hesse, 2006; Gold, Lucenko, Elhai, Swingle, & Sellers, 1999; Kidorf et al., 2010). Although the SCL-90-R has not been validated specifically for Indigenous populations, it has been used to successfully estimate psychological distress symptoms, general severity of distress, and risk factors among a sample of Aboriginal adolescents in Taiwan (Yen, Hsu, Liu, Huang, & Yang, 2006) and to assess psychological distress and suicidality among Native American youth in New Mexico, U.S.A. (Howard-Pitney, LaFramboise, Basil, September, & Johnson, 1992). The GSI was therefore the main outcome variable we used for the analysis of psychological distress.

3.2.4.4 Connor-Davidson Resilience Checklist

Since 2011, the Connor-Davidson Resilience Scale (CD-RISC) has been administered at 6-month intervals, coinciding with the main Cedar Project Questionnaire follow-up interviews. The CD-RISC is a 25-item self-administered scale designed to clinically measure the ability to cope with stress (2004, p. 196). The scale authors broadly defined resilience as “personal qualities that enable one to thrive in the face of adversity” (Connor & Davidson, 2003, p. 76). The scale consists of five factors: 1) personal competence, high standards, and tenacity; 2) the trust, tolerance, and strengthening effects of stress; 3) positive acceptance of change and secure relationships; 4) control, and; 5) spiritual influences. The CD-RISC statements on the scale are

endorsed by response options on a five-point Likert scale : *Not true at all* [0], *Rarely true* [1], *Sometimes true* [2], *Often true* [3], and *True nearly all the time* [4]. The statements are intended to reflect participants' resilience over the previous three months. If participants had not experienced the situation described by a statement in the past three months they were asked to consider how they would have responded if that situation had arisen (e.g. an opportunity to realize that "coping with stress strengthens") (Connor & Davidson, 2003). Overall scores were computed by summing all responses and therefore ranged between 0 and 100, with higher scores indicating greater resilience. The questionnaire was self-administered, unless participants requested assistance from the study staff. After consenting to participate in the study and receiving instructions on how to answer the CD-RISC, the questionnaire took 5-10 minutes to complete.

The CD-RISC has had very good internal consistency and reliability according to Cronbach's alpha and good test-retest reliability (Connor & Davidson, 2003, p. 76). Validation of the CD-RISC has been tested in multiple studies, including research involving young adults seeking treatment for anxiety related to childhood maltreatment (Connor & Davidson, 2003, 2010). The psychometric properties of the CD-RISC were also examined and validated in a community sample of elderly Native Americans from the south-eastern U.S. (Connor & Davidson, 2003; Windle, Bennett, & Noyes, 2011). Further, the CD-RISC has been successfully used to explore the relationship between resilience and psychological distress among homeless youth (9% of whom were of Aboriginal ethnicity) in Hamilton, Canada (Simon et al., 2009), and to examine the association between resilience and improved health outcomes among women living with HIV in Cook County, U.S. (Goins, Gregg, & Fiske, 2012).

3.2.5 Quantitative data analysis

The following is a general outline of the steps taken for each quantitative analysis in Chapters 6, 7, and 8:

1. Descriptive statistics were used to assess the frequencies and distributions of the scores associated with each of the psychometric scales. For categorical data, frequencies were tabulated by historical and demographic variables including sex, and chi-square tests estimated the significance of differences. For continuous data, means and standard deviations were calculated, with t-tests and one-way ANOVA to determine significant differences between historical and demographic variables, and between men and women. Robust t-tests were used when Levene's test established that there were unequal variances. Two-sided *p*-values were used to assess the statistical significance of observed differences.
2. The construct validity of the CTQ, SCL-90-R, and CD-RISC was examined using first and second order Confirmatory Factor Analyses (CFA) using Mplus software (Muthén & Muthén, 2008-2012). The first order CFA for each scale was carried out according to the scale author's hypothesized model that involved loading each scale item onto the latent variables that the scale is intended to measure. The second order CFA included paths between the first order factors and the broad, higher order factor of the questionnaire (i.e. childhood trauma, psychological distress, and resilience). As suggested by Hu & Bentler (1998, 1999), multiple indexes were used to evaluate the goodness of fit of the CFA models, including the chi-square and measures of approximate fit including the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), the root mean square error of approximation (RMSEA). Cronbach's alpha and the Construct Reliability Score (CRS)

were also calculated. CFI and the TLI values above 0.90 indicate a good fit, but over 0.95 is optimal. An RMSEA of less than 0.06 is ideal.

3. Bivariate Pearson's correlations were carried out between the variables within each scale and between the variables between each scale. Two-sided p -values measured the strength of association of the correlations.
4. For only the scales that included repeated measures (i.e. the SCL-90-R and the CD-RISC), descriptive linear mixed effects (LME) models for the trend of the mean outcome (i.e. the GSI or the mean CD-RISC score) were fitted where the elapsed time from baseline to each visit was included as an independent variable and a random statement was included to account for initial differences between individuals. Separate LME models estimated the effect of risk factors on the mean change in the study outcomes over three follow-ups with participants.
5. Longitudinal analyses were carried out using generalized linear mixed effects models (GLMM) (Chapter 6) and linear mixed effects models (LME) (Chapters 7 and 8). The GLMM models were fit by the adaptive Gaussian Hermite approximation with using a logit link to account for the binomial distribution of the study outcomes. Each model selection was based on Bayesian Information Criteria (BIC), which allowed a choice to be made between a fixed or random effect handling of the study variables. Unadjusted associations between study variables with the dependent variables that were significant at the $p < 0.100$ level were further tested in adjusted (multivariate) models that controlled for confounders. Confounders specific to each model were chosen because of their empirical importance (i.e. significant when associated with the study variable and the dependent variable at the $p < 0.200$ level). Potential confounders that were empirically tested in each

analysis included sexual identity, having a parent who had attended residential school, ever having been in foster care, location, relationship status, education level. For only Chapters 7 and 8, the CTQ subscales were also tested for potential confounding. Sex was included in each multivariable model that included all participants (i.e. was not stratified by sex). Time-varying age was included in every analysis because of its potential importance as a confounder relative to a time induced cohort effect adjustment in this study, as is recommended for longitudinal studies (Korn, Graubard, & Midthune, 1997). R statistical software Version 2.15.0 with the lme4 (Bates, Maechler, Bolker, & Walker, 2014) package was used for all GLMM and LME analyses (The R Foundation for Statistical Computing, 2012).

3.2.6 Handling missing data

As with most longitudinal studies and research involving marginalized populations, it was essential in the management and analyses of data to address missing data. In this study, participants were considered lost to follow-up if they had not returned for a follow-up interview after their baseline enrolment questionnaire. Of the participants who were recruited between September 2003 and November 2012 ($n=793$), 81% had returned for at least one visit during the observation period. The analyses in this research was therefore based on conditional inference of those participants who were not lost to follow-up. In a sensitivity analysis, there were no significant differences in the mean age ($p=0.220$), sex ($p=0.446$), history of childhood sexual abuse ($p=0.390$), or history of injection drug use ($p=0.262$, Vancouver and Prince George participants only) for participants who were lost to follow-up compared to those who were not lost to follow-up.

In addition, each quantitative study in this research project had missing data. Scale questionnaires that contained more than a pre-determined threshold of missing data (set by the scale authors) were excluded from analyses; these were: 10.7% for the CTQ, 20% for the SCL-90-R, and 16% for the CD-RISC. Consequently: the data from 23 participants were removed from the CTQ study (Chapter 6); 10 participants were removed from the SCL-90-R study (Chapter 7), and; and one participant was removed from the CD-RISC study (Chapter 8). Missing data within the CTQ maltreatment subscales ranged from 2.3% to 4.1%. Missing data within the SCL-90-R dimensions ranged from 0.01% to 1.2% of observations. Finally, missing data for the CD-RISC factors ranged from 0.06% to 1.9% of observations.

Longitudinal variables from the Cedar Project Questionnaires also had missing data, ranging from 1.2% of observations to 16% of observations between 2003 and 2012. After careful evaluation and recording of missing responses, it was determined that most of the missing data was due to the sensitive nature of the questions being asked of the participants. Variables with greater than 10% missing were generally excluded, however some critical outcomes for health program planning, such as having tried to quit drugs in the previous 6 months (16% missing observations), were included in the analyses. Overall, analyses did not contain more than 20% missing observations. Mplus handles missing data via full information maximum likelihood method and therefore all cases were included in the CFA of the psychometric instruments. R software, specifically the lme4 package that was utilized for all longitudinal analyses in this study, automatically uses the maximum likelihood estimation method for random missing data within outcome variables and therefore will produce results that are optimal (Bates, 2014). To-date, there are no statistical packages other than Mplus that can handle missingness among predictor variables. Despite this limitation for missing data in predictor variables, the maximum

likelihood method used by the R lme4 package is preferable to other approaches to missing data, such as multiple imputation, for its efficiency, consistency, and certainty (Allison, 2012).

3.3 Ethical considerations

Since the inception of the study, the Cedar Project has been community-driven, multidisciplinary research that responds to the continuing crisis of HIV and HCV infection and contributes toward the health and healing of young Indigenous people who use drugs. The Cedar Project Partnership, an independent body of Indigenous community knowledge holders, health and social services experts, researchers and elected leaders, governs the entire research process. The Partnership members include individuals from Vancouver Native Health Society, the Red Road HIV/AIDS Network, Canadian Aboriginal AIDS Network, Carrier Sekani Family Services, Positive Living North, the Prince George Native Friendship Centre, All Nations Hope, Splatshin Secwepemc Nation, Neskonlith Indian Band and Adams Lake Indian Band. In addition we are honoured by the continued contributions of wisdom support from Elders Violet Bozoki (Lheidli T'enneh Nation) and Earl Henderson (Métis and Cree Heritage). The primary purposes of the Partnership are to provide governance, protection, leadership and support for the Cedar Project, and to confirm that the self-determining principles of OCAP (Ownership, Control, Access and Possession) are followed. Cedar Project adherence to OCAP principles ensures that: 1) the jurisdiction over all facets of Cedar Project knowledge/data/information that is gathered in Vancouver, Prince George, and Chase rests with the Cedar Project Partnership; 2) the relevance of Cedar Project research to Indigenous communities – including research questions, objectives, methods, and analyses – is determined by the Cedar Project Partnership; 3) the sharing of information gained from the Cedar Project evidence base is directed by the Cedar Project Partnership – including all knowledge translation activities, academic publications, and media/

communications, and; 4) a stewardship model is used whereby the Cedar Project database is housed on servers that are protected by firewalls within the Providence Healthcare Research Institute (Vancouver, BC). This support is an in-kind contribution for maintaining the database, however the Cedar Project Partnership regulates the right to access Cedar Project information. The Partnership meets every three months to review study protocols, manuscripts, ethical issues, emergent analyses, and knowledge translation. In addition, the Partnership meets to discuss emerging results and communications with media. Finally, since they were established in 2010, the Cedar Project study has enthusiastically embraced the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, with particular attention to Section 9 (Canada, 2007). The study and has also received ethics approval from the UBC/Providence Health Care Research Ethics Board (REB certificate number: H11-02101).

Chapter 4: Narratives of childhood maltreatment and the impacts on family and HIV and HCV vulnerability among young Indigenous people who use drugs in three Canadian cities

4.1 Introduction

Although there have been rigorous public health efforts to reduce high risk behaviours that contribute to the HIV and hepatitis (HCV) epidemics among people who use drugs in Canada, the vulnerability of infection among Indigenous people who use drugs continues to be unacceptably and disproportionately high. For example, in 2011, 12.2% (n=390) of all new HIV infections in Canada were among Indigenous people, an incidence rate that was 3.5 times higher than non-Indigenous people. In 2009, a special report from the Public Health Agency of Canada determined that injection drug use remained the primary exposure category for the majority (56%) of HIV positive tests among Indigenous people in Canada, compared to only 14% for non-Indigenous people who tested positive (Public Health Agency of Canada, 2010c). In addition, the incidence of HCV is 4.7 times higher for Indigenous people than non-Indigenous people (Public Health Agency of, 2009; Public Health Agency of Canada, 2010d). These statistics highlight what many Indigenous leaders, scholars, and HIV service providers have known for decades: that HIV and HCV prevention and treatment programming among Indigenous people must extend their focus beyond individual risk behaviours and address the complex social determinants of Indigenous people's vulnerability to HIV and HCV infection, which are rooted in the legacy of colonization policies and intergenerational trauma (Christian & Spittal, 2008; Duran & Walters, 2004; Vernon, 2001; Walters et al., 2011).

Having experienced childhood maltreatment (including abuse and/or neglect) has been identified as a powerful determinant of HIV and HCV vulnerability among people who use drugs (Braitstein et al., 2003; Zierler et al., 1991). For example, Braitstein et al. (2003) carried out a study of adults who use injection drugs in Vancouver, BC and found that participants who had been sexually abused in childhood were more likely to share injection equipment with people who were HIV positive than participants who had not been sexually abused. Further, participants with histories of sexual abuse had a statistically higher prevalence of HIV infection. Previous studies published by the Cedar Project, a cohort involving young Indigenous people who use drugs in Canada, have similarly found that young Indigenous people in Canada who have been sexually abused have increased vulnerability for HIV and HCV infection. For example, Cedar Project research has demonstrated that participants who have been sexually abused and use drugs are more likely to transition to injection drug use, to need help injecting, and to share injection equipment, thereby increasing their vulnerability to HIV and HCV infection (For the Cedar Project Partnership et al., 2008; Mehrabadi, Paterson, et al., 2008; Miller et al., 2011). These results are deeply concerning, particularly in light of multiple inquiries and reports demonstrating that the disproportionately high number of Indigenous children who experience maltreatment and family violence is one of the most disastrous corollaries of Canadian colonization policies and the residential school system (Bopp, Bopp, & Lane, 2003; Canada, 1996; LaRocque, 1994; Public Health Agency of Canada, 2010a)

Indigenous Elders and scholars have emphasized that any discussion of childhood maltreatment and consequent HIV and HCV vulnerability among young Indigenous people in Canada must first be understood within the context of historical trauma and how this trauma continues to impact Indigenous families (Barlow, 2003; Chansonneuve, 2005; Hylton, 2002;

LaRocque, 1994; Wesley-Esquimaux & Smolewski, 2004; Yellow Horse Brave Heart, 2003). In the 17th century, French and English colonizers made aggressive attempts to Christianize Indigenous peoples in Canada (and elsewhere). This dramatically altered traditional Indigenous family relations by denigrating the spirituality on which Indigenous cultures are predicated and introducing the beliefs that women should be subjugated and children's autonomy should be restricted (Anderson, 1991; Gunn Allen, 1986). The implementation of the residential school system arguably delivered the most destructive blow to Indigenous families subsequent to European contact. The system was designed and implemented by the Canadian government and various Christian institutions for the purposes of "producing cultural conformity" (Kelm, 1998, p. 58) by removing Indigenous children from the cultural influences of their families and communities, indoctrinating them into Christianity, so that they could be assimilated into mainstream Canadian society (Fournier & Crey, 1997; Miller, 2009; Milloy, 1999). Between 1874 and 1996, over 150,000 Indigenous children were forced into the residential school system. Four out of five generations of some Indigenous families attended residential schools and an estimated 86,000 living residential school survivors are currently living in Canada (35,000 of whom live in BC) (Aboriginal Healing Foundation, 2007).

Extensive government, Church, and Indigenous-led inquiries have revealed that 70-100% of children in residential schools experienced horrifying abuses and neglect at the hands of missionary teachers (*Behind Closed Doors: Stories from the Kamloops Indian Residential School*, 2001; Canada, 1996; Chansonneuve, 2005; Chrisjohn, Young, & Maraun, 1997). In the aftermath of their experiences in residential schools, many survivors had internalized what they had learned about control and abuse and brought those experiences into their families and communities (Christian & Spittal, 2008; Ross, 2006, 2008). Over generations, families and entire

communities became overwhelmed by the number of individuals suffering with unresolved trauma, grief, and anger (Chansonneuve, 2007). The intergenerational transmission of anger, grief, shame, emotional detachment, addiction tendencies, and other harmful stress-coping responses within Indigenous families and across communities has been described as *lateral violence* (Chansonneuve, 2005; Walters & Simoni, 2002).

There is increasing recognition of the far-reaching and intergenerational health, social and economic impacts that colonization and residential schools have had on Indigenous peoples in general (Evans-Campbell, 2008). This recognition includes the awareness that younger generations of Indigenous people are currently struggling with the legacies of intergenerational trauma (Christian & Spittal, 2008; Whitbeck et al., 2009). Furthermore, Indigenous leaders and scholars argue that the collective and intergenerational trauma experienced by Indigenous people in Canada has been perpetuated by child welfare policies that prioritize the removal of Indigenous children from their families, instead of investing in family reunification and traditional healing processes as well as ameliorating socioeconomic and health issues (Christian & Spittal, 2008; Fournier & Crey, 1997). The child welfare system in Canada has undoubtedly contributed to the number of Indigenous families and communities in crisis. In the 2000s, the number of Indigenous children in foster care was roughly triple the number of Indigenous children who were in residential school in the 1940s, when the system was at its peak (Blackstock, 2003). In 2011, Indigenous children comprised just 7% of children under age 14 in Canada, but accounted for 48% of all children in foster care (Statistics Canada, 2013).

Qualitative inquiries have been critical to delineating the complicated psychosocial and environmental processes by which people who have experienced childhood maltreatment become vulnerable to HIV risk behaviours in young adulthood. Conventional epidemiological

and statistical methods used for these inquiries are limited because they do not address how the temporal, emotional and psychological processes associated with childhood maltreatment influence the perceptions, decisions, and actions that contribute to HIV risk and infection in young adulthood. For example, Clum et al. (2009) conducted a study of the life-histories of 40 young HIV-positive women living in three urban centres in the United States who had experienced childhood maltreatment. The study illustrated that the women used illicit drugs as an emotional avoidance strategy and engaged in high risk sex due in part to difficulties developing trust and intimacy.

Qualitative research has also played an instrumental role in advancing an understanding of the continuing effects of historical trauma on young Indigenous peoples. For example, Goodkind et al. (2012) conducted 74 in-depth interviews with people living on a Diné reserve in the state of New Mexico, U.S.A., 14 of whom were youth. The youth explained that the traumatic history of colonization among their people had resulted in them growing up not knowing their traditions and language, which had in turn contributed to anger, sadness, a mistrust of white people, and difficulty articulating historical pain. In addition, Gone (2013) conducted interviews with 19 individuals at a First Nations addictions treatment centre on a Northern Algonquian reserve in Canada, 11 of whom were either residential school survivors or had parents and/or grandparents who had attended residential school. The clients' discussions illustrated that their families had shouldered the cumulative "emotional burdens" (p. 84) of residential school experiences and childhood maltreatment for decades and that their alcohol use was a symptom of deeply-felt pain.

4.2 Objectives and rationale

Indigenous Elders and scholars have emphasized that researchers and professionals who strive to respond effectively to the realities of young, at-risk Indigenous people who use drugs must listen to young people's voices and acknowledge the impact that intergenerational and lifetime trauma has had on them (Brant Castellano, 2000). However, to our knowledge, no previous research has qualitatively explored the pathways between childhood maltreatment and HIV and HCV vulnerability among young Indigenous people who use drugs or asked about their perspectives of the effects of the residential school and child welfare systems. This represents an important gap in the research, especially given that the intersections of historical trauma, lifetime trauma, and institutional violence have empirically been shown to exacerbate negative health outcomes among young Indigenous people (For the Cedar Project Partnership et al., 2008). The objective of this study was to address this gap in the academic literature by conducting a qualitative study that aimed to generate a deeper understanding of the childhood maltreatment experienced by young Indigenous people who use drugs and how the immediate and long-term emotional responses to that maltreatment shaped the pathways that have led to HIV and HCV vulnerability and infection. In addition, this study sought to highlight participants' perspectives of intergenerational trauma, child apprehension, and to highlight the importance of having access to healing resources (Brave Heart, 2003; Henderson, 2008; Kirmayer et al., 2003).

4.3 Overview of the study

The decision to use a multidisciplinary approach to understanding young Indigenous people's early childhood experiences, family relationships, and the subsequent trajectories that led to HIV-vulnerability over the life course was based on numerous consultations with members of the Cedar Project Partnership. Since the inception of the Cedar Project cohort in 2003, we

have received governance and oversight from the Cedar Project Partnership, which includes Indigenous leaders and Elders, HIV/AIDS service organizations, child and family experts, and community advocates. The Cedar Project's findings that early childhood trauma (particularly sexual abuse) is a powerful determinant of HIV-risk (Chavoshi et al., 2012; For the Cedar Project Partnership et al., 2008; Mehrabadi, Paterson, et al., 2008; Spittal et al., 2007) was not surprising to the members of the Partnership, as they have long understood the extent to which trauma has impacted the health of families and communities. Meetings with the Partnership affirmed that investigating Cedar Project participants' lived experiences of trauma using both quantitative measures and qualitative methods would be essential for understanding the pathways that led to HIV-vulnerability and for generating recommendations for wellness and healing. The present study therefore represents a collaborative and multidisciplinary research endeavour between the researcher and the Partnership.

4.4 Theoretical approach informing the study

This study was informed by theories that acknowledge the cumulative impacts of colonization – particularly the residential school and child welfare systems – on the lives of Indigenous families today (Chansonneuve, 2005; Duran, Duran, Yellow Horse Brave Heart, & Yellow Horse-Davis, 1998; Fournier & Crey, 1997; Wesley-Esquimaux & Smolewski, 2004). Importantly, this theoretical framework emphasizes that Indigenous families fraught with violence and substance use are also struggling to cope with unresolved historical and intergenerational trauma. It is critical to note that the framework does not blame or shame any individual or community. Rather, it focuses on the systemic oppression and violence that has occurred as a result of state and faith-based policies, and legislation (i.e. the *Indian Act*), which have in turn undermined traditional Indigenous values, identities, cultures, and self-

determination. The study's theoretical approach was also informed by research that recognizes Indigenous peoples' inherent strengths, including cultural resilience and a capacity for resistance in the face of multifaceted adversities (Dion-Stout et al., 2001; Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011). Finally, it incorporated knowledge shared at Cedar Project community ceremonies and knowledge translation events in 2012 and 2013, both of which highlighted how powerful the voices of young Indigenous people who use drugs are when they openly share their life experiences and what they need to move forward.

4.5 Review of study setting, participants, and data collection methods

This multidisciplinary research used purposive sampling to enroll 30 participants from the Cedar Project who met eligibility criteria, and integrated the CTQ data into the analysis. Cedar Project study staff approached Cedar Project participants who: a) had completed a Childhood Trauma Questionnaire (CTQ) and; b) were open to the idea of having a long conversation with a female researcher about their lives. Nearly all participants were interviewed in the Cedar Project study locations between October 2011 and June 2013. A majority of the interviews were carried out in private offices at Cedar Project study sites; two took place in private meeting rooms at local service organizations. Of the 30 participants who participated in this study, 18 (60%) were women and 12 (40%) were men. Seventeen participants (56.6%) were based in Vancouver, 11 (36.6%) were based in Prince George, and two (6.6%) were based in Chase. The participants' median age was 32 at the time of their in-depth interview, (Range: 21-39). In total, five participants (16.6%) were HIV positive, 12 (40%) participants were HCV positive. Eighteen participants (60%) had ever used injection drugs.

The in-depth interviews relied on a loosely structured topic guide that allowed participants to contextualize any experiences of childhood maltreatment, substance use, and HIV

and HCV risk within temporal or causal sequences of events, individuals, and environments. The topic guide covered circumstances of childhood and adulthood, emphasizing participants' recollections of childhood experiences and emotional responses, family relationships, transitions into risk behaviours such as drug use and sex work involvement, intimate relationships, mental health issues, and sources of strength. The interviews were audio recorded using a digital recording device. With the aim of listening to narratives of experiences, participants were encouraged to 'start at the beginning' of their life story, but we did not enforce a set timeline because we wanted participants to articulate their complex and interwoven memories in a narrative that felt natural. In this analysis, we also integrated participants' information that provided in the CTQ. The CTQ is a widely used retrospective and self-reported 28-item inventory that measures five types of childhood maltreatment: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). As suggested by Bernstein & Fink, the CTQ subscales were coded according to four pre-set thresholds to categorize the severity of childhood maltreatment experiences: none, low, moderate, and severe. Further details on the study setting, participants, data collection, and on how the CTQ measures of maltreatment were coded may be found in Chapter 3 of this dissertation (pages 58-60).

4.6 Analytical approach

An interpretive thematic approach was used to analyze the qualitative data (Starks, 2007). This method of analysis allowed for engagement as witnesses of the accounts of childhood maltreatment and associated processes that prompted stress-coping responses among Cedar Project participants (Starks & Trinidad, 2007). Stress-coping in this study refers to both the risk and protective strategies that Cedar Project participants used in order to adapt to – and survive – emotional, physical, mental, and spiritual stresses related to historical and lifetime traumas. Each

participant was given a pseudonym in the analysis to protect their confidentiality. Codes were created by categorizing specific statements into groups of meaning that represented subjects of interest, exploring taken for granted assumptions and paying special attention to the descriptions of *what* participants experienced and *how* they experienced it (Starks & Trinidad, 2007). For example, in this study, special attention was paid to participants' descriptions of childhood sexual abuse, physical abuse, emotional abuse, and neglect, in addition to the sources, causes, and consequences of maltreatment. The strategy of "constant comparison" (LeCompte & Schensul, 1999, p. 75) was used in the reintegration of the data, wherein central themes and relationships were drawn across all of the participants' narratives (Starks & Trinidad, 2007). The data were organized and coded using NVivo 10, a qualitative software package (QSR International Pty Ltd., 2012). Words, phrases, and quotes that illustrated the concepts, patterns, and themes were drawn from the transcripts. The analysis was continually evaluated during frequent discussions with study staff thesis committee members, and the researcher's mentors from the Cedar Project Partnership, which strengthened the credibility of the data. In addition, cross comparisons with existing Cedar Project studies and the triangulation of quantitative and qualitative data enriched the rigor and trustworthiness of the analysis. The coding scheme and analysis were presented to the Cedar Project Partnership on December 6, 2012, and members provided critical feedback and consensus about the themes to be interpreted and the associated recommendations. Extensive notes were taken to document all decisions and insights at each stage of the research. Finally, descriptive techniques that were used to analyze the CTQ data included frequencies, means, medians, and cross-tabulations. Further details on the analysis again may be found in Chapter 3 (pages 61-63).

4.7 Quantitative study findings

A summary of the CTQ results are demonstrated in Table 4.1. The majority of participants' maltreatment experiences had been 'severe/extreme', with the second highest proportion being 'none/minimal', followed by 'low/moderate' and 'moderate/severe'. This was the case for each abuse and neglect sub-type with the exception of emotional neglect, which had a more normal distribution. Most participants had experienced more than one sub-type of severe maltreatment. Five participants reported severe experiences for each maltreatment type. Sixty-nine percent of participants who had experienced severe/extreme sexual abuse had also experienced severe physical abuse, and 77% of participants who had experienced severe physical neglect had also experienced severe physical abuse (data not shown). Most participants had experienced more than one type of maltreatment at the same time, while others experienced different types of maltreatment separately or intermittently. Only two participants reported that they had had no experiences of abuse or neglect on the CTQ and one participant reported low/moderate experiences for each maltreatment type.

Table 4.1: Frequencies and severity levels of maltreatment experiences measured by the Childhood Trauma Questionnaire among Cedar Project participants (n=30)*

Abuse type	None	Low to Moderate	Moderate to Severe	Severe to Extreme
Sexual Abuse	9 (30%)	4 (13.3%)	2 (6.7%)	13 (43.3%)
Physical Abuse	10 (13.3%)	2 (6.7%)	2 (6.7%)	15 (50%)
Emotional Abuse	6 (20%)	6 (20%)	2 (6.7%)	14 (46.7%)
Emotional Neglect	8 (26.7%)	9 (30%)	3 (10%)	7 (23.3%)
Physical Neglect	8 (26.7%)	3 (10%)	4 (13.3%)	13 (43.3%)

*Frequencies may not add up to 100% due to missing answers

4.8 Qualitative study findings

Excerpts from the interviews are discussed in order to illustrate the five broad themes that emerged from the qualitative analysis and the patterns and concepts that characterize them: complexity and interconnection; stress-coping mechanisms in childhood; emotional and psychological escape; family dislocation and separation; stress-coping mechanisms; and healing in later life.

4.8.1 Complexity and interconnection

Participants' narratives revealed the complexity and interconnectivity of their maltreatment experiences and their emotional and psychological responses to those experiences. This becomes particularly evident when the narratives are analyzed in relation to the five types of maltreatment that are discussed in the study. Participants usually provided their accounts of early childhood trauma without prompting, perhaps because they had been clearly informed about the study objectives.

Sexual abuse

Twenty-one of the narratives included stories about being sexually abused, which was higher than number who reported sexual abuse in the CTQ (n=19). Participants' accounts of sexual abuse were either vivid or vague, which may have reflected how comfortable they were sharing about their memories as well as the clarity of their memories. Most participants recalled that their first experiences of sexual abuse occurred before they were 12 years old. Two participants were adolescents when they had their first experience of sexual abuse. Participants' stories of sexual abuse ranged widely in severity (from attempted sexual contact to rape) and duration (from isolated to chronic). Four participants recalled having one or two isolated and unexpected sexual abuse experiences. This was the case for Max, who was adopted into a white

family when he was a baby and placed in foster care as an adolescent. Max explained that he had to abruptly leave one of his foster homes because: “(it) was just before my 14th birthday and I got raped by one of my foster dads.”

Nine participants described chronic sexual abuse experiences that began in early childhood, lasted for multiple years, and often had more than one offender. This was the case for Leanne, whose father had been physically abusive toward her in early childhood but changed after he started to use crack. When she was eight years old her father coerced Leanne into smoking crack before he began to sexually molest her:

Uh, and then in later years actually (my dad) used to sexually abuse me. I don't know what the hell changed in his head. He started getting on crack and that's when his whole mind just, like, he wasn't him anymore. At least when he was drinking and smoking weed, yeah, he'd get anger from his own issues but he was still caring and still, like, oh, you know, “You need to go to bed” and “this is this” and “here's at least dinner.” ...He just started smoking crack all the time. I was like, everything became about crack. ...He told me to come here and put a crack pipe, put crack rock on the pipe and stuck it to my mouth and said inhale. ...and I got addicted right after that so it didn't matter what he wanted to do as long as I got the crack I didn't care. So at nine years old my mentality is already just hooked on the drug and that's why sexual abuse became even easier for him. 'Cause I didn't care. If there was drugs. ...I couldn't lie anywhere without getting into actions with him and I was just like, “What the hell is this bullshit?” ...And then I kind of got used to it as a kid.

Leanne frequently ran away and when she was nine and a half years old she was taken into foster care by the Ministry of Children and Family Development. When she was approximately 12 years old and in her second foster home, the man who had been her foster father also began to sexually abuse her which eventually led her to living on the street:

He'd start taking pictures inappropriately. Uh, he started, uh, I got really sick with mono and wasn't allowed at school so I'm lying on the couch and I feel like I'm dying, well, he'd start touching inappropriately and I'm like, “What the hell are you doing?” He tried taking, he took my shirt off so I'm lying there naked and I'm like this is unbelievable. I grabbed a blanket and wrapped it

around me. I was like, this is not happening again. So eventually I wound up running away.

The distressing emotional and psychological consequences of sexual abuse were evident in each of the participants' narratives and these consequences were damaging for participants who either had isolated or chronic experiences of sexual abuse. Participants used words such as "disgusted", "ashamed", "helpless", "terrified", and "hurt and betrayed" to describe how they had felt after being sexually abused. Kyle shared his experience of sexual abuse within the first few minutes of his interview in response to being asked how he felt growing up with a father who was a residential school survivor and living in a tiny trailer on a remote reserve. Kyle's narrative clearly indicated that it was difficult for him to talk about his experience of sexual abuse and that he continued to be deeply psychologically impacted by it:

I guess, yeah, I was sexually, uh, assaulted when I was a kid so that really played in with my emotions too, I guess. Um, my dad, when he used to get drunk, he used to more or less force me to go, this was his way of playing with my, my private parts and stuff was to force me to go and have a bath and that. Even, like, middle of the night when the lights were out and stuff. It's just not something I want to get into.

Participants' stories of sexual abuse revealed that most of their offenders were members of their families or communities. Sexual offenders were usually male relatives, males close to the family (such as a babysitter), or males in a guardianship role, such as a step or foster father. In three cases the sexual offenders were female (two were female relatives and one was a female known to the family). Every participant who was sexually abused described complex emotional responses. On the one hand, they felt profoundly betrayed and hurt by the offender. On the other hand, they were confused about why the abuse had happened to them and deeply angry at the offender. These feelings were consistent regardless of the severity of the sexual abuse. Connor

described his second experience of being sexually abused when he was 12 years old by an adult man in the community who had taken time to build a friendship with him. His account of betrayal mirrored the accounts of many other participants:

I was hanging out with this older fella and stuff like that and my friends, right? And, uh, we went to his house and we were watching TV and they were like, 'Hey, you guys can sleep over if you want' and stuff like that and, yeah, and so we got in his house and whatever for, like, quite awhile and all of a sudden he started saying, 'Touch this, touch that' and I'm like, 'Should I? I don't think I should.' And, like, he was getting really sexual on us, right? So we were like, 'No, we're going to leave' and stuff and, and that was another traumatic experience. I was like 12 or something like that. ...I felt really hurt and betrayed because I knew the, the person. And then when you trust somebody and you know they're not going to hurt you, why would they do that kind of stuff? All you got is questions and answers, right? I always have questions and answers. It was really, it was hurtful. Why would you say that you're my friend and you let me in your house and we do all these cool things and you're a very nice person and you want to move into that kind of stuff? I'm not, you know? I'm not that way. I'm not, I'm not old enough, you know? Beginning, you know? And what to know, what to do with that kind of stuff? So I just really, I felt really anguished about that person, right?

It is important to note that three of the young women in this study reported that they had not experienced any childhood sexual abuse, but had entered into their first romantic and sexual relationships at 11-12 years old with male partners who were 10-30 years older than them. In each case, the women recalled being overpowered and intimidated by the older man, feeling betrayed, and angry and disgusted by him, and eventually coerced into sex work by him.

Physical abuse

Eighteen participants described childhood experiences of physical abuse in their in-depth interview, which was just under the number (n=19) who reported physical abuse in the CTQ. The most common experiences were being slapped, punched, choked, or whipped with sticks, ropes, or belts. Physical abuse experiences varied in intensity and frequency as some participants

received consistent corporal punishments such as spankings or slaps, some endured occasional but extreme injurious beatings, and others, like Karen, were severely physically abused on a regular basis. In describing her experience of physical abuse, Karen recalled that “[for] every little thing I did wrong I’d always get a punch in the face.”

Physical abuse ensued before age six for most of the participants and lasted until late adolescence. In most cases, parents were the abuser. The majority of participants who had been physically abused gave accounts of violence that were intermittent and shocking and remembered feeling fearful and anxious in their home (i.e. “walking on egg shells” and feeling anxious and “stressed out as a kid.”). Jane’s narrative indicated that not knowing what would trigger her mother’s anger and abusive behaviour had been the most traumatizing element of her physical abuse. Her description of the home environment she grew up in was similar to descriptions given by other participants who had been physically abused:

“We didn't know like, we'd get up, we didn't know what kind of day it was going to be, right? That was hard. ...Like if I knew I was going to get a beating I could prepare myself. Right? But I could never be prepared because it always happened at the spur of the moment. Like, (mom) just like, fuckin' like, snapped. Unpredictable. Yeah. And we didn't know whether, you know, there was going to be because of a fuckin' spot on the glass fuckin' spot on the floor or someone didn't clean up or just stupid things that weren't important, you know?”

It is important to note that five of the participants (two men and three women) who had experienced physical abuse made disclaiming statements that diminished the severity of their experiences, such as “it wasn’t too bad”. At first, those participants justified their parent’s harsh corporal punishments because they had “deserved it”. However, after recalling those experiences the participants began to acknowledge that it had hurt them. This was the case for Howard, who

at first blamed himself for and minimized the intense corporal punishments he regularly received from his father, but later admitted that he had felt deeply frightened and hurt. Howard explained:

I look, as I look back I think of myself as the, the mental person. I was the person. I was the person that was causing, I gave the most trouble. I mean, my dad was a little more stricter than he could have been, I think, at some times. There was no real beatings or anything. We, we did get our asses slapped if we, uh, did some bad shit. I mean he had one thing with a stick. He, he'd give us lashes on our hands but that was like, I mean, if you did something bad you'd put your hand out and he'd give you a little whip on the hand or whatever. The worst part is that he made us pick out the stick. He'd take us, he'd take us on walks and, yeah, he'd pick out the stick while we walked. How's this one? (makes a whipping sound) He makes that whipping noise-, you know that noise it makes in the air? Yeah, so. That was, yeah. Those weren't fun. It didn't leave marks or anything like but man did it hurt. Don't pull your hand up either. When he came down. Twice more (imitates noise).

Emotional abuse

Although twenty-two of the thirty participants reported that they had experienced emotional abuse in the CTQ, only nine spoke about it during their life history interview. Parents and guardians were the most common perpetrators of emotional abuse. The experiences of emotional abuse that were described included being insulted with cruel names, being subjected to excessive controlling behaviour, and being physically and verbally intimidated and threatened. In most cases, participants' accounts of emotional abuse emerged as they recalled physical or sexual abuse. For instance, Ellen was abused unrelentingly by her mother, who was a residential school survivor and struggled with severe substance use. One account of her mother's physical attacks indicated that her experience of physical abuse had had an emotional component:

One time when I went home and I was holding my baby sister in my arms (mom) grabbed a knife and she held it to my face and she's like, 'I should just fucking cut you up and chop you up right now and feed you to the dogs. Nobody would even know that you were, went missing. I'll just tell them that you ran away. Nobody will ever know that you came home.' 'Cause I went home on my own, so. I started crying and I kept asking her, 'Please, don't do

that.’ And she’s holding this big knife in my face and it was all fucked up like that.

Physical and Emotional Neglect

Participants’ narratives of neglect demonstrated that it was intertwined with other types of abuse and neglect. Sixty percent of participants recalled being neglected by their parents or caregivers, whereas 70% and 71% of participants reported some degree of emotional or physical neglect in the CTQ. All the participants who shared experiences of neglect remembered being aware as children that their parents or caregivers were struggling with addiction. Eight participants said there were times when they did not have enough to eat due to poverty or because their parents spent grocery money on alcohol or drugs. Nine participants recalled that their parents hosted raucous parties at home and that alcohol and drug use intensified as the parties progressed. As a result, their parents became less attentive to their safety and they were in greater danger of being hurt. For example, Bella’s mother had left her in the care of her grandparents, who then raised her. Though Bella explained that her grandparents were not abusive toward her, when they drank they had been unable to protect her from being sexually abused by her uncle. Bella’s account of being neglected by her grandparents during parties revealed the interconnection between neglect and sexual abuse:

Um, my grandpa kept asking (my uncle), asking me to go get him when they would drink. And I’d be asking him why and I’d say, ‘No, I don’t want him here.’ But I didn’t want to tell my grandpa what was going on when he’d pass out. ‘Cause (my uncle would) go in the other room and touch me and stuff. And yeah. But he’d always party with him and every time they partied, that was when it would happen, so.

A number of participants’ experiences of neglect involved being left alone for periods of time from a very young age onwards. For example, Graham described waking up in the middle

of the night and realizing that he had been left alone in the house. His feelings of fear highlighted the emotional impact of physical neglect:

It's like I said, I grew up in an alcoholic home, I wake up in the middle of the night, nobody home. Scared as a little kid. I'd be walking in the middle of the night, down the middle of the street, crying. Not a soul could hear me. Not anybody, nobody acknowledged me. And, um, just once or twice out of those times as a kid I actually found my parents at a party. Asking me what I was doing there and this and that, and I said nobody is home.

Many participants who had been neglected shared Graham's sense of being vulnerable to harm when their caregivers were absent –particularly when they were put in the care of unfit or inappropriate individuals. For example, Emma described the significant neglect she had experienced when she was six years old and her mother left her and her two younger cousins alone in their apartment for approximately three weeks. Her mother had instructed her to ask their downstairs neighbour for help when the children needed money for food. Emma's story provides another illustration of the link between neglect and sexual abuse while describing the profound reasoning of a six-year old who was able weigh her own security against her responsibility to care for two younger children:

(Mom) said if I ever needed something, if I was ever hungry, to go down there and he (the downstairs neighbour) would help me out. And, he gave me 50 dollars. I was 6 and half or something. And I was going to leave right away, but he wouldn't let me leave. He basically, just told me to sit there with my legs open and he'd do whatever. Play with himself. And then it wasn't sexual abuse or anything, that you know, he wasn't touching me, he was just lookin' at me. But I thought, well there's 3 of us kids that I have to feed upstairs, right? And, so I did it. I did it once a week for 3 weeks. And I didn't hear from my mom or anything. Um, I don't have a clue where she was.

Ellen was among six of the young women in this study who disclosed that they had often been left alone in addition to having the overwhelming responsibility to care for younger

siblings. Ellen had not only been responsible to care for younger siblings starting at the age of six, but had also been physically abused. As a result, she felt that she had missed the opportunity to be a child:

(Mom) always beat me up. That's why I always ran away. I wasn't allowed to play with my friends. I was, every time I, she told us she was pregnant I'd start crying... 'cause she was always at bingo. I was the one that raised them. There was a point where my second youngest sister, Sally, was starting calling me mom.

Lastly, neglect left participants feeling rejected physically and emotionally by their parents. For example, Graham explained that he learned to expect rejection from his mother who had rejected him from the start. He explained:

(She) told me that I was a mistake so I just kind of, I just, you know? I'm used to not getting anything from her. Nothing at all.

Witnessing violence

Fourteen participants vividly described instances of being witness to violence between their parents, between their parents and siblings, or between other family members. Although the CTQ did not measure such instances, it is salient to note them because they constitute an additional dimension of trauma within the family and community that is closely linked with other forms of childhood maltreatment (Hamby, Finkelhor, Turner, & Ormrod, 2010). The participants remembered witnessing beatings, sexual assaults, attacks with weapons, and verbal threats and abuse. Three of the young women in the study recalled witnessing their sisters being sexually abused by male relatives. For example, Chloe recalled her grandfather sexually abusing her sister (Nina):

One of my very first memories of my grandfather...he was sexually abusive to my mother and to, uh, Nina, and that was one of my first memories was, um,

seeing him doing something to, um, Nina. I could just see in the corner. Yeah, that was like one of my very, very first memories. Um, I didn't understand what he was doing. I didn't put it together until I got older.

In general, participants associated feelings of intense fear and helplessness associated with these incidents. However, their narratives also emphasized that violence was normalized in their home. For example, both of Katrina's parents were regularly violent toward each other and their extended family members:

My mom and my dad always used to fight in front of us. That would be their party. Yeah. Someone was always getting hurt though. Yeah. Or, uh, my dad's brothers, they would fight each other. ... (when) they were drinking you knew it was going to happen. They were going to fight. Yeah, we'd go lock ourselves in the bedroom. Watch TV in there and play games while they partied in the living room or whatever.

Participants recalled becoming angry about the violence in their lives as they grew older and trying to intervene in it or prevent it, which required them to put themselves at risk. Katrina went on to share the story of how she had tried to protect her mother:

We used to have to sit on my mom just for (dad) to stop hitting her and then, uh, yeah, he stabbed her when we were sitting on her cause he couldn't get to her anyway. So he just stabbed her in the arm.

In sum, participants' detailed narratives of their childhood maltreatment experiences reflected the complexity and interconnectivity of these experiences and their psychological and emotional impact. For the majority, emotions of shame, confusion, and loneliness later developed into deep-seated resentment and anger. For example, as a child, Helen had been severely physically abused by her father, who was a residential school survivor, and sexually, physically, and emotionally abused as well as physically neglected by multiple offenders. She

explained how the psychological, emotional, and spiritual impacts of those experiences had brought her anger and deep despair:

I was really, really angry. I was very angry. I remember when I was 18, I was very angry and I hated the world and I hated life and I hated the Creator and everybody. I, I was so hurt and I was so hateful. You know, how dare you put me through this. I never done anything to you or anybody on this earth and yet I have to suffer so much. You know?

4.8.2 Stress-coping strategies in childhood

The second theme that emerged from participant's narratives was their development of stress-coping responses to trauma in childhood. Three such responses were identified: 1) searching for safety; 2) telling someone about the abuse; and 3) seeking emotional and psychological escape (avoidance). All of the narratives portrayed children who exhibited incredible resourcefulness and courage in the face of danger and adversity.

Searching for safety

Nearly all of the participants' narratives included descriptions of the safe places and safe people they sought out for self-preservation when they were in danger. The places they sought for immediate and temporary safety included secret spots or "forts" in the forest, rooms with a lock, closets, and the spaces underneath staircases and beds. Sarah explained the strategy she used to find safety from the chronic sexual abuse by her step-father:

I was, like, molested from my mom's boyfriend and husband. So, from when I was, like 5 until I was 11. Every day or every second day (whispered). ...I was getting molested at night, like, ugh (makes a grossed out sound and starts laughing). (Mom) would go out to the bar and leave me and (my sister) home with her dad. Like, I'd liter-, we had bunk beds, right? The bot-, I'd sleep on the top...I'd be right – I was skinny as a mini. In between the wall and this would be the mattress. I'd be, like, laying there and he'd still get me out. Just, I'd like, try and like, you know, be safe. Uh, my mom's friend, they were staying there for a week or two. They saw him bring me out of the room and she tried to tell my mom. My moms like, "Oh, you're hallucinating," or

something. My aunt, I call her my auntie but she's a family friend. So, she tried to help. Mom was just with the guy for money and he was paying the rent and everything, so.

The safe people that participants identified may not have known what they were going through at home, but still offered them comfort and refuge. Participants frequently mentioned that the company of siblings and cousins whose safety was also at risk gave them a feeling of protection, as the children relied on each other for comfort. In addition, participants described running away to the nearest homes of aunts, grandmothers, or friends who offered comfort when they were frightened. However, it is important to note that some participants' experiences of betrayal in childhood were so severe that they felt they had no safe place to hide and no safe people to turn to for protection. These participants sought safety on the streets and came to rely on themselves alone for security.

When running was not an option, participants avoided adults or kept emotional distance from them in order to create safety or strengthen their sense of emotional security. Todd learned at an early age that he could not trust or receive comfort from the adults in his life and that keeping distance from them was his safest approach:

I'm not going to hug people that hit me. I don't really, you know, I just stayed away from them as much as I possibly could.

For Graham, evading adults during parties at his house kept him safe most of the time, although he recalled a frightening close call that occurred when he was 8 years old:

It was hard sometimes. I mean, I kept my distance from all the grownups except for one night which I didn't expect. I woke up with one of my uncles behind me. Like...it was just, I just got up, grabbed my blanket and I went in my room and I locked it.

Telling someone

Most participants described a critical juncture in their childhood at which attempts to find safety from abuse or neglect failed, leading them to make the difficult decision to disclose their maltreatment to a non-offending adult, typically a parent or family member, teacher, or social worker. The majority reported that the adults' initial reactions were either supportive or unsupportive. Eight described at least one supportive response to their disclosure of sexual and/or physical abuse from adults who appeared to believe them. As a result, the offender was charged by the police and/or prevented from having further contact with them. These eight participants remembered receiving comforting, sympathetic, and reassuring responses as well as affirmations of their sense that "what was going on at home wasn't normal" or "wasn't right". For example, Helen described how her mother responded when she disclosed her experience of being raped by a male babysitter when she was approximately five years old:

She knew something was wrong and, um, so I finally told her. So, I told her what had happened because I was bleeding down there and, uh, and she started crying and everything and she's hugging me and from that point on she'd never hire him again.

For participants who had received supportive responses, sharing their stories and asking for help as a positive experience that reinforced their trust in adults. In contrast, four participants who received ambivalent responses (neither completely positive nor completely negative) decided not to tell anyone else about their experiences of maltreatment and did not disclose those experiences again until they were adults. Twelve participants received an unsupportive response from the adults to whom they had disclosed abuse (sexual in all cases) and felt betrayed by those adults. The unsupportive responses included being disbelieved, ignored, physically punished, verbally shamed, blamed for enticing the offender, or forced to leave home. For example, Ellen's

first sexual experience occurred when she raped by a 21-year old man at the age of 12. Ellen remembered that when she told her mother what had happened, her mother said “you don’t even have hair and you’re already fucking around”, which both shamed and blamed her. Participants who received such unsupportive responses said that the responses caused significant confusion and anger and led them to deeply mistrust adults’ ability to care for them and provide safety. Some of the participants recalled that their entire community responded unsupportively to their disclosure of abuse by gossiping about them and criticizing them.

Seeking emotional and psychological escape

The majority of participants explained that they developed the childhood stress-coping mechanism of emotional and psychological escape, or, avoidance. This was revealed in participants’ accounts of how they detached from traumatic experiences and began practicing self-harming behaviours or and using alcohol and drugs.

Participants detached emotionally and psychologically when they experienced traumatic events in order to attain a sense of emotional and mental security. For example, they coped by “showing absolutely no emotions”, going “blank and [becoming] blocked out”, and “putting up a good front” to mask their pain from those who hurt them. Many participants who attempted to detach said that they made a conscious effort not to cry while they were being hurt. Karen remembered that she dissociated in order to psychologically cope with the frequent and severe emotional and physical abuse she received from her mother, who had spent many years in residential school:

I remember (mom) was teaching me, uh, Our Father, who art in Heaven. You know, that, that, um, prayer? And, uh, she’d say words and I’d try to remember it and, uh, like, I don’t know, she used to try and, uh, make me say it perfect and things like that, and, uh, yeah. And I’d say one word wrong and she’d

fricking hit or punch. Punch me in the face and after awhile I wouldn't even cry anymore. Just, it wouldn't hurt no more.

Eight participants engaged in self-harming behaviours in order to cope with stress. They began doing so between the ages of 11 and 13 years old to “numb” their emotions, particularly their anger about being maltreated. Their most common self-harm behaviours were cutting, choking, and punching or hitting themselves and they associated the behaviours with suicide ideation and feelings of hopelessness. Leanne recalled that being sexually abused by her father and feeling frustrated about her lack of safety in foster homes led her to begin harming herself because it helped her to feel calm and in control of her body:

It was just like I could be in the most extreme agony, wanting to cry. Wanting to punch something and if I cut I'd see that blood come out and it was just like...it's ok. I'm bleeding. Wipe it away and, like, you know, nobody else could hurt me but me.

Lastly, all of the participants began using substances (marijuana and alcohol) to manage their feelings. Participants initiated substance use between the ages of six and 17 years. Most initially saw substance use as a way to connect with their family and friends. These early experiences were mostly fun, although the participants acknowledged that they also used substances to “escape” from the pain of loneliness, fear, and sadness. This motivation was described by Cam, who was physically abused by his father, a residential school survivor and a single parent who struggled with anger and alcoholism:

I started drinking to see what it felt like. See what the big deal was. Why my dad did it all the time. And then I found out and, I don't know, I guess it seemed fun. 'Cause it made me happy and feel weird, drunk. ...Made me open up more. So, freely right? Talk a lot more than I would.

Most of participants began using hard drugs in their mid-adolescence and their substance use rapidly escalated to hard drug use. Transitioning from marijuana and alcohol to smoking crack cocaine was a common story in the narratives. Participants recalled discovering that crack was a particularly effective drug for psychological escape because it gave them the immediate sensation of being “numb” and “covered up” unwanted emotions and thoughts related to their maltreatment experiences.

4.8.3 Family separation and dislocation

The third broad theme that emerged in the participants’ narratives was family separation and dislocation. Participants described this response to childhood trauma as a dynamic process that happened in stages over time. The two most commonly discussed circumstances of being separated from family were 1) alcohol and drug use in the family, and; 2) being taken into the child welfare system.

Alcohol and drug use in the family

All of the participants’ life histories included heavy alcohol and drug use in the family. Their narratives demonstrated that alcohol and drugs played a major role in the breakdown of family functioning and the escalation of family violence. Fourteen participants described their parents and caregivers “alcoholic” because they drank heavily “all the time” and then became “abusive”, “mean” or physically and emotionally distant. Others described one or more of their parents and caregivers as a “drug addict” or “junkie” because they used crack, heroin, and other hard drugs. Some participants began using substances at very young ages in order to spend more time with family members, reduce the emotional distance between themselves and family member, and feel that they belonged to their family or community. This was the case for Kyle,

who had hid in the woods as a child to escape from the intense parties in his father's home, then later began drinking:

So, I sort of started drinking, started falling into my party life, too, when I was about eleven, twelve years old because that was the thing. That was, that's what was going on in the town. That's what everybody was doing, so. And I started drinking.

Many participants recalled that alcohol and drug use caused the family situation to go "from bad to worse" and "just took over" the family. They described feeling disappointed, frustrated and despairing as they realized that their parents were unable to care for them or their siblings. For example, Chloe recalled that in the weeks prior to being taken into foster care her family had had no food and her mother's drinking had gotten worse:

Yeah, and, um, anyways we would go to our friend's and her mother called social services cause I went there, like, really hungry and she had had it cause she had seen us and she lived like a block and a half away and her mo-, her mother had seen us going, she knew what was going on. Um, yeah and just before that I remember, yeah, there was a lot of drinking in the house. Having to take, me and Trina were the oldest, having to take my mom upstairs and dress her and put her in bed or take her out of the washroom when she was, like, passed out. Taking care of her, basically. I remember once when, it still makes me smile and hurt too, when we were kids we took her to the top of the stairs and we dropped her on purpose. I don't think we thought it was on purpose at the time but we were pretty careless with her. Um, yeah, then my, Eleanor took on the role of being the caregiver. I took on the role of showing absolutely no emotions.

Being taken into the child welfare system

Being relocated to foster homes or group homes dislocated participants from their parents, siblings, and extended family members. Twenty-five of the participants had been placed in the child welfare system at least once. In some cases, a family member, friend, teacher, or health professional had filed a report to the Ministry of Child and Family Development (MCFD),

which subsequently took custody of the children. However, it is important to note that four participants' parents voluntarily put them in foster care and two participants called MCFD themselves and requested to be placed in foster care.

The amount of time that the young people in this study spent in foster care varied greatly. The shortest stay in foster care was two days and the longest was fifteen years. Most of the participants had been in and out of foster homes and/or group homes multiple times in their childhood. In addition, five participants had been adopted in infancy or early childhood because their single biological mothers struggled with poverty, alcohol, and drug use. Two of these had been placed in foster care by their adoptive families when they were adolescents.

Participants' vivid memories of being taken away from their families by MCFD indicated that the experience exacerbated the emotional and psychological impacts of existing trauma. Participants were "very afraid", "confused", and "frustrated" when they were contacted by social workers and transported to foster homes. They recalled feeling "awkward" and "homesick" when they were placed in a foster home with new adults who were strangers and expected them to abide by new sets of rules, values, and routines. Some participants who had been placed into foster care with their siblings were subsequently separated from those siblings because their foster parents could not manage so many children. This amplified the participants' fears and anxieties.

Loneliness, intolerable living conditions, and feeling unsafe drove many participants to run away from foster homes and live on the streets. Leanne explained that living on the streets allowed her to choose where she slept, even though she was sleeping rough. Ultimately the streets provided her with a greater sense of safety and security than multiple foster homes had:

I learnt that safety is wherever I lay my head on my down. Not where they put me. So I always made my own, my own way...I just rather stay homeless or slept on the street than sleep in a (foster) home.

Participants who had been in and out of the child welfare system throughout their childhood repeatedly expressed the view that the system had prevented them from maintaining relationships with their families. They often had large memory gaps regarding the whereabouts and wellbeing of the family members they had been separated from. In some cases emotional and physical dislocation from family had defined participants' entire childhood. For example, when Connor was 3 years old he and his siblings were abruptly removed from their parent's care. Both of Connor's parents had attended residential school, struggled with heavy alcohol use, and were violent. While Connor understood that his family was in crisis, he was deeply angry with MCFD because it had permanently separated him from his family. He explained:

Yeah, cause they were drinking. My dad was always drinking and fighting my mom, I think is the main reasons why (we were taken). That's all I know. Yeah, that's all I remember. I don't remember them. I don't remember being taken away so...I just remember living in foster homes all my life.

4.8.4 Stress-coping mechanisms later in life, and shifting perspectives on family

The fourth theme that emerged from the participants' narratives was stress-coping mechanisms developed in later life. Most of the participants indicated that childhood maltreatment and separation from their families and communities created years of cumulative trauma. The impacts of this trauma included ongoing family separation, interpersonal violence, homelessness, incarceration, involvement in sex work, and vulnerability to HIV and HCV infection. Participants concurrently sought out new stress-coping mechanisms. Two such mechanisms were predominant in the interview data: 1) on-going self-medication; and 2) gaining

a better understanding of the role of intergenerational trauma in the family. The first mechanism is particularly salient to this study because it is directly associated with HIV and HCV risks.

Self-medication

When participants reflected on their lives as late adolescents and young adults, frequent memories and emotions related to their childhood came to the surface. These emotions tended to cause intense distress, which was difficult for participants to cope with. Some participants explained that they preferred to avoid unwanted memories or feelings related to their childhood, but understood that their past had been affecting them negatively nonetheless. Most of the participants said they used alcohol and drugs to cope with stressors or “triggers” that caused them to relive their psychic injuries from their childhood.

Many participants explained that using alcohol and drugs allowed them to “forget”, “stop thinking”, “cover up pain”, and “numb” themselves. They also used alcohol and drugs specifically to cope with the pain of negative self-beliefs developed in childhood (i.e. they were “disgusting”, “never good enough”, “undeserving”, “bad”, “useless”, and “a failure”). For example, Jane’s drug use reflected the negative beliefs that she had developed in response to the severe maltreatment she experienced as a child (physical and emotional abuse, neglect, and witnessing violence):

I use drugs so I don’t have to feel, pretty much like everybody. And I keep coming back to the drugs [whispering] because I don’t feel I deserve a better life. It took me many years to say that [crying]. But I know. It’s why I clean up for so long and then I end up back here. ‘Cause everything goes good and then sometimes too good and I sabotage myself. And I honestly think that comes from my childhood. Never being good enough. [crying].

Eighteen participants told stories about transitioning from smoking drugs to injecting drugs and eventually re-using injection equipment. They began injecting drugs in late

adolescence or young adulthood after discovering that it was a powerful way to disconnect from memories and associated emotions and to cope with pain. This was the case for Sasha, who had been victim to severe sexual, physical, and emotional abuse in childhood; had witnessed extreme violence between her parents, who were both residential school survivors, and; had been sexually assaulted by a family member when she was 16 years old. Sasha described the moment when she made the decision to try injection drug use at 22 years old:

And I was asking questions like how does it make you feel, like, tell me? She just told me it makes you feel awesome so I was like, hmm. And I know, I knew, like, her story, what she was going through, like, a lot. So if it made her feel awesome it'd probably make me feel awesome (laughs). . . . You been through more shitty stuff than I been, I want to feel like you do, kinda thing, so. And she said, she said, I'm not gonna do it for you. You gotta buy your own stuff so I went and found my own stuff and she said she wanted me to buy her dope cause just in case of something happened.

Participants recognized that using alcohol and drugs to suppress memories, emotions, and negative self-beliefs increased their vulnerability to HIV and HCV infection. Five participants were HIV positive and twelve were HCV-positive. Each expressed despair as they remembered giving self-medication a priority over taking precautions to avoid contracting HIV and HCV. This was the case for Connor, who started using injection drugs after and became HIV-positive after he and his brother aged out of the foster care system. He and his brother did not subsequently have a relationship with their parents and other biological family members. This caused both of them profound loneliness, confusion, and anger, and both turned to drugs:

(My brother) didn't tell me he had HIV then, though. I didn't know it. He told me that he had something but he wouldn't say. He said, 'If you want to die, die with me then go ahead and use that needle.' I didn't know what he meant by that. I guessed that's what he meant after I got sick. I didn't really care either. I just wanted to get high. Didn't really care about anything. . . . Just didn't care. 'Cause of our life, we grew up. The way we grew up and stuff. Didn't have no parents so we just didn't care. I just didn't care.

Managing emotional pain was likewise more important to Jane than taking precautions to avoid contracting HIV and HCV. Jane became HCV positive in her early 20s, when the heroin addiction caused by her emotional pain and need to self-medicate was at its peak. She explained that the urgency of getting high to quell her withdrawals from heroin caused her to take the risk of needle-sharing and ultimately become infected with HCV:

So about the hepatitis C. I was in the alley. And, had like 8 rigs and they were all, like plugged, right? And I was trying to get this smashed into me. And my street sisters came by. And I was like, 'Do you have a rig? Do you have a rig?' And she's like, 'I just got dirty ones.' And I said, 'I don't care'. And she said, 'I'm not gonna fuckin' give you my dirty needles.' And was like, 'Fucking give it to me!' right? Like, fucking, you know? There was no services at that time. Like, open that late, and it was like 3 or 4 in the morning or something like that. So, and, uh, so she gave me a rig. So, I knew exactly, like, what I was getting into before, but I wanted my drugs that bad, right? So I gave myself hep C For a smash.

Some participants' stories about injection drug use segued into stories about how they came to be involved in sex work. Two of the male participants in the study and fourteen of the female participants had been involved in sex work. The ages at which they began sex work ranged from 12 to 19 and their primary motivation was to buy drugs and continue to self-medicate, or to provide drugs for their romantic partners. However, continuing involvement in sex work was also associated with negative self-beliefs that had developed as a result of childhood trauma. Jane believed that the damaged identity she had constructed due to her childhood abuse had contributed to her involvement in sex work on the streets:

Building someone with low self-esteem. Taking someone's self-worth away. Me and my sister both ended up on the streets. There's got to be a connection there I think.

The connection between emotional pain and needing to make money from sex work was also part of Chloe's story. Chloe had endured years of physical abuse, sexual abuse, and neglect as a child and miscarried a child in her early teens. She explained that the desire to self-medicate gradually led to her involvement in sex work:

Um, I started using drugs, um. Um, I lost a child very young. And um, I started drinking a lot. And then going to the bars. And I was introduced to cocaine in the bar washrooms. And then after bar parties, smoking crack. And then I would be, you know, every couple of months me and a couple of friends would have a night. Then it became every month, then every week, and (laughs) then it just progressed. And then, uh, when, when it was, I wanted to do it more than I could afford it, I had to find a some way to substitute my income to, so I started working the street....Did unbelievable things because of heroin. Um, yeah, I just, just constantly all I wanted to do was drugs. That was my whole, my whole life was hurting myself. It just became my whole life.

Although participants' desire to self-medicate was understandable, they all expressed the desire to find safer and healthier ways to cope with stress and trauma-related pain. Unfortunately, many explained that they continued using drugs to self-medicate because there were no viable or effective alternatives. This was the current predicament for most participants at the time of their in-depth interview. For instance, Kyle explained that he continued to smoke and inject cocaine in order to deal with upsetting feelings and memories related to being sexually abused by his father:

I mean, I, I mean I would love to stay away from the rock but it's just something in it that numbs me from feeling, I guess, is the right words to say. To feeling. I don't know why...when I stop using for a certain amount of time then these emotions come back that I didn't want there. You know? I mean I know the cocaine isn't going to make it go away permanently. I know it's just a temporary solution but it's temporary and that fits me for now. Because I don't want those old childhood feelings and those old habits to come back to me again.

Understanding family pain and the role of intergenerational trauma

Becoming aware of the intergenerational impacts of the residential school system had a healing effect that helped some participants to better understand their families and themselves. As such, it constituted a stress-coping mechanism that helped them to come to terms with their circumstances, experiences and identities. Seventeen participants were aware that one or more of their parents had attended residential school, thirteen knew that one or more of their grandparents had attended, and seven were unsure about whether any of their family members had attended.

Half of the participants who knew their parents or grandparents had attended residential schools said that they had been told “brutal stories” about abuses at the schools that included instances of corporal punishment with sharp or blunt objects; sexually abuse; witnessing sexual abuse; being violently punished for speaking traditional languages or engaging in traditional spiritual practices, and; being separated from family and community for long periods of time. These participants had come to recognize that the horrific emotional and psychological impacts of their parents’ and grandparents’ residential school experiences had caused substance use and violence or neglect at home. For example, Sarah’s grandmother had attended residential school and had subsequently been emotionally abusive toward Sarah’s mother. Sarah thought that her own mother’s aversion to showing affection and love might be related to the way in which her mother had been parented by her grandmother. Connor likewise acknowledged the legacy of the residential school system. Both of his parents had attended and he understood that it subsequently caused them to struggle with alcoholism and be extremely violent towards each other as well as their children:

(Mom) said that it was bad. And guys abused her lots. Like, the, the fathers in the schools there. They always abused my mom. She’s telling me that part and that’s why, the reason why she was drinking all the time, she said. I don’t

know. Kind of sick. It's probably why she was always drunk all the time 'cause she didn't like the way those people was treating her. My dad, too. He said that they used to beat him up all the time. Strap him lots. Whip his hands and stuff. They used to treat them kids rough. They used to treat my dad and my mom real bad in that schools. That's all I know.

Importantly, eight participants who knew that their parents and/or grandparents were residential school survivors they did not know (or could only guess) what their parents'/grandparents' experiences were at the schools and how their parents/grandparents had been affected. Some of those participants explained that they had considered the subject of residential schools to be off-limits because it was so sensitive, while others did not feel they had a close enough relationship with their parents to ask them about it. All of these participants were unclear about the intergenerational and direct familial impacts of the residential school system. For instance, Cam knew that his father and aunties had been in residential school but said:

Nobody talked about it. I don't know if that's one of the reasons why (father) drank so much. I don't know.

Some participants had learned about residential schools at community events, through their interactions with Elders, and from the media. For example, Kyle had learned about residential schools at the Native Friendship Centre in Vancouver. He explained how this led to a shift in his perspective of his father and helped him to understand why his father had hurt him:

I didn't realize and understand that 'til I was an adult, myself. So I don't really blame my parents or my, my dad for the way that he was when I was a kid because there was nothing that he could do about it.

Helen also learned about the effects of the residential school system through a community event – a knowledge-sharing event at her reserve community that had been facilitated by the Aboriginal Healing Foundation. Helen's father had since opened up to her

about the experiences both he and his parents had had at residential school, which helped her to understand the intergenerational effects of trauma:

My father, um, because of him being raised in the residential schools from, taken as a child and never being able to see his family and everything and the priests and nuns were like his parents and learned behaviours and them beating him and, you know, he was even raped but my dad never touched me that way, thank God. But he beat us a lot. It started, once it started it didn't stop. I mean it started and it, it was it became over one dirty dish, like, I had to do the whole load of dishes again to one minute after curfew to, um, bad grades to whatever, like, they're simple little things and it was bad, I mean. ...I know he done that because that, that's how he felt was his way of teaching us that was wrong and, this is wrong, whatever. He didn't know how to verbalize it to us cause he didn't know any better, right? So, you know, 'cause he was beat up a lot by his dad, I know.

In general, hearing their parent's and grandparent's stories of residential school trauma gave participants a context in which to understand and their own experiences of abuse and neglect. For example, Kyle understood that his father's abusiveness toward him when he was a child was related to intergenerational trauma, and while the information helped him understand why he was abused, he continued to maintain physical and emotional distance from his father. Other participants likewise understood that intergenerational trauma had damaged their parents' abilities to build trusting relationships with them and accepted that their parents were unable to give them support. Consequently, they did not seek the support of their parents and avoided having close relationships with their family members who were not safe.

4.8.5 Healing

The final theme that emerged in participants' interviews was a need for healing. Although understanding intergenerational trauma and the impacts of the residential school system helped participants to heal to a certain extent, they felt a particular need for access to more resources that would facilitate greater healing.

Some participants' referred to mental-health related resources when they reflected on healing. Only three participants in this study had accessed professional counseling that addressed trauma, and only one had received long-term counseling with an in-depth focus on childhood abuse experiences. Six participants had accessed emergency room care during mental health crises or had been in a psychiatric institution for acute mental health issues, but none of those participants had received any outpatient counseling or support. Eight participants had tried alcohol and drug counseling in the past, but only for short periods of time, and their counsellors had not addressed childhood trauma.

The majority of the young people in this study who had not received any trauma counseling had mixed feelings about the idea of accessing therapeutic resources. Half believed that they should be able to handle their pain independently, without help. These participants did not trust mental health services and therefore believed that trauma counseling would be unnecessary, unhelpful, or result in their being told they were "crazy". The majority of participants who had accessed counselling felt disappointed and unsafe about their experiences because their counsellor was insincere, they could not relate to their counsellor, or they did not have enough sessions to feel comfortable opening up about sensitive topics. Graham stated that:

I mean, if I start seeing a counselor the first thoughts that start going through my mind when I sit down with them is, is this person going to stay long? Are they going to actually listen, or? I start questioning myself about telling them how I feel.

The expectation that participants would abstain from drug use while they accessed trauma counseling was a significant obstacle. Participants dreaded having to live without self-medication as painful memories and emotions surfaced during counseling. As Sarah explained:

I have to get everything out, I guess. 'Cause counselors, I don't know, they were, but you know, I'd leave the office with, like, these open wounds and especially if I have money, of course I'm going to go, go to where I know for comfort, right? So, (crying) I don't want to use anymore.

4.9 Discussion

The triangulation performed for this qualitative inquiry into the experiences of childhood trauma and subsequent HIV risk among young Indigenous people who use drugs has validated the causal assumptions made by researchers who conducted various quantitative studies (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & Schechter, 2009; For the Cedar Project Partnership et al., 2008). However, it has also provided critical information that has not previously been put forth. In particular, the narratives we examined validated assumptions about the impact that intergenerational trauma has had on HIV risk among the current generation of young Indigenous people who use drugs. In so doing, the narratives support the theoretical perspective that supports the call for historically knowledgeable stand points on family violence among Indigenous peoples.

The young Indigenous people who shared their life stories in this study described complex and harrowing experiences of childhood abuse and neglect that had severe emotional and psychological impacts on their self-conceptions and capacity to cope with stress. They described how alcohol and drug use, the child welfare system, long-term or permanent displacement from their families, and family breakdown manifested in all dimensions of their lives. These aggregated experiences contributed fundamentally to their current vulnerability to HIV and HCV via the pathways of self-medication and self-harm.

Overall, participants' narratives conveyed three overarching messages or key findings: 1) lifetime experiences of trauma and betrayal have caused deep emotional and psychological

barriers to help seeking and healing; 2) the emotional and psychological pain related to childhood trauma and separation from family is a critical and largely unaddressed reality that continues to influence HIV and HCV vulnerability and; 3) understanding the impacts of intergenerational trauma and the residential school system on family relationships is essential to healing. The final message is of particular salience because it indicates that contextualizing their childhood in a meaningful way had a healing effect for participants and as such, might help to reduce their vulnerability to HIV and HCV infection.

Trauma and betrayal as barriers to help seeking and healing

The first message is informed by the definition of betrayal developed by researchers in the field of childhood trauma: “the dynamic by which children discover that someone on whom they were vitally dependent had caused them harm” or children’s realization “that someone whom they loved or whose affection was important to them treated them with callous disregard” (Finkelhor & Browne, 1985, p. 531). In this research the definition of betrayal must be extended to include being harmed by institutions and care-givers who have failed to provide safety or facilitate healing. Participants in the study described three types of betrayal: the betrayal of individuals who had inflicted harm upon them or who had failed to protect them from harm; the betrayal of individuals who failed to provide them with safety after they disclosed experiences of abuse, and; the betrayal of the child welfare system and therapeutic service providers, which failed to reunify families or provide meaningful resources for healing. Each type of betrayal had profound effects on participants’ relationships with their families and combined to amplify feelings of loneliness and isolation and diminish openness to rely on resources or individuals or help.

This message has critical implications for public health and therapeutic service providers. Previous quantitative research has emphasized that the effects of betrayal to include anger, a mistrust of authorities, attachment disorder, and psychological symptoms and pathologies (i.e. depression and post-traumatic stress disorder) (Finkelhor & Browne, 1985; Martin, Cromer, Deprince, & Freyd, 2013). The participants in this study explained that feelings of betrayal represented a significant barrier to maintaining family relationships and seeking health and/or therapeutic services. The vast majority of participants in this study had been abused by family members or by people who had been placed in highly trusted positions, including foster parents. This is consistent with previous Cedar Project research that has demonstrated that among the 48% of participants who reported sexual abuse in their baseline interview, the majority were assaulted by male relatives, the median age of first experience was 6 years old, only 27% had ever told anyone before, and only 35% had ever sought counseling for the abuse (Cedar Project et al., 2008). In this study, many participants were aware that the residential school system had betrayed their parents and grandparents and felt that the child welfare system had betrayed them and their siblings. Public health interventions and mental health services serving young Indigenous people who use drugs must therefore be cognizant of the effects that betrayals have had on their emotional coping abilities and capacity to trust individuals in positions of power or authority (Hildyard & Wolfe, 2002). To support the healing of young Indigenous people who use drugs, it is essential for them to receive care that is culturally safe (Brascoupe & Waters, 2009), trauma-informed (Amaro et al., 2007; Hien, Campbell, et al., 2010), and builds trust-based relationships. Interactive case management approaches are an example of innovative interventions have effectively built trust-based relationships between healthcare providers and people who use illicit drugs. The approaches have focused on secure long-term housing and the

provision of supportive counseling, drug treatment, and health care (Thompson et al., 1998). In so doing, they have promoted the self-efficacy of people who use drugs. To promote the self-efficacy of urban Indigenous young people who use drugs, programmers must allow them to be meaningfully involved in each stage of decision-making and program implementation as well as meet Indigenous ethical standards.

Unaddressed emotional and psychological pain and HIV/HCV vulnerability

The second key message conveyed by participants' narratives was that the emotional and psychological pain related to childhood trauma and separation from family is a critical and largely unaddressed reality that continues to influence HIV and HCV vulnerability. A large number of both quantitative and qualitative studies have delineated the pathways between childhood trauma and HIV risk for Indigenous and non-Indigenous people who use drugs (Brown et al., 2014; Clum et al., 2009; Kang et al., 2002; Simoni et al., 2004; Walters & Simoni, 1999; Zierler et al., 1991). Participants' narratives about the effects of the child welfare system highlighted the additional trauma of having been separated from family, which constituted a unique dimension of the grief that exacerbates vulnerability to HIV infection. The narratives affirmed the view of many Indigenous leaders and scholars who perceive the child welfare system in Canada to have supplanted the residential school system as a means to dismantle Indigenous families and ways of life (Kirmayer et al., 2003).

Participants' HIV and HCV risk was described within the context of life-long efforts to cope with the negative self-concepts, emotions, and memories associated with childhood trauma and separation from families. These efforts began with the avoidance technique of emotional/physical distancing and later escalated into heavy drinking and drug use for self-medication. Participants felt an urgent need to "numb" their thoughts and feelings, regardless of whether it put them at risk of HIV and HCV infection. This need created a quandary for the participants: receiving therapeutic help required them to abstain from drug use, but the thoughts and feelings that surfaced in therapy would exacerbate their need to self-medicate. Self-medication was therefore a barrier to accessing therapeutic help. This speaks to the need for integrated substance use and trauma programming and affirms research that recommends gender-

specific, culturally-safe, and low-threshold interventions for people who use drugs that include trauma-informed programming (Amaro et al., 2007; British Columbia Centre of Excellence for Women's Health, 2009; Hien, Jiang, et al., 2010; Smye, Browne, Varcoe, & Josewski, 2011). In addition, such interventions must be long-term, based on the principles of harm reduction, and consistently delivered in order to establish safety and trust. However, most of the harm reduction services in BC that aspire to address such barriers – especially those in the north of the province–subsist on limited budgets and do not usually provide integrated substance use and trauma programming.

Understanding intergenerational trauma is essential to healing

The third overarching message that emerged from participants' narratives was that understanding the impacts of intergenerational trauma and the residential school system on family relationships is essential to healing. Gaining this understanding was mitigating and instrumental in helping participants to gain perspective of their own trauma and its consequences. As a result, participants were able to situate themselves within the larger context of the historical injustice and intergenerational trauma experienced by Indigenous peoples in Canada as a whole. This in turn enabled them to shift blame away from their families, identify the systems and institutions that had had destructive impacts on Indigenous parenting styles and family functioning, and begin to restore their pride in their cultural identities.

However, a number of participants who knew that their parents and/or grandparents had been in the residential school system remained unaware of what happened to these family members in the schools and how those experiences may have affected them. Those participants were not afforded the same contextual understanding of intergenerational trauma as the participants mentioned above and consequently did not benefit from its potentially mitigating

influence on their anger and resentment towards their families. Goodkind et al. (2012) discussed the seemingly intentional lack of communication about the effects of intergenerational trauma between Indigenous young people and their families because the subject may be too difficult and painful. The researchers suggested that bridging this communication gap would support the development of traditional coping mechanisms and “promote collective healing” (p. 1033). For young urban Indigenous people who use drugs and are often disconnected from their families, bridging the gap will require the support of community-based programs that facilitate safe and meaningful conversations about historical and intergenerational trauma. For example, the culturally-based therapeutic programs offered by Native Friendship Centres and the Aboriginal Healing Foundation have been critical to strengthening communication and awareness among Indigenous families. Further, facilitating programs that explicate the parallels between the residential school and child welfare systems – including long-term separations from parents, feelings of powerlessness, isolation, and loneliness, and the lack of strong cultural identity and coping skills – may help young Indigenous people who use drugs to reduce self-blame and develop a compassionate perspective that motivates them to heal (Bozoki, 2014; Fournier & Crey, 1997; Lafrance & Collins, 2003). Again, the success, sustainability, and cultural safety of any such program or intervention will require the involvement of young Indigenous people who use drugs at each stage of organization and facilitation. Finally, it is imperative to address the ethics of recent decisions made by the Canadian government to discontinue funding and cut the budgets of essential organizations such as the Aboriginal Healing Foundation and Native Friendship Centres (Aboriginal Healing Foundation, 2010). Considering the government’s fiduciary responsibility for the health of Indigenous peoples in Canada, these decisions are

violations of the government's obligations to address the harms that it and its predecessors have systemically perpetrated.

In closing this discussion, possible limitations to our findings should be noted. Maltreatment may have been underreported on the CTQ. Some types and severity of maltreatments were reported in the qualitative interviews but not in the CTQ and the CTQ scores identified less severe experiences of maltreatment than the interviews, which may reflect participants' mistrust of quantitative measures or the limitations of the self-administered questionnaire. In addition, conversations allow for greater memory recall that does not necessarily occur within questionnaires. On the other hand, the CTQ provided a clearer indication of emotional abuse and emotional neglect experiences than the interviews did. This may have been due to the fact that the CTQ has a clear aim and instructions for completion, whereas the in-depth conversations with the participants were relatively unstructured. In addition, emotional abuse and neglect may be considered implicit in many of narratives shared by the participants. Although the CTQ also contributed some additional findings to the study, the participants' narratives enriched the results generated by the CTQ. Finally, though the interviewer was trained in qualitative methods and interviewing, it must be acknowledged that participants may have held back on sensitive details from their life stories due to observed differences in socioeconomic status, gender, culture, or ethnicity. The researcher aimed to reduce any such potential bias by dressing neutrally and casually, maintaining a humble and open attitude, and striving to establish both physical and cultural safety in the interviews.

The findings of this study clarify the process of the feelings of pain and betrayal associated with the early childhood maltreatment experiences of young Indigenous people who use drugs. In so doing, the findings serve the study's purpose of gaining a better understanding of

how childhood maltreatment has affected vulnerability to HIV and HCV infection among young Indigenous people who use drugs. Further, the study's theoretical research framework supported the study's findings about the continuing effects of the residential school and child welfare systems on participants' lives.

Importantly, the study found that when participants understood that their childhood abuse and neglect had occurred within the context of parents'/caregivers' unresolved grief from the residential school system, it tremendously helped them to make sense of their own experiences. A deeper understanding of the similarities between the residential school and child welfare systems may provide young Indigenous people who use drugs with further insights into their own struggles with cultural identity and family relationships. On the whole, the realities and perspectives expressed by the participants in this study convey key messages that must be considered by public health and social service providers who seek to provide meaningful and culturally safe care to young Indigenous people who have experienced childhood maltreatment and use drugs.

Chapter 5: “I just think it’s a cycle”: Cycles of trauma and finding the strength to survive among young Indigenous people who use drugs in three Canadian cities

5.1 Introduction

In the 500 years since European colonization of North America, Indigenous peoples have been forced to endure many changes and atrocities including forced removal from traditional lands that severed their spiritual connection to the lands, cultural genocide, and systemic apprehension of their children (Chansonneuve, 2005; Milloy, 1999; Wesley-Esquimaux & Smolewski, 2004). The national residential school system was one of the most comprehensive, long-term, and damaging facets of colonization in Canada. It was designed to alienate Indigenous children from their cultures, languages, and communities, Christianize them, and assimilate them into mainstream society (Chansonneuve, 2005; Kelm, 1998; Miller, 2009; Milloy, 1999). From 1874 to 1996, the system deprived over 150,000 children of ties to their communities, families, and traditional ways of child rearing and systemically devalued their Indigenous identities. Testimony from thousands of former residential school students have also demonstrated that the schools were opportunistic sites of sexual, physical, and emotional abuse for predatory staff. As a result, staggering number of children died due to neglect, and most of those who survived were irreparably harmed (Canada, 1996; Hylton, 2002). As Indigenous authors explain, the legacy of colonization and the residential school system is a “soul wound” of deep-seated grief and loss (Duran et al., 1998, p. 341).

According to Indigenous authors Duran et al. (1998), the soul wound is “a reaction to the multigenerational, collective, historical, and cumulative psychic wounding over time, both over the life span and across generations” (p. 342). As such, it is a manifestation of historical and intergenerational trauma and is evident in the disproportionately high number of Indigenous people who struggle with interrelated crises, including family violence, family fragmentation, poverty, addictions, a loss of traditional practices, a lack of role models, and feelings of isolation (Chansonneuve, 2005; LaRocque, 1994; Tousignant & Sioui, 2009). The complex vulnerabilities that characterize intergenerational trauma have been associated with negative health outcomes that include a high incidence of infections and chronic diseases. Among these, the disproportionate rates of HIV and hepatitis C (HCV) infection among Indigenous peoples are of particular concern (Public Health Agency of Canada, 2010b, 2010c).

Legal and policy injustices that are systemic (i.e. they expressly aim to suppress Indigenous culture and connection to lands) and structural (i.e. they provide insufficient economic and social support) continue to impact Indigenous peoples in contemporary Canada and perpetuate vast health and quality of life inequities between non-Indigenous and Indigenous peoples (Adelson, 2005; Christian, 2010). For example, the Canadian child welfare system continues to inflict individual and collective trauma on Indigenous peoples due to per capita funding that incentivizes the long-term separation of Indigenous children from their families, communities, and cultures while providing scarce support for family reunification and healing (Blackstock, 2008; Blackstock & Trocmé, 2004; Fournier & Crey, 1997; Johnston, 1983; Trocmé et al., 2006). Further, the intergenerational transmission of the soul wound is becoming increasingly recognized as the cause of mental health challenges faced by among young Indigenous peoples—particularly those who are the children and grandchildren of residential

school survivors and those who have been separated from their families and cultures due to the child welfare system (Blackstock, 2008; Bombay et al., 2011; Fournier & Crey, 1997; Kirmayer et al., 2014). For example, a study of 143 Indigenous peoples in Canada demonstrated that participants who had at least one parent who had attended residential school exhibited significantly more depressive symptoms and a greater reactivity to lifetime stressors than participants' whose parents had not attended residential school (Bombay et al., 2011).

However, Indigenous Elders and scholars have emphasized that Indigenous peoples are inherently resilient (Lavallee & Clearsky, 2006). This is evidenced by the survival of many traditional practices, languages, and spiritual beliefs that provide Indigenous peoples of all ages with psychological and emotional buffers against ongoing adversity (Henderson, 2008; Kirmayer et al., 2003; McIvor et al., 2009). This has also been supported by quantitative research among diverse populations of Indigenous peoples. A growing body of literature has demonstrated significant associations between access to Indigenous culture, language, and spirituality and positive health outcomes, including good family relationships, the cessation of alcohol use, decreased rates of youth suicide, increased emotional wellbeing, and decreased criminal activity (Andersson & Ledogar, 2008; Chandler & LaLonde, 1998; Currie, Wild, Schopflocher, Laing, & Veugelers, 2013; Torres Stone et al., 2006). These studies have provided valuable information on the complex effects that intergenerational trauma has on mental health and identifying the psychological processes involved in young Indigenous people's experience of trauma. For example, in a study that involved youth and young adults from the Diné tribe in New Mexico, U.S.A., Goodkind et al. (2012) revealed that a breakdown the intergenerational transmission of traditional teachings continued to disrupt families and undermine the health of entire communities. Other qualitative studies have also described how young Indigenous people

develop and apply cultural strengths that help them to respond to adversity in healthy ways. Wexler et al. (2014), who carried out qualitative research with Inupiaq youth living a village in Alaska, U.S.A, conducted one such study. According to the researchers, many Inupiaq youth who had lost close relationships with friends and family due to alcohol/drug use or being adopted developed resilience when they participated in traditional community activities that gave them pride in Inupiaq cultural identity and facilitated connections with Elders.

These studies provide critically important information about how cultural interventions can interrupt the cycle of intergenerational trauma to support the mental health of young Indigenous people in Canada who are living in rural communities. However, as Fleming and Ledogar (2008b) have pointed out, it is important to highlight that there is an lack of understanding about the supports needed for the large proportion of Indigenous people in Canada who are young, living in cities, and may be disconnected from their home communities, languages, cultures, and spirituality. In 2011, 56% of Indigenous people (with a median age of 28) in Canada were living off-reserve and in urban areas (Place, 2012; Statistics Canada, 2014). Although many young, urban Indigenous peoples are thriving (Environics Institute, 2011), Indigenous leaders and health service providers are deeply concerned about those who are experiencing the negative outcomes of historical trauma (Christian, 2010; Christian & Spittal, 2008).

5.2 Objectives and rationale

Supporting the health of young, at-risk Indigenous peoples is a critically important public health imperative. However, there is a lack of understanding of how the interaction between systemic or structural challenges (i.e. the child welfare system and poverty) and intergenerational trauma has specifically impacted young, at-risk Indigenous peoples. This represents an important

gap in the academic literature, especially in light of empirical evidence indicating that the intersection of intergenerational trauma and institutional violence exacerbates negative health outcomes among young Indigenous people, including the incidence of HIV and HCV infection (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & Schechter, 2009; For the Cedar Project Partnership et al., 2008). For example, previous research carried out by the Cedar Project that involved 605 young Indigenous people who use drugs in Vancouver and Prince George, BC, demonstrated that participants who had ever been in foster care were twice as likely to be HIV positive compared to participants who had never been in foster care (Clarkson, 2009). We sought therefore to address this research gap by conducting a qualitative study of in-depth interviews carried out with young Indigenous people who have experienced childhood maltreatment and use illicit drugs. The study objective was to establish a deeper understanding of the processes that have enabled these young people to cope with the stresses of intergenerational traumas while facing substantial institutional and structural barriers to wellness. In addition, this study sought to highlight the pathways to healing and sources of strength that have supported them and given them hope for the future.

5.3 Overview of the study

The present study focused on themes and patterns that illustrated participants' motivation to survive and find hope for the future while living with the effects of intergenerational and lifetime trauma. The decision to have this focus was based on numerous consultations with members of the Cedar Project Partnership in quarterly meetings and specially scheduled meetings to address critical research issues and ethical concerns. Since the inception of the Cedar Project cohort in 2003, we have received governance and oversight from include Indigenous leaders and Elders, representatives of HIV/AIDS service organizations, child and family experts,

and community advocates. The present study represents a collaborative research endeavour between the researcher and the Partnership and between the researcher and mentors within the Partnership that began in 2009. Meetings with the Partnership affirmed that investigating Cedar Project participants' lived experiences of trauma and the pathways that led to HIV-vulnerability was essential to generating recommendations for young Indigenous people who use drugs. More specifically, the Partnership indicated that identifying the strengths and community supports that facilitated participants' resilience was essential to making informed recommendations for their wellness and healing. This was regarded as particularly important, because most programs designed to address substance use and HIV and HCV risk among young Indigenous people have been identified as ineffective because they are not culturally safe, do not address the complexities of lifetime and intergenerational trauma, and lack knowledge about how to nurture the strength that is inherent to Indigenous cultural identities (Fleming & Ledogar, 2008b; Lavallee & Clearsky, 2006; Mitchell & Maracle, 2005; Nechi Institute, 2002).

5.4 Theoretical approach informing the study

This study was informed by theories that acknowledge the cumulative impacts of colonization – particularly the residential school and child welfare systems – on the lives of Indigenous families today (Chansonneuve, 2005; Duran et al., 1998; Fournier & Crey, 1997; Wesley-Esquimaux & Smolewski, 2004). Importantly, this theoretical framework is informed by previous Cedar Project research that has demonstrated that young Indigenous people who are struggling with substance use, violence, and vulnerability to HIV and HCV infection may also be struggling to cope with unresolved lifetime and intergenerational trauma (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & Schechter, 2009; For the Cedar Project Partnership et al., 2008; Pearce et al., *In Press*).

This study's theoretical approach was also informed by research that emphasizes the importance of recognizing Indigenous peoples' inherent strengths, including cultural resilience and resistance in the face of multifaceted adversities (Dion-Stout et al., 2001; Kirmayer et al., 2011; *Research as resistance: Critical, indigenous, and anti-oppressive approaches*, 2005). Resilience researchers have explained that the capacity for resilience, or, *positive adaptation despite adversity* (Luthar et al., 2000), of an individual is recognized to be a variable and malleable quality that is highly influenced by the facility of the social environment to nurture healthy development in challenging contexts (Ungar, 2008). That is, resilience is a quality that may be present for one area of risk but absent for another, may change over time, and is largely affected by the social and environmental resources available to individuals. Therefore, in addition to recognizing cultural sources of strength for young Indigenous people who have experienced trauma and use drugs, we must also consider the institutional and structural resources within Canada that either create barriers or facilitate wellness. Finally, the theoretical approach to this study incorporated knowledge shared at Cedar Project community ceremonies and knowledge translation events in 2012 and 2013, both of which highlighted how powerful the voices of young Indigenous people who use drugs are when they openly share about their life experiences and what they need to move forward.

5.5 Review of study setting, participants, and data collection methods

This qualitative research used purposive sampling to enroll 30 participants from the Cedar Project who met eligibility criteria. Cedar Project study staff approached Cedar Project participants who: a) had completed a Childhood Trauma Questionnaire (CTQ); b) seemed to the staff to be 'typical' in their experience of childhood maltreatment and/or in their lived experiences, and; c) were open to the idea of having a long conversation with a female researcher

about their lives. Nearly all participants were interviewed in the Cedar Project study locations between October 2011 and June 2013. A majority of the interviews were carried out in private offices at Cedar Project study sites; two took place in private meeting rooms at local service organizations. Of the 30 participants who participated in this study, 18 (60%) were women and 12 (40%) were men. Seventeen participants (56.6%) were based in Vancouver, 11 (36.6%) were based in Prince George, and 2 (6.6%) were based in Chase. The participants' median age was 32 at the time of their in-depth interview, (Range: 21-39). In total, five participants (16.6%) were HIV positive, 12 (40%) participants were HCV positive. Eighteen participants (60%) had used injection drugs. Twenty-nine participants (97%) recalled experiences of childhood maltreatment in their in-depth interviews. Twenty-one of these (70%) described being sexually abused, 18 (60%) described being physically abused, nine described being emotionally abused (30%), 18 (60%) described being emotionally and/or physically neglected, and 14 (47%) described witnessing violence.

The in-depth interviews relied on a loosely structured topic guide that allowed participants to contextualize any experiences of childhood maltreatment, substance use, and HIV and HCV risk within temporal or causal sequences of events, individuals, and environments. The topic guide covered circumstances of childhood and adulthood, emphasizing participants' recollections of childhood experiences and emotional responses, family relationships, transitions into risk behaviours such as drug use and sex work involvement, intimate relationships, mental health issues, and sources of strength. The interviews were audio recorded using a digital recording device. With the aim of listening to narratives of experiences, participants were encouraged to 'start at the beginning' of their life story, but we did not enforce a set timeline because we wanted participants to articulate their complex and interwoven memories in a

narrative that felt natural. The results of the CTQ for the participants who had in-depth interviews are not presented in this chapter but are described in Chapter 4 of this dissertation. More details on the study setting, participants, and data collection methods may be found in Chapter 3 of this dissertation (pages 58-61).

5.6 Analytical approach

An interpretive thematic approach was used to analyze the qualitative data (Starks & Trinidad, 2007). This method of analysis allowed for engagement as witnesses of the ways in which young Indigenous people who use drugs have coped with the stresses of lifetime and intergenerational traumas while facing substantial institutional and structural barriers to wellness (Starks & Trinidad, 2007). Stress-coping in this study refers to both the risk and protective strategies that Cedar Project participants used in order to adapt to – and survive – emotional, physical, mental, and spiritual stresses related to historical and lifetime traumas. Each participant was given a pseudonym in the analysis to protect their confidentiality. Codes were created by categorizing specific statements into groups of meaning that represented subjects of interest, exploring taken for granted assumptions and paying special attention to the descriptions of *what* participants experienced and *how* they experienced it (Starks & Trinidad, 2007). For example, in this study, special attention was paid to participants' descriptions the continuing effects of childhood maltreatment and intergenerational trauma on their present lives and identifying ways in which the participants had positively adapted to challenges. The strategy of “constant comparison” (LeCompte & Schensul, 1999, p. 75) was used in the reintegration of the data, wherein central themes and relationships were drawn across all of the participants' narratives (Starks & Trinidad, 2007). The data were organized and coded using NVivo 10, a qualitative software package (QSR International Pty Ltd., 2012). Words, phrases, and quotes that illustrated

the concepts, patterns, and themes were drawn from the transcripts. The analysis was continually evaluated during frequent discussions with study staff, thesis committee members, and the researcher's mentors from the Cedar Project Partnership, which strengthened the credibility of the data. In addition, cross comparisons with existing Cedar Project studies and the triangulation of quantitative and qualitative data enriched the rigor and trustworthiness of the analysis. The coding scheme and analysis were presented to the Cedar Project Partnership on December 6, 2012, and members provided critical feedback and consensus about the themes to be interpreted and the associated recommendations. Extensive notes were taken to document all decisions and insights at each stage of the research. Further details on the analysis of this data may be found in Chapter 3 (pages 61-63).

5.7 Study findings

Participants' recollections of childhood maltreatments and their responses to those experiences were both vivid and vague. Their maltreatments included physical, sexual, and emotional abuse as well as emotional and physical neglect, and witnessing violence. Most participants experienced multiple types of abuse by different offenders at different times and the most common offenders were parents and other family members. The participants indicated that their childhood maltreatment had taken place in adverse and unpredictable conditions that included poverty, food insecurity, single parenting, alcohol and drug use, problem gambling, unaddressed mental and emotional health issues, and violence.

The majority of participants had been taken into the child welfare system and experienced long periods of separation from their families. For many, this was a long, frustrating, and lonely period of going in and out of foster homes and/or group homes and being subject to the political and organizational dynamics of social workers and family courts. Participants

explained that they began using alcohol and drugs and engaging in self-harming behaviours in order to escape from that reality and become emotionally “numb”. In addition, the majority of participants had relocated to various smaller towns and cities as youth and young adults.

Participants in this study were young adults at the time of their interview. They began their life histories with a description of their early childhood and family environments, then proceeded to talk about their circumstances at the time of their interview. As participants’ narratives unfolded, they described their emotional and psychological struggles, cycles of self-medication, difficulty with relationships and parenting, and other realities of being street-involved in Vancouver, Prince George, and Chase. Further, they reflected on the impact that unresolved historical and lifetime trauma had had on their present lives and what they felt they needed to heal.

Our analysis of the qualitative data focused on identifying processes that have enabled these young people to cope with the stresses of intergenerational traumas while facing substantial institutional and structural barriers to wellness. This analysis yielded four broad themes: negative self-beliefs; struggling to break cycles of intergenerational trauma; acknowledging strengths and making positive changes, and; hopes and dreams. Excerpts from the life history interviews are discussed to illustrate these themes and the patterns and concepts that characterize them.

5.7.1 Negative self-beliefs

Though all but one of the participants in this study reported that they had experienced some form of childhood abuse and/or neglect, few had received counseling or supports to help them deal with the impact of those experiences. The grief and anguish participants had endured as a result of childhood maltreatment and family separation was therefore largely unaddressed at the time the in-depth interviews took place. Participants’ narratives depicted a raw and

frightening reality of childhood abuse and/or neglect and demonstrated how the internalization of fear led to the creation of negative self-beliefs. Those who had been sexually abused developed negative self-beliefs that they were “disgusting” and felt “ashamed”. Those who had been emotionally abused saw themselves as “worthless”, “useless”, and “stupid”, while those who had been physically abused felt they were “weak”, “low”, and “hateful”. The harsh conclusions participants had drawn about themselves as children stayed with them to the present day and frustrated their attempts to get out of “the life” of addiction and street involvement. Their negative self-beliefs were therefore associated with self-medication, sex work, violence, incarceration, and vulnerability to HIV and HCV infection.

Self-medication

Most participants recognized that their deeply-rooted negative self-beliefs had motivated them to “numb” their emotions, which led them to engage in damaging drug use behaviours. This painful realization typically came to them over time as they reflected on their drug use patterns. Participants recalled feeling frustrated about their drug use and asking themselves difficult, critical questions such as “why the fuck do I do this to myself?” This was the case for Jane, whose early life in Prince George involved frequent beatings and verbal assaults by her mother – whom she said was schizophrenic – attempted molestation by her step father, and years in foster care. She explained that her current struggle to quit heroin and leave Vancouver’s downtown eastside was related to internalized beliefs about her self-worth that she had held since childhood:

I use drugs so I don’t have to feel, pretty much like everybody. And I keep coming back to the drugs [whispering] because I don’t feel I deserve a better life. It took me many years to say that [crying]. But I know. It’s why I clean up for so long and then I end up back here. ‘Cause everything goes good and then sometimes too good and I sabotage myself. And I honestly think that comes

from my childhood. Never being good enough. I've only been able to say (that) recently.

Sex work

Most of the young women and a few of the young men in this study had previously been – or currently were – involved in street-based and/or indoor sex work. Most participants became involved in sex work in late adolescence or young adulthood, but a few transitioned into it in early puberty closely after being sexually abused or while they were being sexually abused. Nearly all of the participants who had been involved in sex work had been sexually abused as children. Several stated that sex work initially gave them a “rush” because it resulted in good, fast money, and some of the women said they enjoyed it at first because it gave them attention from men. However, most of the participants felt that the person(s) who had sexually abused them as children had taken away their self-worth and contributed to their development of “low self-esteem”, leading them to feel indifferent about the emotional and physical implications of selling sex for money or drugs.

Each participant described feeling unsafe and being victim to unpredictable violence while being involved in sex work and most had eventually wanted to get out of sex work. This was the case for Helen, who had been raped by her babysitter, molested by her cousins, and severely beaten and verbally abused by her father. These experiences had left her “hating myself” and feeling like she was “disgusting”. These emotions were evoked when she described being coerced into sex work by an intimate partner who was violent when she was 20 years old:

And I just numbed myself when I was out there. I would just numb myself and I would just say (to myself), just only think about when the date is over. Only think about that, like, close your eyes and only think about when they're handing me the money and kicking me out of their vehicle and that's all I'd keep in my head. The whole time that's all the record that played in my head over and over and over again. So I wouldn't have to think about the act of what I was doing to get drugs.

Violence

Some participants acknowledged that their negative self-beliefs were associated with profound anger and hatred. Those participants said they had had “anger issues” when they were young and living in foster homes, group homes, or juvenile detention centres. This led them to violent outbursts such as “slashing and lashing out” because they did not know any other way to communicate their pain, loneliness, and frustration. As they grew older and became more street-involved, some participants cast aside self-beliefs that they were “weak” and began to perceive themselves as “strong” and “tough”. Believing that they were “really scary and intimidating to people” enabled these participants to conceal their hurt and vulnerability. This was the case for Ellen, who had been physically abused, emotionally abused, and neglected by her mother. Ellen later became involved in an extremely violent relationship with an intimate partner and felt trapped in that relationship. She explained that deciding to fight back against her intimate partner and anyone else who threatened her allowed her to feel strong and in charge of herself and her environment:

After all that I’ve been through I became very violent, myself, and I used to always beat a lot of people up. I was strong, I was tough and a lot of people are scared of me to this day on the street. Like, I never backed down from anybody because who could put me through more pain than I’ve already been through growing up all my life? So I stood my ground. I wasn’t gonna let anybody fuck me around anymore.

Most participants had been in intimate relationships that turned violent when they were adolescents and young adults. Both male and female participants reported that they had been raped, slapped, punched, kicked, thrown out of cars, dragged by their hair, threatened with knives, and called insulting names by their intimate partners. One participant explained that her partner’s violence reinforced her pre-existing negative self-beliefs that she was “disgusting and

low”. Such beliefs contributed to power imbalances in the women’s relationships, which combined with their need for money and access to drugs to create dependencies on male partners. On some occasions, they needed help with injecting and had to reuse rigs. Consequently, several of the women had been infected with HCV while in relationships with men who were violent. This was the case for Janet, who, at 13 years old, became intimately involved with a 34-year old man who used injection drugs. She soon began injecting drugs herself. The relationship was extremely violent, and one year later, she was forced into sex work in order to fund her and her partner’s cocaine addiction. Janet reflected on the imbalance of power and negative self-beliefs that had characterized the 15-year relationship when she remembered the occasion on which she had likely become HCV positive:

Hepatitis C I got, I got in ‘97. Or ‘96 I think it is. I don't know, I don't know where I got it...I think I got it from, from (him) because, ‘cause there was the spoon where we were mixing up, some, I think he dipped his (rig) in my spoon....It was cocaine and he was jonesing for my, jonesing for my coke. He had his own. I bought, I supplied the drugs. ...What he did was from me. I supplied everything. Ever since I first met (him) I been supplying him with everything. I had the money all the time cause I was using my mouth all the time and, ugh, I was supporting his habit. I did everything for waiting on him hand and foot through everything and I, he still shit on me so I been, it was really bad for me. And he was beating me, so.

Incarceration

Many participants were in and out of jail as a result of interpersonal violence in relationships and on the streets. This cyclical experience was described as a “revolving door”. The cycle of recidivism typically began in early adolescence shortly after participants were placed in the child welfare system. Shorter stays in the juvenile detention system became longer stays in the adult corrections system. Some participants emphasized that they had become indifferent to recidivism early on because they had come to believe that they “had nothing to

lose”. Their lack of concern about incarceration and its consequences reflected the devaluation of their self-worth and the self-belief that they had nothing to contribute to a society. Moreover, some participants felt that being incarcerated was a positive experience because it gave them a sense of belonging and hardened them both emotionally and physically, which allowed them to be more secure on the outside. This was the case for 34-year-old Max, who had been emotionally neglected and abused by his guardians, raped on his 14th birthday by his foster father, and incarcerated for a total of 11 years at the time of his interview. He reflected on his early years of recidivism in juvenile detention (“juvy”) and then his later years in adult corrections:

I did a lot of time. I don't know. I think, um, when I was a kid doing a lot of time in juvy was my way of crying out for help. ...Because every, like, every second week I was in, I was in YDC (Youth Detention Centre) and I actually liked it in there because, I guess also because there I felt like I fit in and everything because I, I was kind of one of, one of the badass kids that I turned into. I don't know, it's just I guess everything that's happened to me in my life just chan-, changed my outlook on everything and sort of turned me into not really a badass but it just hardened me.

Max's narrative demonstrates how incarceration influenced participants' self-beliefs. Max indicated that he felt weak and powerless when he was first incarcerated as a juvenile who was basically “crying out for help”. Later, incarceration gave him the self-belief that he was “sort of...a bad-ass”, which helped him to feel strong and invulnerable – emotions that were also desirable for the dangers he faced on the street, in addition to frequent encounters with racism and discrimination.

HIV and HCV infection

Five participants were HIV positive at the time of their interview; two stated that they had become infected via heterosexual sex, three via injection drug use. Twelve participants were HCV positive and each had become infected via injection drug use. All of these participants'

narratives uncovered negative, devaluing self-beliefs that prevented them from taking the precautions of using condoms or clean injection equipment in order to avoid contracting HIV and/or HCV infection. Each participant described feelings of hopelessness and “not caring” about whether they were at risk of infection. For example, Chloe’s sense of worthlessness stemmed from being molested by her grandfather, receiving severe corporal punishments from her father, and being starved physically and emotionally by her mother. Additionally, while in foster care she was molested by her foster father, who offered her money to keep quiet about it. Her narrative about how she became HIV positive revealed that not taking precautions with injection drug equipment was a way to self-harm and punish herself. Chloe remembered reasoning that becoming infected with HIV was a way for her to give up on her life:

I had gotten HIV, um, I don’t know when. Yeah, probably 8 years ago. Um, basically on purpose. Not consciously but unconsciously I wanted a reason for where I was at. To have a reason to have given up and I remember thinking that (HIV) would be a good reason and sure enough I did end up getting it and went into a depression at that time.

5.7.2 Struggling to break cycles of intergenerational trauma

The second broad theme that emerged from participants’ narratives was their continuing struggle to break cycles of trauma and the associated impacts of family separation. Some participants realized that the continuing impacts of their childhood trauma were an extension of trauma that had begun generations before them. As a result of this realization, participants sought action-oriented approaches that would enable them to cope with their circumstances in less harmful ways, to rebuild family relationships, and to stop the transmission trauma in their own families. These approaches included understanding the residential school experience and the

intergenerational cycle of trauma; forgiveness; cutting back on drug use, and; confronting the challenges of parenting.

Understanding the residential school experience and the 'cycle' of family trauma

Seventeen of the participants had had a parent or grandparent who had attended residential school. Some of those participants knew about what had happened to their parents/grandparents in the schools, which helped them to have compassion for their parents/grandparents and better understand the struggles and adversities that had characterized their families' lives. This was especially true for participants whose parents, grandparents, or caregivers had spoken openly to them about their residential school experience. However, other participants explained that they knew that their parents had attended residential school, but the subject was off-limits or too sensitive to talk about with their families. Those participants gained knowledge about residential schools later in life, typically through community events. Learning about the horrors their parents/grandparents had endured allowed some participants to reappraise their own life history and helped them to make sense of the cycle of intergenerational trauma and the extreme loss that had afflicted their families across generations. Gaining this new perspective helped Katrina to understand why her parents had neglected their children's' emotional and physical needs. Both of Katrina's parents were residential school survivors, had struggled with addiction to solvents, and acted out in extreme violence. Katrina explained:

Well, my, I know my parents went through it when they were in residential school, right? And the effects they had, they took it out on us, right? I think it's, uh, uh, a cycle, right?...What they went through. I don't know. I just think it's a cycle. Yeah. Yeah. Residential school did a lot on their lives...I tried to talk to them about it but they didn't want to talk about it. I could understand why, right?

It is important to note that not all the participants' narratives about their knowledge of the residential school experience indicated that they had immediately connected historical trauma to their own emotional, physical, mental, and spiritual health. This was particularly true for those participants who not spoken with their parents/grandparents about residential schools and learned about the system at community events. Nevertheless, the compassion they gained for their parents/grandparents and subsequent understanding of what their parents/grandparents had suffered was a critical juncture in terms of opening up a pathway to healing.

Forgiveness

A small number of participants were able to forgive their family members to a certain extent because they 1) understood the residential school experience and cycles of trauma, and 2) received a sincere apology from a family member/caregiver. These participants' narratives expressed compassion towards offending parents or caregivers, renewed trust, and repaired relationships. Importantly, those parents or caregivers had usually undergone their own healing process. This was Claire's experience with her father, a residential school survivor who had regularly beaten her when she was a child. His beatings became severe when she had told him that she was being sexually abused by her uncle, and Claire and her siblings were subsequently placed in foster care. Claire described the reconciliation that occurred after being reunited with her father, who had received treatment:

My dad took these anger management courses and stuff and everything else and then my dad finally got us back (from foster care) and when he got us back he was just crying. I don't like seeing my dad cry but he was just crying really hard. He's like, 'I'm so sorry for what I put you through.' But he's my dad and he's always been there...Made me cry. I still want to cry.

However, some participants had received apologies from parents or caregivers that seemed insincere in tone, which for them was not enough to facilitate a true reconciliation. Other participants had not received an apology at all from parents or caregivers. In these participants' view, the offending parents and caregivers were unwilling to acknowledge the pain and hurt they had caused. As a result, the cycle of trauma had not been addressed and distant relationships had not been renewed or repaired. The absence of an apology or the perception that an apology was insincere led many participants to completely cut ties with their parents or families. This was the case for Ellen, who struggled to forgive or build a relationship with her mother:

(Mom) said that she blames herself for the way I turned out and for the life I've led myself into but, no, she's never really apologized. You know, in a, in a deep way she never acknowledged or brings it up. She just says, 'I know what I did was wrong.'

None of the participants who had been sexually abused received an apology or an acknowledgement of the impact of the abuse from their sexual offender, and none expressed any interest in forgiving the offender or reconciling with that individual. For those participants, the betrayal involved in their sexual abuse and its lifelong consequences were too great to forgive, even if the offender had gone to jail for the crime. For some, partial relief came only when the sexual offender had died and was therefore no longer potentially hurting others in their communities.

Having or not having forgiven offending family members was significant with the respect to the theme of struggling to break cycles of intergenerational trauma. Forgiveness often determined whether or not participants were in contact with families or had rebuilt relationships with them, which was critical to breaking the cycle of trauma and beginning the process of healing.

Cutting down on drug use

All participants had tried to curtail their drug use in the past or were currently trying to cut down on it at the time of their interview. This pattern reflected a desire to curb the more harmful outcomes associated with drug use, such as HIV infection and homelessness, and an awareness that self-medication functioned to suppress unaddressed grief and intense feelings related to childhood trauma. Participants talked about trying to “slow down”, “wean off” or “cut down” their alcohol and drug use, and about wanting to be “in control” of alcohol and drugs. Many saw reducing their substance use as a prerequisite for reconnecting with their families. Some were motivated by the desire not to emulate their parent’s alcohol/drug use or to not repeat family cycles of alcohol/drug use with their own children, which would bring regret later on in life. For example, Connor, was adjusting to being out of prison, taking HIV medications, and undergoing methadone maintenance therapy while reducing his use of more harmful drugs so that he could be a better father to his newborn daughter. He explained that he was reducing the harms he inflicted upon himself for the sake of both his health and his baby’s health :

Not (going to) drink ‘cause they said that’s the worst for HIV is alcohol and cocaine so I just quit those but it’s been kind of hard for me to quit the crack though, it’s really hard. But since I’ve had this baby I’ve, I’ve been able to quit so, it’s, should be easy now. Give, gives me something to do.

Chloe was also actively cutting down on her drug use because her son was soon aging out of the foster care system:

I don’t want to wake up another 10 (or) 5 years down the road and regret it and also knowing that (my son) is going to be 18 soon, I think of him every day. I dream of him all the time. Um, it’s making me get my shit together a little more. I’ve lived my whole life with dope. Now, I probably do in a week, an average week, maybe \$30 worth of dope. Like, barely anything.

Challenges of parenting

Twenty-five of the participants had been taken from their biological parents and placed in foster care. Twenty participants became parents to one or more children as adolescents or young adults and all those children were either currently in foster care or had been in the past. Only four participants had custody of their children at the time of the interview.

Participants' narratives about becoming a parent and learning how to raise a child highlighted their deep concern for the health and happiness of their children. A host of challenges had made the pressures of parenting especially difficult for them. These included being a single parent; managing the stresses involved in meeting small children's needs; living in poverty; having unstable relationships with their child's other parent; feeling pressured by the expectations of social workers, and; emotional ups and downs related to unaddressed anger and sadness. Participants spoke about the difficulty of dealing with these challenges while also trying to reduce or control self-medicating around their children.

Not surprisingly, participants expressed constant anxiety about the possibility of their children having the same negative childhood experiences that they had had. Many spoke about a moment when they realized that they were at risk of continuing the cycle of trauma by passing on their pain to their own children. Examples of this were when felt upset and ashamed after losing patience and slapping a child, found themselves unable to cope with the persistent needs of a child, and recognized the harms of exposing their child to an environment in which hard drugs were being used. Such circumstances led some participants to make the difficult decision to place their children into the care of the child's other biological parent, their own parents, extended family members, or the Ministry of Child and Family Development. Ellen explained that the multiple and complex challenges she was facing led her to place her children in foster

care in order to ensure that they did not experience the same adversities she had experienced as a child:

All I have to say is that I'd never put my kids through what I, my mom did with us. I can't ever do that. That's why I gave up my kids, I think, was because I think they can have a better life than what I could give them cause I was a drug addict and I was a prostitute and I was homeless.

In the wake of the decision to place their children into the child welfare system, participants spoke about having lost hope that they would break the interrelated cycles of childhood trauma and family separation, as they felt forced to decide to break one cycle or the other. This was the case for Chloe, who made the painful choice to put her son into foster care in a final effort to ensure that he did not experience the same abuse and neglect that she had experienced as a child:

...I don't see (my son) at all. I didn't want to be any influence on his life like my mother was on mine...I, um, one day I would like to be but it won't be the way my mom...I thought I was going to be the one to break this cycle. I was in a way, but I thought I was going to be the real one to break the cycle.

5.7.3 Acknowledging strengths and making positive changes

I think I took so much shit as a kid and I couldn't do nothing about it...I couldn't do nothing as a child so I'm gonna sure as hell do something about it now. (Ellen)

Acknowledging strengths and making positive changes was the third broad theme that emerged in our qualitative analysis. Although participants expressed negative self-beliefs and recalled times of hardships, their narratives shifted to stories indicating that they were at a significant turning point in their lives in that their choices, actions, and perspectives were becoming more positive and hopeful. In the course of their interviews, participants made a

conscious effort to acknowledge their personal strengths and efforts to overcome adversities. This in turn inspired the participants to envision a future that was not defined by the destructive impacts of past experiences. The positive self-beliefs they expressed included “I’m a survivor”, “I’m an extremely strong person”, and “I’m resourceful”. The development of such strength-based self-beliefs and the self-worth they signified were related to making safer choices and accessing supports.

Making Safer Choices

Making choices and actions that reduced the harm caused by drug use reflected participants’ recognition of their strength, their desire to survive, and the increasing value they placed on their health. Their discussions about harm reduction programs such as needle exchanges and outreach nursing services demonstrated that accessing these programs was common among people who use drugs in the downtown areas of Vancouver and Prince George. However, participants expressed greater interest in more drastic changes to their patterns of drug use, such as transitioning out of injection drug use entirely. Some made the decision to smoke drugs such as crack or heroin after determining that it was safer than injecting drugs. Sarah explained that one of her strengths was her intellect (“I, um, am very intelligent”), which enabled her to make safer choices for herself based her ability to foresee the consequences of her actions. She recognized that she had been self-medicating unbearable emotions and memories associated with having been molested and battered by her step-father. Further, she was aware that continuing to inject drugs would likely lead her to overdose. Sarah said:

I tried (injecting heroin) for the first time...and it was just like they say. It was heaven. It was warm, it was loving feeling. And so I, I made that choice then and there, I'm never going to do it again because I know every time you have to do more and more and more. And then...there's the chance of

overdosing... Yeah, I liked it too much. I knew if I kept doing it, it would eventually lead to me dying.

Participants took great pride in making the safer decision to not inject drugs, even though it was tempting because it gave a more intense high. The most common reasons to not inject drugs were fear of overdosing and fear of “going that far” as an addict. Some participants were also turned off of injection because of its visible physical and emotional ramifications. For example, Adam explained what why he had decided he would never inject:

I don't want to look like that. You know, I, I just, like, seen people how strung out they get, how they're nodding out and then their, then their scabs all over their body and they're crying and hurting.

Deciding to not inject drugs decreased participants' risk for HIV and HCV. This factored into Mitchell's decision to not inject, along with his desire to not repeat what he had witnessed in childhood. Both of his parents had used injection drugs, and his mother had passed away due to an overdose, while his father had died of an HIV-related illness. Although Mitchell had been beaten by his father and had witnessed his father beat his mother, he had positively reframed and redirected his past experiences by believing they had made him a “stronger” person and resolving to never be violent toward women or inject drugs. He recalled a night during his adolescence that profoundly influenced his future:

My dad, waked, smacked me in the middle of the night. Get up, fix me. Yup, get me to fix him... I was probably, like, say about, probably about fourteen, fifteen. I fixed him, fixed him every, probably two, three times a month... I must, not once in my life, put a needle in my arm. Not once. Ever. I watched too many of my cousins and them all OD (overdose) in front of me but I revived them. I revived my parents, say about, twice... I thought about (injecting) once but I was like, nah. I was mostly into smoking crack.

Participants' narratives of safer choices also included decisions about sex work. As previously mentioned, the majority of the female participants and some of the male participants been involved in sex work in the past or were currently involved in it. Most had experienced bad dates while working on the street. Some participants therefore sought to work for one client, or a "sugar daddy", in order to minimize the risk of violence being performed against them and to have the opportunity to work indoors. They explained that this situation was more "comfortable" and provided a more practical way to secure drugs, housing, or food. In addition, a stable arrangement sometimes turned into an intimate partner relationship, which enabled participants to avoid sex work for a longer period of time and possibly reduce their drug use. For example, Chloe explained the financial, emotional and safety advantages of a sugar daddy relationship:

I was working on the street. I had met a guy in the building who was a regular and then I ended up moving in with him because I figured it was better to give one guy what he wanted than being out on the street corner so he got what he wanted and I got what I wanted and it kept me safer. Yeah, I got a job being with him and my habit was taken care of. He was my gravy train. When I had (my son), I really thought I could learn to be in love with him. I could have little family. I even thought that after being clean with (my son) for a year I wanted another baby with him.

Some participants had transitioned out of sex work. The most common reason for this was that they had found another, safer way to make money, even though it presented other risks. For example, the opportunity to deal drugs in downtown Vancouver and Prince George was considered to be preferable to sex work, although it frequently involved street violence and resulted in incarceration. Other participants explained that they nearly always opted to steal from stores to make money. Those participants explained that sex work had been the last resort that they typically turned to only when desperate and in withdrawal (or, "sick"). As Karen explained:

I, like, got really sick once, but, and I went and did (sex work) but that was it...I'd rather steal. Who cares if I go to jail (laughs).

On the other hand, a few participants had made the decision to never get involved in sex work. They explained that their self-beliefs supported this decision. For example, when Katrina was asked if she had had any involvement in sex work, she said, "I won't do that. I have too much respect for myself to do that."

Seeking help

All participants had accessed supports that had helped them in some way. Connecting with supports not only helped participants to survive, but also enabled them to gain strength, make positive changes and pursue healing. The positive self-beliefs or personal assets associated with accessing supports included identifying as an individual who was "resourceful", "prideful", a "survivor", and "figure[d] out every possibility that I might possibly have".

Participants commonly sought ancillary supports in the form of food, housing, counseling, and health and social services. They explained that they were most likely to access services provided by support workers who knew them and had built relationships with them, services that had provided non-judgmental care, and services provided food, and shelter, and help with the challenges associated with parenting.

For example, Sarah grew up in constant fear of being left alone and hungry, in addition to being sexual abused by her mother's boyfriend on a regular basis. She learned she was HIV positive around the time of her 18th birthday, and after recovering from the initial shock of diagnosis, she began to connect with supports available in Vancouver help her survive. Sarah felt that her utilization of those supports signified her resourcefulness and distinguished her from her

own parents, as she was managing stresses that they had not been able to cope with. She described the benefits and supports she gained from connecting with HIV services:

(HIV services) were very inviting and they're like, 'If you need anything we can help you. We'll direct you to where you need to go.' I took advantage of that, so. Yeah, um, just the community services. I wouldn't be able to make it without them. (laughs) ...Like me, if I notice, like, I'm out of something, I have no money? I go to my supports like Sheway, Crabtree, um, food bank. I get out there. Like, I'm not, I don't stay at home and, like, whimper about it. I'm like, I find it. If I need a loaf of bread, I know where to go. (laughs) ...Yeah. I know where to get everything. Like, I could probably live off my supports for, like, if I wanted to but I don't. So I try and buy food first. But they're good if I need, like, granola, like, you know, a little snack for (my son). If I run out of that kind of stuff. You know? I'm resourceful.

Cultural and spiritual traditions were also important sources of support for participants. Some had spoken their native languages, learned traditional Indigenous spiritual beliefs and practices from Elders in their communities, and participated in traditional Indigenous ceremonies as well as food gathering and hunting. However, ties to traditional ways of life were usually severed when participants were separated from their families and placed in foster care. Other participants had not participated in any traditional activities or customs. However, many of the participants connected with Indigenous traditions by participating in programs provided by urban community centres, jails, or prisons.

The traditional activities that the participants had been helpful to participants included cleansing (smudge and sweat) ceremonies, Indigenous spirituality, talking circles, and talking with Elders. Participants explained that connecting to these traditional supports had a powerful and positive effect on their self-beliefs, strengthened their capacity to deal with confusion, and increased their ability to think through their decisions. As a result, they felt more true to themselves. For example, Todd began to gain a deeper self-understanding when a youth

probation program introduced him to living by traditional cultural values and spirituality. Todd stated:

Some different people have (helped), like, with, like, youth probation, well, he's like a counsellor guy but he always, like, had this weird philosophy connected to the trees and Indian spirits and stuff, you know? And, uh, I thought he was crazy but you know, like, when I think about the things he says, stuff, he kind of like makes you think about it. And it's like, you know, it's kind of those questions people ask you that doesn't have a specific meaning. It's like whatever you think the answer is will probably be the right one for you. Kind-, those kinds of weird things. Yeah.

Another participant, Sasha, explained how healing traditions had helped her to cope with PTSD-like symptoms related to her childhood memories of being molested by her grandfather, beaten by her mother, and raped by her uncle. Sasha still had anxiety and difficulty sleeping, but had learned how to perform a smudge ceremony with sage in a special program she had accessed while she was incarcerated. She had continued to use it, as it helped cleanse her spirit and negative emotions, which in turn strengthened her ability to live with her symptoms. She said:

I notice when, like, even to this day I still have really bad nightmares and stuff. I'll wake up, wake up out of a cold sleep and anxiety attack, like, wake up with an anxiety, just, zoom right out the door. I'm, like, (fast breathing sounds), just, ahhh, just like trying to take my shirt off, just, uhhh, just thinking I'm dying. Just run inside, just light my smudge. Just go, go over my bed, myself, then I just go back to bed and have a good sleep and now...before we go to sleep I just light that smudge and just let it burn.

Spiritual supports (such as churches) were less commonly accessed by participants, however, most expressed having spiritual beliefs and practices that they felt had given them strength. Most of those who had accessed spiritual supports – but not all –had grown up in families that practiced spiritual traditions or held religious beliefs. Those who had not accessed spiritual supports nonetheless found strength in spiritual beliefs and practices. For example, they

felt that they were cared for and “guided” by something powerful and benevolent. Christianity was a source of spiritual strength for a few participants, while others had found parallel ideas from Christianity and Indigenous spirituality into a belief system that made sense to them. All of the participants who had spiritual supports and/or beliefs frequently prayed to feel spiritually connected and felt strongly that their spirituality had played an important role in their survival. For example, Kyle had learned about Indigenous culture and spiritual principles through an Elder he had met in Vancouver. He had felt that his mother had forced him into the Christian faith when he was younger, but later connected strongly to Indigenous spiritual practices. He believed his faith had saved his life and given him the strength to keep moving forward:

Um, where I find my strength to keep going from day to day is having faith in the Creator. So, if I didn't have faith that there's a Creator out there and then definitely, most definitely I probably wouldn't be sitting here having this conversation right now.

5.7.4 Hopes and dreams

Acknowledging strengths, making positive changes and seeking help made it possible for participants to have to have hopes and dreams for the future. The theme of hopes and dreams was expressed by all of the young Indigenous people in this study. They expressed deep wishes to be clean and sober, to heal, to build healthy relationships with their children, and to achieve independence – and indicated that they had the determination to make these wishes a reality.

Clean and sober

The hope most commonly expressed by participants was the desire to be entirely free of addictions to drugs and alcohol. Participants saw being “clean and sober” as the next step after cutting down on their drug use or refraining from the most harmful drug use practices. For many, living without alcohol and drugs was not an end goal in itself, but a critical step to achieving a

larger objective, such as obtaining housing, having a healthy relationship with an intimate partner, or regaining custody of their children. This was the case for Brody, who abstained from drugs to show the Ministry of Child and Family Development that he was ready to be a full-time father to his son:

I'm going to a treatment centre. Uh, I just want to do it. And plus, uh, you know, welfare. I just want to do it to prove to the welfare that I'm, I'm willing to do things for my son. Doing it because I want to...I'm trying to straighten it out so that way I can be respectable, right?

Many participants had previously lived without drugs and alcohol for periods of time and felt hopeful about the eventuality of being off hard drugs for the long term. They dreamt of having a “normal”, “balanced”, or “better” life. Even when they had relapsed and became frustrated, they held on to hope and determination that they would again be able to abstain. As Ellen stated, “I’m not going to stop trying. Never have, so.”

Claire’s hope was that being drug-free would afford her a stable, happy, and safe life, which she had never had in the past. She explained:

Like I relapsed just a little while ago but...being clean I can think better. I can, I actually go out and function and I can meet people and go to cafes and actually enjoy myself and I'm not sketching around a building, spending all my money on dope. I can actually have, you know, nice jeans and nice clothes. A place to put my head over, you know. Food in my cupboards for once. I'm like, that's, that's never, never happened.

Healing

Numerous participants dreamed of healing the emotional, mental, and spiritual wounds caused by experiences of childhood trauma and hoped to access safe, long-term, and flexible care that would help them to make their dream a reality. In their view, safe healing approaches were gender specific; involved counsellors who were non-judgmental and experienced; incorporated

Indigenous ceremonies and cultures; addressed mental health issues, and; were located outside the downtown areas and street life. Long-term care was considered essential because healing from complex experiences of trauma and addiction requires time and patience. As one participant pointed out: “I’m not expecting to be fixed in one (counseling) session”. Unfortunately, only one participant –Helen – had had positive experiences with a counsellor. Helen described this counsellor as a First Nations woman who was well-versed in both traditional and western healing practices. She recalled her experience before and after counseling:

It was a lot of pain that I went through, man. Like, mental abuse and all this emotional trauma and whatever but I finally found the right counsellor and we paired up and I’d see her, like, once a week and it was, it was beautiful.

Participants who hoped to receive flexible care were interested in therapeutic treatment for trauma and/or addiction, but worried that they would be denied care if they relapsed back into drug use. In their view, flexible healing would provide them with compassionate, non-judgmental, and unconditional care that addressed the concurrent issues of addiction, trauma, and mental health.

Healthy children and family

The dream of having a stable family life was a powerful motivation for participants who had children. Most of these participants did not have custody of their children, but were reducing their drug use or quitting it entirely, as well as accessing support services, in the hope of regaining custody or at least reconnecting with their children. For example, Adam had reduced his drug use to the point where he was able to care for his daughter for two days per week, which was a major step toward his ultimate dream:

Uh, my daughter. That's what I live for now. I'm trying to smarten up so that I can get her full time. I want her to have everything...I want her to have more than what I had. Everything she needs.

Independence

Lastly, participants dreamed of leaving the streets and becoming financially independent. To this end, they envisioned working at an occupation that was meaningful to them and paid them well enough to create a stable life and be able to feed, clothe and house their children as well as themselves. In their view, having an occupation represented "success". One participant wanted to become a chef and others wanted to be a youth outreach worker, an alcohol and drug counsellor, a nurse, and a rodeo worker. Some participants were not sure what occupation they wanted, but hoped to go back to school in order to figure that out.

All of the participants considered having a safe, affordable, and comfortable home to be a critical component of financial independence. Very few participants were stably housed at the time of their interview. Most were living in temporary/emergency shelters or single room occupancy hotels, or couch surfing. This was a significant barrier that made it difficult for participants to feasibly realize their dreams of quitting drugs, finding employment, going to school, and taking care of their children's needs. This was explained by Karen, who was living in a single room occupancy hotel in the downtown east side of Vancouver and struggling to disentangle herself from the street and her addiction to crack. Karen had participated in a community service program to get her name on a waitlist for new low-income, supportive housing. She explained that her street-involved life made it nearly impossible for her to stay clean and that living independently in safe, affordable housing was necessary for her to fulfill her hopes and dreams:

I just want to go back to school. I was actually in a program and I dropped out because I started doing crack. You can't do it while you're homeless, you know what I mean? I went to get my own place... That brand new building? The one that's being built. I really need, I really need this because, uh, I can't, I don't want to live in an old hotel, man. I, uh, like to go to, I can't wait for this building. It's a little bachelor suite with your own kitchen and everything. I'm going to bake cake everyday. Not everyday, but, I make some good spaghetti sauce.

5.8 Discussion

The aim of this study was to gain a deeper understanding of the processes and pathways that enable young, urban Indigenous people who use drugs to cope with the complex intersections of historical trauma, individual trauma, and systemic or structural sources of adversity. In so doing, it has generated informed recommendations for the wellness and healing of young Indigenous people. The life histories told by the participants in the study revealed that they suffered from a 'soul wound', which has been passed down through generations as part of the legacy of colonization and the residential school and child welfare systems. The injustices that are at the root of the soul wound remain largely unaddressed and it continues to cause lifetime pain for Indigenous people both collectively and individually. Nevertheless, participants described how they actively resisted the negative effects of trauma and maintained hope for a better life. Their voices and perspectives are therefore critical to the development of effective interventions from public health, social services, and therapeutic service providers who seek to support the health of young urban Indigenous people who use drugs as well as decrease the structural and institutional barriers that impede their attainment of well-being.

Deeply painful emotions related to childhood maltreatment experiences were one of the primary reasons why all of the participants started to self-medicate with alcohol and drugs. The negative self-beliefs they developed as children tremendously impacted their lives as adolescents

and young adults, which manifested in negative health and social outcomes. These findings are deeply concerning as they confirm that the emotional and psychological damages of childhood trauma continue across the life course to cause extensive harms to the health of young Indigenous peoples. Further, these findings are consistent with psychological studies demonstrating that children who internalize, or blame themselves for their experiences of maltreatment may be more likely to experience negative health outcomes later in life, especially mental health issues and revictimization (Filipas & Ullman, 2006; Gibb, 2002; Silverman, Reinherz, & Giaconia, 1996; Steel, Sanna, Hammond, Whipple, & Cross, 2004). It was evident in participants' narratives, as many blamed themselves for being unable to stop self-medicating, for becoming violent or being in violent relationships, for being involved in sex work, for being in and out of the prison system, and for being HIV and/or HCV positive. This damaging cognitive framework for understanding their lives continued to hinder their long-term health and healing processes, especially given that there have been no meaningful interventions that specifically aim to address it and alter the misconceptions that are associated with it.

Few mental health services or drug treatment options in BC offer low-threshold supports (i.e. make minimal demands for full access) that address the presence childhood trauma and consequently, many Indigenous young people who use drugs may be hesitant to seek help. This was the case for Jane, who had accessed treatment several times but was unable to overcome her belief that she did not deserve to heal. The grief and pain expressed by the participants in this study were deeply rooted and underscored the urgent need for culturally safe therapeutic environments and approaches that give young Indigenous people who use drugs a real opportunity to heal. This study therefore supports recent research suggesting that the efficacy addiction treatment interventions for people who use drugs may be improved if they include

trauma-informed programming (Amaro et al., 2007; Hien, Jiang, et al., 2010; Messina, Calhoun, & Braithwaite, 2014; Torchalla, Nosen, Rostam, & Allen, 2012). Such trauma-informed interventions for young and at-risk Indigenous people have been successfully facilitated by Indigenous therapists who integrated culture and ceremony into natural therapeutic settings (i.e. forests) and allowed time for youth to open up emotionally at their own pace (Henderson, 2014; Strickland, Walsh, & Cooper, 2006).

Although the participants in this study did not specifically use the terms historical or intergenerational trauma, most were aware that their parents/grandparents had used alcohol and drugs heavily and been abusive/neglectful because of the horrors they had endured in residential schools. They therefore understood that maltreatment and damaging or violent behaviours had been beyond their caregivers' control and were consequently able to develop a sense of compassion for their caregivers' pain as well as an understanding of why they had been mistreated. Further, a few participants who were aware of the intergenerational trauma caused by the residential school experience had also received a sincere apology from their parents, which enabled them to forgive and reconcile with their parents. This finding confirms Indigenous Elders' and scholars' contention that compassion and forgiveness are essential to the healing of Indigenous families and communities (Henderson, 2014; Tousignant & Sioui, 2009). The finding is also consistent with the previously discussed qualitative work by Goodkind et al. (2012), who suggested that "interventions should be intergenerational" and facilitate communication about historical trauma between Elders, parents, and young people (p. 1033). It is essential for such communication to provide young Indigenous people who use drugs with an understanding of how intergenerational trauma has impacted their own health and experiences with parenting. Moreover, future qualitative research should build upon the work of Whitbeck et al. (2009) by

working with young, urban Indigenous people who use drugs to help gain a better understanding of how they perceive historical loss and the effect that intergenerational trauma has had in their own lives.

One of this study's most striking findings was that the foster care system is interconnected with intergenerational trauma. Considering that the vast majority of participants in this study struggled immensely while being in foster care system themselves, having had their own children in the system marked an especially painful point of grief in their life histories. Only two participants in the study stated that they felt as though their children had been taken from them unjustly and against their will, but this does not mean that participants saw the system as fair, just, and beneficial to their children. Eighteen of the participants felt they had been put in a position where they had no choice other than to place their children in foster care because their grief, self-medication, and poverty made it impossible for them to be functional parents. This troubling finding reflected the injustice that is inherent to the child welfare system's involvement with Indigenous families: the long-term disconnection from parents and communities that commonly results when Indigenous children are placed in foster care is a source of pain and trauma that perpetuates intergenerational trauma when those children grow up and become parents. Since the 1950s, the child welfare system in Canada essentially supplanted the residential school system by removing tens of thousands of Indigenous children from their families, communities, and cultures, and placing them in predominantly non-Indigenous foster homes (Fournier & Crey, 1997; Johnston, 1983). As Fournier & Crey (1997) have argued, the child welfare and residential school systems both deprived generations of Indigenous children of their cultural identity and connections to family and community. The systemic adversity that the system has caused was evident in participants' narratives. Although most wanted to protect their

children from the maltreatments that they had endured in childhood, they were aware that the cycle of family separation was in itself another source of trauma. As Chloe explained, her heartbreaking choice to place her son in the child welfare system had broken the cycle of childhood maltreatment but not the cycle of family separation.

Provincial child welfare agencies' decision to remove Indigenous children from their homes have been primarily based on structural inequalities and family crises that were the direct result of federal legislation and policies (i.e. the *Indian Act* and the *Gradual Civilization Act*) – namely abject poverty, marginalization, inadequate housing, drug/alcohol use and neglect (Blackstock, 2008). Though many Indigenous children in foster care have been maltreated and the system has not upheld its obligation to prevent family violence. There is a growing body of literature documenting the lack of structural supports that entrench urban Indigenous women with children in a state of poverty – including a shortage of affordable and safe housing and insufficient income – and lead to their children being apprehended into the child welfare system (Denison, Varcoe, & Browne, 2014; Duff et al., 2014). This study's findings support previous calls to increase the funding for First Nations child/family welfare agencies in order to reduce the social and structural barriers faced by young Indigenous parents who live in cities and increase the availability of culturally-based based supportive services and secure housing (Blackstock, 2003; Denison et al., 2014).

The participants in this study clearly expressed the need for child welfare policy-makers and programmers to meaningfully address young Indigenous parents' intergenerational trauma and increase efforts to reunify families, which would in turn decrease the number of Indigenous children being taken into foster care. Any such programs must be carried out by health and social welfare services that are aware of these issues and who have been trained in cultural safety

(Denison et al., 2014). In addition, the programs must incorporate Indigenous culture and ceremony in order to support the healing and resilience of Indigenous families and communities (Blackstock & Trocmé, 2004; Henderson, 2014).

Nearly all of the young Indigenous men and women in this study were in their late 20s and early 30s, and had arrived at, or were approaching, a point in their lives where they were determined to break free from addiction and involvement in street-life. Participants demonstrated this determination by expressing positive self-beliefs, making conscious decisions to decrease their vulnerability to negative health outcomes, and seeking help. It is salient to note that many of the participants reached this point with the help of non-governmental organizations, community-based charities, and individuals or organizations that shared Indigenous knowledge, cultures and spirituality. These findings urge for the recognition of these adaptations as acts of resistance and as indicators of resilience among young Indigenous people who use drugs. The participants in this study who were making positive changes and safer choices certainly exhibited tremendous resilience in the face of complex intergenerational traumas and adversities, and were resisting and questioning the systems that have posed barriers to their health and healing. These findings are also consistent with those generated by researchers who specialize in resilience and assert that an individual's ability to cope with adversity is dependent upon families' and communities' ability to provide "health resources and experiences in culturally meaningful ways" (Ungar, 2008, p. 225). Given that the majority of the young people in this study were disconnected from their families and communities, acknowledging the types of support they identified – particularly Indigenous culture, spirituality, and ceremonies – is of utmost importance. These supports should become a fundamental component of the health and social services models that are delivered to urban Indigenous communities. Finally, any services or

programs that aim to foster resilience among young Indigenous people who use drugs must involve them at each stage of their design and implementation to ensure that they are efficacious and meaningful.

The final theme of ‘hopes and dreams’ that emerged in our analysis of participants’ narratives revealed important findings about how to support young Indigenous people who use drugs. This information echoed what the participants expressed in community knowledge translation events that were held in 2012 and 2013 in the three study locations. At those events, participants explained that if they are *given the opportunity*, they are able to: heal, connect to their cultures, be good parents, live free from addiction, be independent, and contribute to their communities. Public health, social service, and therapeutic service providers must therefore critically assess where and how such opportunities can be created.

The participants’ desire to live ‘clean and sober’ was central to them, as it was viewed as essential to achieving all their other hopes and dreams. As previously indicated, providing young Indigenous people who use drugs with trauma-informed programming will provide them with an opportunity to cope with and move beyond their psychological and emotional pain. In so doing, such programming will also provide opportunities to heal from addiction.

Participants identified three areas where opportunities for healing could be facilitated. First, they expressed a need to feel safe in the healing process, which included having access to experienced clinical counsellors that have been educated in cultural safety. For the young women, feeling safe in treatment required that the treatment be tailored to women which corresponds with previous research conducted by Benoit et al. (2003). Second, participants asserted that treatment centers need to dedicate more time to helping them heal from trauma because opening up and dealing with their pain is a complex and lengthy process. Third,

participants said that in order to heal they needed the opportunity to access therapeutic services that are flexible in the sense that they provide unconditional support and do not require clients to always be clean and sober.

Participants' hopes of having their children in their lives and attaining independence both highlighted the need for opportunities to gain access to safe, stable, and affordable housing. The systemic nature of housing instability among Indigenous people in BC is captured in virtually every Canadian housing measure, including housing quality, affordability, residential transience, and homelessness (Canada Mortgage and Housing Corporation, 2009; Kraus, Woodward, Billows, Greenwell, & Alvarez, 2010; Kutzner & Ameyaw, 2010). Consequently, in 2010, Indigenous people represented 66% and 36% of homeless populations in Prince George and Vancouver, respectively (Kraus et al., 2010; Kutzner & Ameyaw, 2010). In both cities, Indigenous women and young people are disproportionately represented among the homeless. Recent Cedar Project research conducted by Jongbloed et al. (2012) demonstrated that between 2005 and 2010, 41% to 56% of the 605 participants included in the analysis were unstably housed and 20% were highly transient (moved six or more times in the past six months). In the adjusted analysis, participants who had experienced childhood sexual abuse were over two and a half times as likely to be unstably housed compared to those who had not been sexually abused. These results underscored the strong relationship between unaddressed childhood trauma and homelessness. Further, they highlighted the difficulty faced by young Indigenous people who use drugs when trying to find safe, secure, and adequate housing while experiencing cycles of unaddressed trauma and self-medication. The young men and women in the present study also explained that homelessness had perpetuated struggles with self-medication and said that safe and stable housing was a prerequisite for becoming 'clean and sober'; regaining custody of their

children; escaping street life; going back to school; getting a job, and; simply enjoying life. Providing young and at-risk Indigenous people with safe, secure and affordable housing is therefore essential to supporting their development of positive self-beliefs and resilience, as well as their goal of reconnecting with their children.

In closing this discussion, possible limitations to our findings should be noted. Though the interviewer was trained in qualitative methods and interviewing, it must be acknowledged that participants may have held back on sensitive details from their life stories due to observed differences in socioeconomic status, gender, culture, or ethnicity. The researcher aimed to reduce any such potential bias by dressing neutrally and casually, maintaining a humble and open attitude, and striving to establish both physical and cultural safety in the interviews.

In conclusion, it is important to reiterate that the young people who shared their life stories in this study had survived incredible hardships in childhood and extreme vulnerability in adolescence and young adulthood. The participants' capacity to adapt to and resist adversity demonstrated their resilience, which enabled them to reach a cusp of change and visualize a new and different path. Nevertheless, the psychological and emotional 'soul wound' caused by their childhood experiences continued to affect them daily. Their pain was exacerbated by the structural and systemic sources of oppression that had disconnected them from their children and trapped them in a life of poverty and marginalization. On the other hand, knowledge about intergenerational trauma and access to Indigenous cultures, ceremonies, and spirituality mitigated their pain. These findings demonstrate what many Indigenous scholars and Elders have known for generations: that cultural teachings, ceremonies, and spirituality are the foundations of resilience among Indigenous peoples (Baldwin et al., 2011; Brant Castellano, 2008; Brass, 2009; Kirmayer, Brass, & Tait, 2000). Finally and as previously stated, the participants in this study

clearly specified the ways in which public health, social service, and therapeutic service providers can reduce structural/systemic barriers to healing and family reunification for young Indigenous people who use drugs. Healing the 'soul wound' will take time, and young Indigenous people who use drugs must not be made to face recovery alone. For healing to be meaningful and transformative, it must be supported at the individual, family, and community levels (Evans-Campbell, 2008) and will require visionary, collaborative leadership from Indigenous and non-Indigenous governmental and non-governmental organizations (Tousignant & Sioui, 2009).

Chapter 6: Understanding the continuing effects of childhood maltreatment on HIV risk among young Indigenous people who use drugs in three Canadian cities

6.1 Introduction

Indigenous scholars maintain that historical injustices are the root causes of the childhood maltreatment and vulnerability to HIV infection among Aboriginal people in Canada. They explain that in order to understand this relationship it is essential to consider the complex legacies of those injustices, which began with colonization and included forced removal from traditional lands, cultural genocide, and perhaps most importantly, the residential school system (Christian, 2010; Hylton, 2002; O'Neil, 1986; Walters et al., 2011; Walters & Simoni, 1999). The residential school system involved partnerships between Christian churches and the Canadian government and was implemented in 1874, and maintained for over a century (with the last federally run school being closed in 1996). The system forcibly removed over 150,000 Indigenous children from their families and relocated them in residential schools. The stated intention of the system was to separate Indigenous children from their parents, languages, cultures and traditions in an effort to Christianize them and assimilate them into Canadian society (Canada, 1996; Milloy, 1999). British Columbia (BC), which was home to 198 unique First Nations living on mostly unceded territories at the time of colonization, had 28 residential schools (Truth and Reconciliation Commission of Canada, 2010).

The residential school system utilized methods of teaching and discipline that were in stark contrast to traditional education practices (Miller, 2009). Missionary teachers exacted “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 spirituality. Disturbing testimonies given to the 1996 Royal Commission on Indigenous Peoples and the ongoing Truth and Reconciliation Commission of Canada revealed the pervasiveness and severity of abuse and neglect that children experienced in residential schools, which compounded their loneliness, pain, and sense of denigration (Chansonneuve, 2005). Hundreds of residential school survivors recounted horrific memories of maltreatment: children were beaten into unconsciousness, sexually molested and raped, fed rotten food, punished with blunt objects, shamed publically, deprived of nurturing or empathetic connections, denied essential medicines or health care, and forced to live and sleep in cramped, unsanitary, cold rooms (Chrisjohn et al., 1997; Miller, 2009; Milloy, 1999).

Although very little scientific research has investigated the extent of abuses in residential schools, Indigenous scholars estimate that 70-100% of children in the schools were maltreated and that nearly all of these children experienced emotional maltreatment and witnessed the abuse of other children, while at least half were sexually abused (Chrisjohn & Young, 1991; Corrado & Cohen, 2003). As a result, many residential school survivors have suffered from post-traumatic stress disorder, major depression, addiction, and other adverse health outcomes (Corrado & Cohen, 2003; Söchting et al., 2007).

It is widely accepted that the maltreatment of Indigenous children was uncommon prior to European contact with North America (Gunn Allen, 1986; Manuel & Posluns, 1974; Miller, 2009). Further, it is suggested that Indigenous parents considered their children to be autonomous individuals and had indirect and non-coercive parenting styles (Miller, 2009). In addition, the boundaries of gender relations that young people were taught limited instances of sexual violence and addressed it as a violation when it did occur (Hylton, 2002).

Subsequent to colonization and the residential school system, the abuses of Indigenous children and disruption of traditional ways of life have had severe and enduring repercussions

that have devastated many communities. Approximately 39% of Indigenous people who are over age 45 today attended residential schools in Canada, and at present there are approximately 80,000 living residential school survivors (Truth and Reconciliation Commission of Canada, 2012). Further, in 2001 it was estimated that at least one third of Indigenous people aged 15 and over had at least one family member who had attended residential school (Statistics Canada, 2003). Most survivors found it tremendously difficult to return to their communities, reconnect with their families, and raise their own children (Chansonneuve, 2005). Indigenous scholars define this historical or intergenerational trauma as collective emotional and psychological injuries that accumulate over the lifespan and extend across generations (Yellow Horse Brave Heart, 2003).

Many Indigenous scholars and advocates argue that familial and community dislocation and cultural oppression are being further perpetuated by the Canadian child welfare system (Fournier & Crey, 1997). It is currently estimated that three times as many Indigenous children are in foster care today than the peak number of Indigenous children who were in the residential school system in the 1940s (Blackstock & Trocmé, 2004). Government inquiries and Indigenous and non-Indigenous scholars alike also suggest that Indigenous children experience higher rates of maltreatment than non-Indigenous children, which is another dimension of the post-colonial legacy (Bopp et al., 2003; Canada, 1996; LaRocque, 1994; Public Health Agency of Canada, 2010a). For example, the 2008 Canadian Incidence Study of Child Abuse and Neglect (CISCAN) reported that while only 6% of children under age 15 years old in Canada were of Indigenous ethnicity in 2008, Indigenous children comprised 22% of the substantiated child maltreatment cases documented by child welfare workers (Public Health Agency of Canada, 2010a). Further, the CISCAN findings determined that the number of substantiated child

maltreatment investigations was five times higher for Indigenous families than non-Indigenous families (Sinha et al., 2011).

Studies in Canada and United States (U.S.) have begun to unravel the impacts of historical trauma, childhood maltreatment, and harmful stress-coping responses on Indigenous peoples' vulnerability to HIV infection (For the Cedar Project Partnership et al., 2008; Robin, Chester, Rasmussen, Jaranson, & Goldman, 1997; Simoni et al., 2004). For example, a Cedar Project study that included 543 young Indigenous people who used drugs in Vancouver and Prince George, BC found significant associations between sexual abuse, having a parent who attended residential school, and having been in the child welfare system (For the Cedar Project Partnership et al., 2008). The same study significantly related sexual abuse to sexual risk for HIV infection, which includes a 49% greater likelihood for having a sexually transmitted infection, an 85% greater likelihood for having over 20 lifetime sexual partners, and a 77% greater likelihood for involvement in sex work. However, most studies have focused on the effects of sexual trauma on HIV risk later in life. For example, Simoni et al. (2004), who conducted a study involving 155 Native American women in New York, U.S.A., found that sexual trauma mediated the relationship between injection drug use and high-risk sex.

A growing body of literature has also linked emotional and physical abuse with vulnerability to HIV infection in populations that use drugs (Branstetter, Bower, Kamien, & Amass, 2008; Brems Johnson, 2004; Stoltz et al., 2007). For example, a cross-sectional analysis of 701 high-risk African American adolescent women in the U.S. found that participants who had experienced both emotional and physical abuse were less likely to use condoms consistently (Brown et al., 2014) and a cross-sectional sample of 553 adults who used injection drugs in Washington, DC, U.S.A. associated physical and emotional abuse with a 4.5-fold increase in

women's risk of HIV infection (Magnus et al., 2012). Stoltz et al. (2007), who conducted a study among 308 young men and women (24% Aboriginal ethnicity) who used drugs in Vancouver, Canada, found that participants who had experienced sexual or emotional abuse in childhood were more than twice as likely to be involved in sex work than participants who had not been abused.

At the same time, researchers have begun to recognize that there are multiple forms of maltreatment and that these may have a cumulative effect on adverse health outcomes, including HIV risk in adulthood. Dube et al. (2003) measured the effect of multiple forms of childhood abuse and neglect on the risk of illicit drug use among a sample of 8,618 adults in California, U.S.A. The authors demonstrated that each type of abuse independently increased the risk of illicit drug use by 2-4 fold. When the abuse types were combined, each was related to a graded increase in risk. It is salient to note that these and other studies had a number of limitations. That is, they have been primarily cross-sectional; have not measured or accounted for the historical trauma experienced by Indigenous participants; focused solely on the effect of childhood sexual abuse, or; involved female participants only.

Indigenous leaders in Canada are deeply concerned about the impacts that the devastating legacy of the residential school and child welfare systems have had on the health and wellbeing of young Indigenous people. The relationship between childhood maltreatment and the rate of HIV and HCV infections among Indigenous young people is one of the manifestations of this legacy. In 2009 the Public Health Agency of Canada (PHAC) reported that the incidence of HCV is 4.7 times higher for Indigenous people than non-Indigenous people and that Indigenous people have a higher rate of HIV in Canada than any other single ethnic minority (Public Health Agency of Canada, 2010b) and that the rate is worsening. The proportion of positive HIV tests

experienced by Indigenous people increased from 25.0% between 2005 and 2007 to 33.0% in 2009. In 2009, injection drug use remained the primary exposure category for the majority (56%) of HIV positive tests reports among Indigenous people in Canada, while injection drug use accounted for only 14.0% of HIV positive test reports among non-Indigenous people. Lastly, the Public Health Agency of Canada (PHAC) reported that the rate of HIV among Indigenous women continues to be disproportionately high. In 2008, women comprised 48.1% of Indigenous people who tested positive for HIV, compared to only 20.7% for non-Indigenous people.

The proportion of new infections due to unsafe sex between 1998 and 2006 in Canada were also disproportionately high among Indigenous people compared to non-Indigenous people. While the majority of new infections can be attributed to injection drug use and the sharing of contaminated injection equipment (Public Health Agency of Canada, 2010b), in 2010 heterosexual and homosexual sexual between Indigenous men accounted for 37.3% of new HIV infections, while heterosexual sex accounted for 32.5% of new HIV infections among Indigenous women. Between 1998 and 2008 young Indigenous people <30 years of age contracted 30% of new HIV infections, compared to only 21% for non-Indigenous young people in the same age group.

6.1.1 Objectives and rationale

Indigenous leaders, communities, and scholars are well aware that historical and lifetime traumas are contributing to the HIV epidemic among their young people. However, there is a dearth of epidemiological literature that specifically addresses the effect of childhood maltreatment on longitudinal HIV risk behaviours and infection rates among young Indigenous people who use drugs. The impacts of childhood maltreatment on HIV risk behaviours among young Indigenous people are still not well understood and there is a specific need to investigate

the longitudinal impact of maltreatment over time among young Indigenous people who use drugs. This study addresses that gap in the research by investigating the findings of a cohort study involving young Indigenous people who use drugs in BC, Canada, called The Cedar Project. Its objectives with respect to the participants were as follows: (a) to evaluate the psychometric properties of the Childhood Trauma Questionnaire for measuring childhood maltreatment; (b) to describe the association between historical trauma factors and the prevalence of childhood maltreatments; (c) to use scores on the Childhood Trauma Questionnaire to examine of the longitudinal sex and drug-related HIV vulnerabilities associated with different childhood maltreatments and the incremental increase in the number of maltreatments, while adjusting for historical trauma and demographic confounders, and; (d) to comment on gender differences in outcomes related to childhood maltreatment. The rationale for this study was to better understand the specific impacts of childhood maltreatment on HIV risk among young Indigenous people who use drugs in order to contribute to the development of appropriate and effective interventions. A longitudinal analysis is especially important to fulfilling this goal because it can generate inferences about the independent effect of childhood maltreatment over time.

6.2 Methods

6.2.1 The Cedar Project study design and measures

In brief, the Cedar Project is a prospective cohort study of 793 young Indigenous people who used drugs in Vancouver, Prince George, and Chase, BC. Participants were eligible for the Cedar Project study if they self-identified as a descendant of the First Nations Peoples of North America (including Indigenous, Aboriginal, Métis, First Nations, Inuit and Status and non-Status Indians); were between 14 and 30 years old, and; had smoked or injected illicit drugs in the

month before enrolment. Since 2003, the study has followed-up participants every six months to gather information about historical and demographic factors, childhood maltreatment experiences, drug- and sex-related HIV risk patterns, psychological distress, resiliency, health services access, and other health measures. Venous blood samples have also been collected for HIV and hepatitis C antibody tests at each visit. Variables for this analysis were chosen from the Cedar Project Questionnaire based on their theoretical and empirical importance to the study hypotheses. The cut-point for the longitudinal data in this research was November 2012. First Nations collaborators and investigators (the Cedar Project Partnership) governed the entire research process, were involved in the conception, design, and interpretation of the study, and approved this manuscript for publication. The University of British Columbia/Providence Health Care Research Ethics Board also approved the study. A full description of the Cedar Project study design may be found in Chapter 3 (pages 53-58) of this dissertation.

6.2.2 Study measures

Time-invariant factors

The time-invariant demographic and historical variables that were included this study included: sex; study location; having at least one parent who attended residential school; having been taken away from biological parents and placed in foster care; sexual identity; and education level. A full description of time-invariant study variables may be found in Chapter 3 (pages 65-66) of this dissertation.

Time-varying demographic factors and outcome variables

The time-varying factors and outcomes were longitudinal variables that could change in value in the six months preceding the questionnaire. The time-varying demographic factors included participants' age, and relationship status. The time-varying outcomes were coded as 0/1

dichotomous variables and included: having slept on the streets for more than three consecutive nights; frequency of having smoked crack; injection drug use; having accessed drug or alcohol treatment; having attempted to quit using drugs; binge drinking; having had blackouts from drinking; involvement in sex work; consistency of condom use with regular or casual sexual partners; having any sexually transmitted infection; having been sexually assaulted; frequency of injecting cocaine and opiates; binge injection drug use; sharing rigs; needing help to inject drugs; and HIV and HCV serostatus. More information regarding the time-varying variables in this study are found in Chapter 3 (pages 65-66) of this dissertation.

Childhood Trauma Questionnaire

Beginning in 2011, Cedar Project study staff offered participants the option to complete the Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998). The CTQ is a widely used retrospective and self-reported 28-item inventory that measures five types of childhood maltreatment: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). Answers were endorsed on a 5-point Likert-type scale according to the frequency the experiences occurred (from *never true* to *very often true*). In addition, the CTQ contains a minimization/denial scale that consists of 3 items that detect possible false-negative reports of childhood maltreatment. We transformed the subscales into variables composed of three categories for levels of maltreatment – none (0), low/moderate (1), and severe (2) – and treated the subscales as continuous variables in the analyses. The odds ratio for the maltreatment subscales may therefore be interpreted as the likelihood of an outcome occurring for each one-level increase in severity (i.e. the increased likelihood of an outcome in the ‘low/moderate’ level vs. the ‘none’ level, and in the ‘severe’ level vs. the ‘none’ level of maltreatment). In addition, a maltreatment summary score variable was created in order to

examine the effect of the total ‘dose’ of exposure to childhood maltreatment on health outcomes by first categorizing participants as “maltreated” or “not maltreated”, then summing the number of thresholds that were exceeded (Rodgers et al., 2004). The maltreatment summary score variable ranged from zero to five and was treated as a continuous variable in the analyses. The odds ratio for this variable could then be interpreted as the likelihood of an outcome occurring for each incremental increase in the maltreatment summary score. A full description of the psychometric properties, validation studies, and the coding scheme for the CTQ may be found in Chapter 3 (pages 66-69) of this dissertation.

6.2.3 Participants

In total, 793 participants were recruited into the Cedar Project between September 2003 and January 2013. Among those participants, 389 completed the Childhood Trauma Questionnaire (CTQ) and left no more than four of 28 items unanswered (10% of the data). Participants whose questionnaires were missing five or more items (more than 10%) were removed from the study (n=23). Among the 389 participants who completed the CTQ, 266 (68.4%) returned for at least one out of 15 follow-up interviews between 2003 and 2012 and were therefore included in this study.

6.2.4 Statistical analysis

Descriptive statistics were used to describe the frequency of childhood maltreatment types and summary scores for all participants, as well as separately for men and women. Chi-square tests for categorical data and t-tests for continuous data were used to compare exposures between men and women, with the *p*-value serving to measure the significance of association. Next, the construct validity of the CTQ was examined by evaluating the fit of first and second order models of the CTQ using Confirmatory Factor Analyses (CFA) (Muthén & Muthén, 2008-

2012). The first order CFA was carried out according to Bernstein & Fink's hypothesized five-factor model (Bernstein & Fink, 1998). Therein, the 25 scale items (excluding the minimization/denial items) were specified to load onto the five latent variables of maltreatment (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect). The second order CFA included a path between the first order factors and the broad, higher order factor of childhood abuse. A full description of the indexes used to assess the goodness of fit and the approximation of fit of the CFA models may be found in Chapter 3 (page).

Generalized linear mixed effects models (GLMM) were used to estimate the effects of increases in the severity of childhood maltreatment types and the maltreatment summary score on the likelihood of behavioural and HIV risk and infection outcomes between 2003 and 2012, with the odds ratio being the measure of association. Separate models were run for all participants combined, and then separately for male and female participants. The outcome variables measured behaviours within the past six months. Models were fit by the adaptive Gaussian Hermite approximation with using a logit link to account for the binomial distribution of the study outcomes. Model selection was based on Bayesian Information Criteria (BIC), which allowed a choice to be made between a fixed or random effect handling of the study variables. The associations between the childhood maltreatment variables and study outcomes were tested in unadjusted analyses and those significant at the $p < 0.100$ level were included in subsequent in adjusted (multivariate) models that controlled for potential confounders. Confounders specific to each model were chosen because of their theoretical and empirical importance ($p < 0.200$) to the relationship between childhood maltreatment and study outcomes. The potential confounders that were empirically tested included sex (for models that were not stratified by sex), having a parent who attended residential school, location, relationship status,

and education. Time-varying age was included in every model because of its potential importance as a confounder relative to the time-induced cohort effect adjustment in this study, as has been recommended for longitudinal studies (Korn et al., 1997). R statistical software Version 2.15.0 with the lme4 package (Bates et al., 2014) was used for all GLMM analyses (The R Foundation for Statistical Computing, 2012).

6.2.5 Handling missing data

After excluding participants with >10% missing data, each CTQ maltreatment subscale had a range of missing data extending from 2.3% to 4.1%, which is minimal. The data missing from most of the longitudinal outcome variables ranged from 1.2% of observations to 4.7% of observations. Mplus handles missing data using full information maximum likelihood and all cases were therefore included in the CFA of the CTQ. R software, specifically the lme4 package utilized for the GLMM analyses, automatically uses the maximum likelihood estimation method for missing data within outcome variables and uses listwise deletion for missing data within independent variables.

6.3 Results

6.3.1 Sample statistics

Descriptive statistics of demographic variables are displayed in Tables 6.1 and 6.2. Women were 52.6% of the sample and men were 47.4%. Nearly half (49.3%) of the participants were based in Prince George, 44.7% were based in Vancouver, and 6% were based in Chase. The mean age for all participants was 22.9 (standard deviation (SD): 4.25). Most (47.4%) participants knew that at least one of their parents had attended residential school, although 29.3% were unsure. The majority (66.9%) of participants had been in the foster care system. Relationship status was the only significant demographic difference between men and women, as women were

more likely to report having been in a relationship at baseline compared to men (27.1% vs. 13.5%, respectively; $p=0.006$).

Table 6.1: Baseline characteristics and CTQ subscale severity levels among all participants (n=266) and chi-square comparisons between males (n=126) and females (n=140)

Demographic and historical trauma variables	All participants n (%)	Males n (%)	Females n (%)	p-value
Mean age (standard deviation), (t-test)	22.89 (4.25)	23.22 (4.34)	22.66 (4.23)	0.947
Parents attended residential school				
No	60 (22.6)	28 (22.2)	32 (22.9)	0.137
Unsure	78 (29.3)	39 (31.0)	39 (27.9)	
At least one parent attended	126 (47.4)	58 (46.0)	68 (48.6)	
Ever in Foster Care				
No	88 (33.1)	40 (31.7)	48 (34.3)	0.697
Yes	178 (66.9)	86 (68.3)	92 (65.7)	
Baseline location				
Chase	16 (6.0)	11 (8.7)	5 (3.6)	0.149
Prince George	131 (49.2)	57 (45.2)	74 (52.9)	
Vancouver	119 (44.7)	58 (46.0)	61 (43.6)	
Sexual identity				
GBLTQ	30 (11.3)	13 (10.3)	17 (12.1)	0.700
Straight	140 (88.7)	113 (89.7)	123 (87.9)	
Baseline education				
Less than high school	217 (81.6)	99 (78.6)	118 (84.3)	0.137
High school education or higher	47 (17.7)	27 (21.4)	20 (14.3)	
Relationship status				
Single	211 (79.3)	109 (86.5)	102 (72.9)	0.006
In relationship	55 (20.6)	17 (13.5)	38 (27.1)	
Childhood Maltreatment Variables				
Emotional abuse severity				
None	75 (28.2)	51 (40.8)	23 (16.5)	<0.001
Low / Moderate	91 (34.2)	46 (36.8)	45 (32.4)	
Severe	90 (33.8)	26 (20.8)	64 (46.0)	
Physical abuse severity				
None	106 (39.8)	60 (48.0)	45 (32.4)	0.073
Low / Moderate	44 (16.5)	19 (15.2)	25 (18.0)	

Demographic and historical trauma variables	All participants n (%)	Males n (%)	Females n (%)	p-value
Severe	110 (41.4)	45 (36.0)	64 (46.0)	
Sexual abuse severity				
None	109 (41.0)	75 (60.0)	33 (23.7)	<0.001
Low / Moderate	45 (16.9)	20 (16.0)	25 (18.0)	
Severe	103 (38.7)	29 (23.2)	73 (52.5)	
Emotional neglect severity				
None	75 (28.4)	42 (33.6)	33 (23.7)	0.185
Low / Moderate	135 (51.1)	59 (47.2)	76 (54.7)	
Severe	47 (17.8)	20 (16.0)	27 (19.4)	
Physical neglect severity				
None	55 (20.8)	33 (26.4)	22 (15.8)	0.009
Low / Moderate	95 (36.0)	48 (38.4)	47 (33.8)	
Severe	104 (39.4)	37 (29.6)	67 (48.2)	
Maltreatment summary score (t-test)				
0	23 (8.7)	14 (11.2)	9 (6.5)	<0.001*
1	24 (9.1)	16 (12.8)	8 (5.8)	
2	36 (13.6)	25 (20.0)	11 (7.9)	
3	49 (18.6)	24 (19.2)	25 (18.0)	
4	41 (15.5)	19 (15.2)	22 (15.8)	
5	91 (34.5)	27 (21.6)	64 (46.0)	

6.3.2 Prevalence of childhood maltreatments and differences between men and women

Table 6.1 also demonstrates the frequencies of the CTQ maltreatment subscales. For emotional abuse, 34.2% of participants had low/moderate experiences, while 33.8% reported severe experiences. When maltreatment was stratified by sex, there was a significant difference in severe emotional abuse, as women reported a higher prevalence of it (48.1% vs. 28.1%, respectively) and were less likely to report having had no experiences of emotional abuse (18% vs. 41.5%, respectively) ($p < 0.001$). For physical abuse, low/moderate levels were reported by 16.9% of all participants, while 41.4% had had severe experiences. There was a weak difference

between women and men, as the proportion of women who reported severe physical abuse was higher than the proportion of men (47.4% vs. 36.8%, respectively) and less women had experienced no physical abuse than men (34.1% vs. 48%, respectively) ($p=0.073$). For sexual abuse, only 16.9% had low/moderate experiences while 38.7% reported severe sexual abuse and 41% had had no sexual abuse. Significant differences were found in the sexual abuse experienced by men and women, as 55% of women had had severe sexual abuse compared to 24% of men, and the majority of men reported that they had had no sexual abuse (60%) ($p<0.001$). Emotional neglect was the only maltreatment type for which most (50.8%) participants reported low/moderate experiences; only a minority (17.7%) had had severe experiences. The same pattern occurred when men and women were observed separately, but the difference between the sexes was not significant ($p=0.185$).

The proportions of participants who had experienced low/moderate and severe physical neglect was similar (36.1% and 39.1%, respectively). However when stratified by sex, there was again a significant difference, with 48.9% of women reporting severe physical neglect as compared to 31.4% of men ($p=0.009$). The maltreatment summary score demonstrated that only 8.6% of all participants had had no childhood experience of abuse or neglect, while 34.2% had experienced all 5 types of maltreatment. Lastly, there was a significant difference in the maltreatment summary score when men and women were observed separately, as women were more likely than men to have experienced all 5 types of maltreatment (45.7% vs. 21.4%, respectively) while men were more likely than women to have experienced fewer maltreatments ($p<0.001$). Finally, for the minimization/denial scale: 69.6% of participants had scores of zero, 19.5% ($n=52$) had low scores, 9% ($n=24$) had moderate scores, and 1.9% ($n=5$) had high scores. A sensitivity analysis of participants with minimization/denial scores >0 compared to

participants without minimization/denial demonstrated no significant differences (data not shown).

6.3.3 CTQ subscales and differences in severity between demographic and historical trauma factors

Table 6.2 displays comparisons between demographic and historical trauma factors and the CTQ subscales. Among participants who had experienced severe childhood sexual abuse, 61% had at least one parent who had attended residential school, vs. 33.3% of participants who had not experienced childhood sexual abuse ($p=0.002$). Similarly, 61.5% of participants who had experienced severe physical neglect had had a parent who had attended residential school, vs. 36.4% of participants who had not experienced any physical neglect ($p=0.002$). The high proportions of participants who had experienced severe sexual abuse and physical neglect across each category of parental attendance at residential school are also visually described in Figures 6.1 and 6.2. The mean of the continuous sexual abuse severity score increased from 9.80 for participants who did not have a parent who had attended a residential school to 10.53 for those who were unsure, to 13.25 for participants who had at least one parent who had attended residential school (data not shown). The mean of the continuous physical neglect severity score increased from 10.41 for participants who did not have a parent who had attended residential school, to 11.03 for those who were unsure, to 12.45 for those who had at least one parent who had attended residential school (data not shown). No other maltreatment type or maltreatment score was significantly associated with parental attendance at residential school.

Table 6.2: Descriptive comparisons of historical trauma and demographic factors by CTQ subscales (chi-square tests) and total maltreatment summary score (t-tests) among all participants (n=266)

Childhood Maltreatment Variables	Any parent attended residential school				Ever in Foster Care			Sexual Identity		
	No n (%)	Unsure n (%)	Yes n (%)	p-value	No n (%)	Yes n (%)	p-value	LGBTQ n (%)	Straight n (%)	p-value
Emotional abuse severity										
None	18 (24.3)	25 (33.8)	31. (41.9)		35 (46.7)	40 (53.3)		9 (12.0)	66 (88.0)	
Low / Moderate	20 (22.0)	28 (30.8)	43 (47.3)	0.772	27 (29.7)	64 (70.3)	0.011	8 (8.8)	83 (91.2)	0.715
Severe	21 (23.3)	23 (25.6)	46 (51.1)		23 (25.6)	67 (74.4)		11 (12.2)	79 (87.8)	
Physical abuse severity										
None	27 (25.7)	36 (34.3)	42 (40.0)		44 (41.5)	62 (58.5)		13 (12.3)	93 (87.7)	
Low / Moderate	10 (22.7)	10 (22.7)	24 (54.5)	0.294	15 (34.1)	29 (65.9)	0.044	3 (6.8)	41 (93.2)	0.558
Severe	23 (21.1)	28 (25.7)	58 (53.2)		28 (25.5)	82 (74.5)		14 (12.7)	14 (12.7)	
Sexual abuse severity										
None	32 (29.6)	40 (37.0)	36 (33.3)		44 (40.4)	65 (59.6)		11 (10.1)	98 (89.9)	
Low / Moderate	11 (24.4)	10 (22.2)	24 (53.3)	0.002	14 (31.1)	31 (68.9)	0.087	6 (13.3)	39 (86.7)	0.836
Severe	16 (15.7)	24 (23.5)	62 (60.8)		27 (26.2)	76 (73.8)		12 (11.7)	91 (88.3)	
Emotional neglect severity										
None	19 (25.3)	23 (30.7)	33 (44.0)		30 (39.0)	47 (61.0)		8 (10.4)	69 (89.6)	
Low / Moderate	32 (23.7)	33 (24.4)	70 (51.9)	0.201	48 (35.6)	87 (64.4)	0.030	16 (11.9)	119 (88.1)	0.940
Severe	9 (19.1)	20 (42.6)	18 (38.3)		8 (17.0)	39 (83.0)		5 (10.6)	42 (89.4)	
Physical neglect severity										
None	18 (32.7)	17 (30.9)	20 (36.4)		29 (52.7)	26 (47.3)		7 (12.7)	48 (87.3)	
Low / Moderate	21 (22.1)	37 (38.9)	37 (38.9)	0.002	37 (38.5)	59 (61.5)	<0.001	8 (8.3)	88 (91.7)	0.575
Severe	19 (18.3)	21 (20.2)	64 (61.5)		21 (20.2)	83 (79.8)		13 (12.5)	91 (87.5)	

Childhood Maltreatment Variables	Any parent attended residential school				Ever in Foster Care			Sexual Identity		
	No n (%)	Unsure n (%)	Yes n (%)	p-value	No n (%)	Yes n (%)	p-value	LGBTQ n (%)	Straight n (%)	p-value
Maltreatment summary score										
0	5 (21.7)	10 (43.5)	8 (34.8)	0.488	13 (56.5)	10 (43.5)	0.003	2 (8.7)	21 (91.3)	0.657
1	8 (33.3)	8 (33.3)	8 (33.3)		10 (40.0)	15 (60.0)		2 (8.0)	23 (92.0)	
2	8 (22.2)	11 (30.6)	17 (47.2)		15 (40.5)	22 (59.5)		7 (18.9)	30 (81.1)	
3	14 (28.6)	15 (30.6)	20 (40.8)		17 (34.7)	32 (65.3)		6 (12.2)	43 (87.8)	
4	9 (22.0)	11 (26.8)	21 (51.2)		8 (19.5)	33 (80.5)		3 (7.3)	38 (92.7)	
5	16 (17.6)	23 (25.3)	52 (57.1)	25 (27.5)	66 (72.5)	10 (11.0)	81 (91.0)			

Table 6.2 continued: Descriptive comparisons of historical trauma and demographic factors by CTQ subscales (chi-square tests) and total maltreatment summary score (t-tests) among all participants (n=266)

Childhood Maltreatment Variables	Location			p-value	Education		p-value	Relationship status		p-value
	Chase n (%)	PG n (%)	Vancouver n (%)		< HS n (%)	HS graduate n(%)		Single n (%)	In relationship n (%)	
Emotional abuse severity										
None	7 (9.3)	28 (37.3)	40 (53.3)	0.011	59 (78.7)	16 (21.3)	0.628	65 (86.7)	10 (13.3)	0.072
Low / Moderate	8 (8.8)	42 (46.2)	41 (45.1)		76 (84.4)	15 (15.6)		73 (80.2)	18 (19.8)	
Severe	1 (1.1)	55 (61.1)	34 (37.8)		74 (82.2)	16 (17.8)		65 (72.2)	25 (27.8)	
Physical abuse severity										
None	11 (10.4)	41 (38.7)	54 (50.9)	0.007	85 (80.2)	21 (19.8)	0.125	86 (81.1)	20 (18.9)	0.494
Low / Moderate	1 (2.3)	30 (68.2)	13 (29.5)		40 (93.0)	3 (7.0)		37 (84.1)	7 (15.9)	
Severe	4 (3.6)	56 (50.9)	50 (45.5)		87 (79.8)	22 (20.2)		84 (76.4)	26 (23.6)	

Childhood Maltreatment Variables	Location			p-value	Education		p-value	Relationship status		p-value
	Chase n (%)	PG n (%)	Vancouver n (%)		< HS n (%)	HS graduate n(%)		Single n (%)	In relationship n (%)	
Sexual abuse severity										
None	12 (11.0)	51 (46.8)	46 (42.2)	0.005	90 (82.6)	19 (17.4)	0.895	98 (89.9)	11 (10.1)	0.001
Low / Moderate	2 (4.4)	15 (33.3)	28 (62.2)		35 (79.5)	9 (20.5)		36 (80.0)	9 (20.0)	
Severe	2 (1.9)	59 (57.3)	42 (40.8)		85 (82.5)	18 (17.5)		72 (69.9)	31 (30.1)	
Emotional neglect severity										
None	7 (9.1)	33 (42.9)	37 (48.1)	0.400	61 (80.3)	15 (19.7)	0.142	65 (84.4)	12 (15.6)	0.045
Low / Moderate	8 (5.9)	68 (50.4)	59 (43.7)		116 (86.6)	18 (13.4)		108 (80.0)	27 (20.0)	
Severe	1 (2.1)	27 (57.4)	19 (40.4)		35 (74.5)	12 (25.5)		31 (66.0)	16 (34.0)	
Physical neglect severity										
None	7 (12.7)	23 (41.8)	25 (45.5)	0.091	43 (78.2)	12 (21.8)	0.310	47 (85.5)	8 (14.5)	0.225
Low / Moderate	7 (7.3)	47 (49.0)	42 (43.8)		83 (87.4)	12 (12.6)		77 (80.2)	19 (19.8)	
Severe	2 (1.9)	56 (53.8)	46 (44.2)		84 (81.6)	19 (18.4)		77 (74.0)	27 (26.0)	
Maltreatment summary score										
0	3 (13.0)	6 (26.1)	14 (60.9)	0.014	18 (78.3)	5 (21.7)	0.348	19 (82.6)	4 (17.4)	0.017
1	2 (8.0)	15 (60.0)	8 (32.0)		18 (72.0)	7 (28.0)		24 (96.0)	1 (4.0)	
2	4 (10.8)	12 (32.4)	21 (56.8)		31 (83.8)	6 (16.2)		33 (89.2)	4 (10.8)	
3	2 (4.1)	27 (55.1)	20 (40.8)		40 (83.3)	8 (16.7)		38 (77.6)	11 (22.4)	
4	5 (12.2)	20 (48.8)	16 (39.0)		35 (87.5)	5 (12.5)		29 (70.7)	12 (29.3)	
5	0 (0)	51 (56.0)	40 (44.0)		75 (82.4)	16 (17.6)		68 (74.7)	23 (25.3)	

HS= high school

Significantly higher proportions of participants with severe levels of maltreatment and higher maltreatment summary scores had been in foster care than participants who had not experienced maltreatment. However, the difference in severity of sexual abuse for those who had and had not been in foster care was marginal ($p=0.087$).

Figure 6.1: Childhood sexual abuse by parental attendance at residential school among all participants

(n=266)

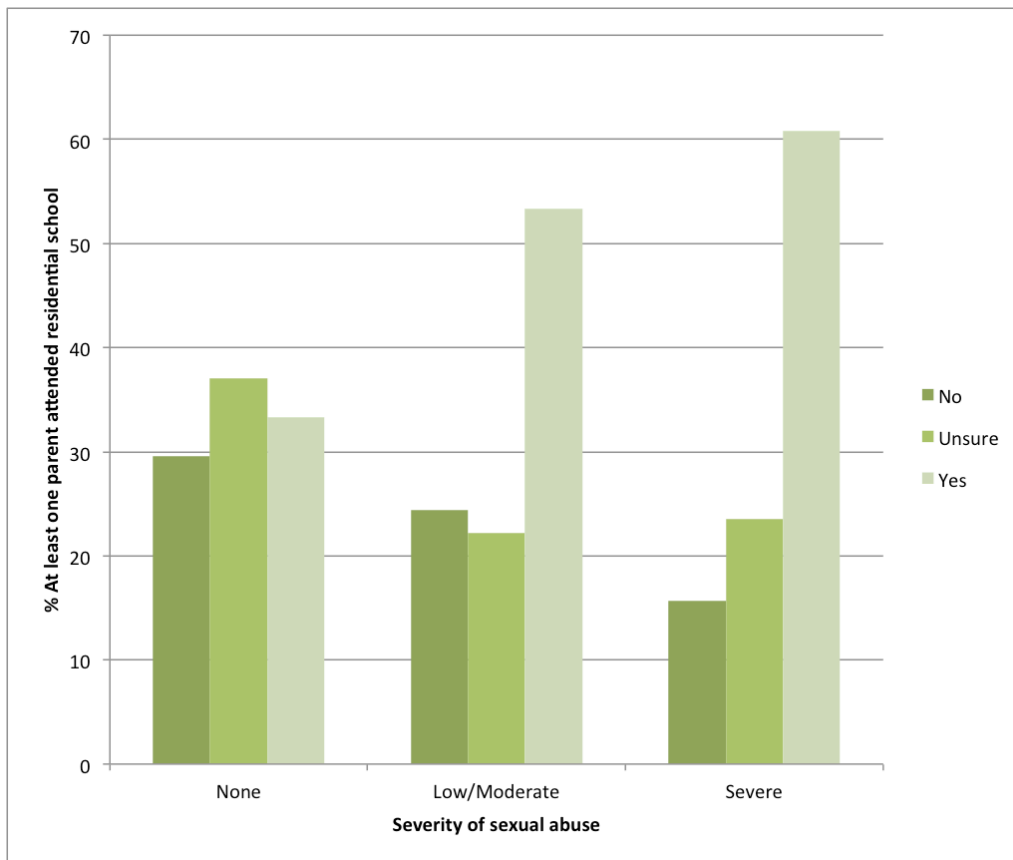
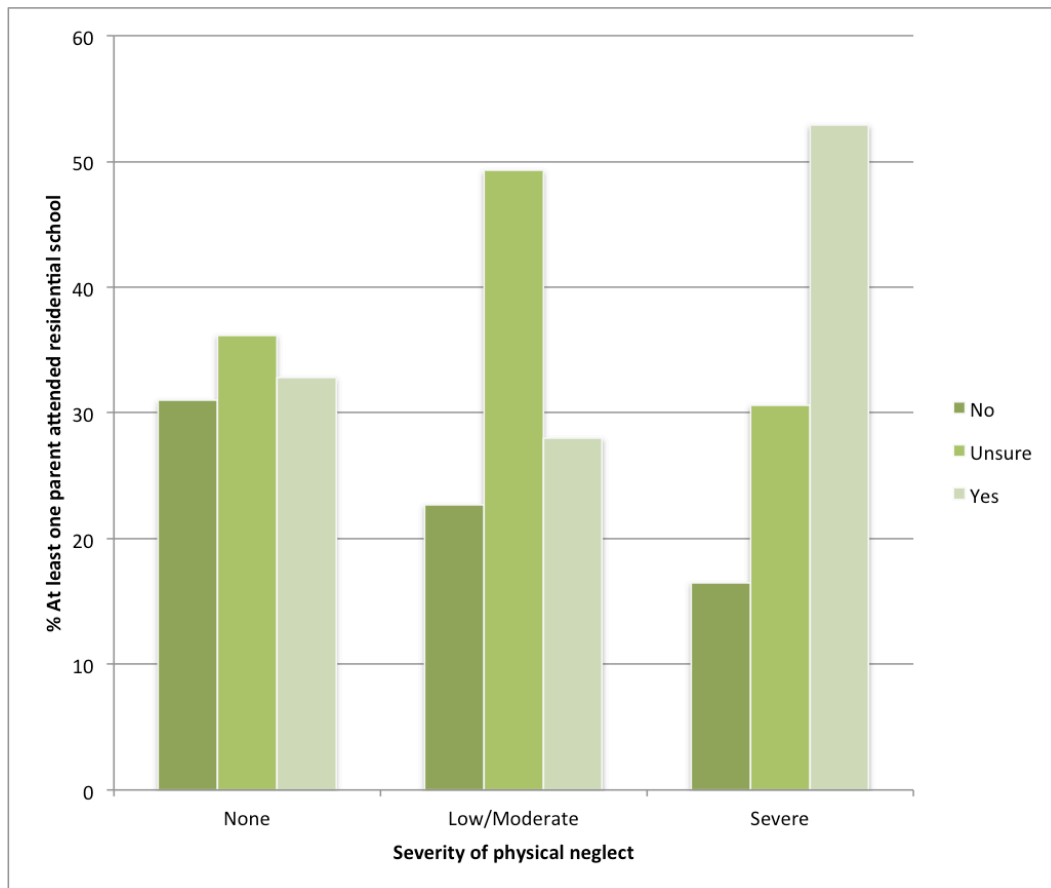


Figure 6.2: Childhood physical neglect by parental attendance at residential school among all participants (n=266)



For every type of maltreatment and the summary score, proportionally fewer participants from the Chase study location had had low/moderate or severe maltreatment experiences compared to participants from the other two locations. Higher proportions of participants from Prince George had had severe levels of maltreatment as compared to participants from other locations. Education was not associated with any of the subscales. Significantly higher proportions of participants who had experienced severe emotional abuse, sexual abuse, and emotional neglect were in a relationship and there was a significant association between the mean maltreatment summary score and relationship status ($p < 0.05$).

6.3.4 Confirmatory Factor Analysis

Results from the CFA of the CTQ are presented in Table 6.3. All of the items had salient loadings for their respective latent constructs ranging from 0.575 to 0.990. For the five-factor model fit indices, the Chi-Square p-value was <0.05 . The measures of approximate fit suggested a very good fit for the hypothesized model: CFI = 0.975 , TLI = 0.972, CRS = 0.982. Finally, the RMSEA value was 0.090, which suggested a mediocre fit (Hu & Bentler, 1998). The internal reliability of the coefficients (Cronbach's α) for the five clinical scales of the CTQ maltreatment types were acceptable: $\alpha=0.880$ for emotional abuse, $\alpha=0.900$ for physical abuse, $\alpha=0.962$ for sexual abuse, $\alpha=0.850$ for emotional neglect, and $\alpha=0.702$ for physical neglect (data not shown). Table 4 reports the correlations between the factors based on Bernstein and Fink's five-factor model (1998). The correlations ranged from 0.267 to 0.775 and they were all significant at the <0.001 level. The strongest correlations were between physical abuse and emotional abuse (0.775) and physical neglect and emotional abuse (0.601).

Table 6.3: Standardized loadings for the first and second order confirmatory factor analysis of the Childhood Trauma Questionnaire among all participants (n=266)

CTQ dimension	Question	First Order CFA	Second Order CFA
Emotional Abuse			0.970
	People in my family called me things like 'stupid', 'lazy', or ugly'	0.786	0.785
	I thought my parents wished I had never been born	0.733	0.732
	People in my family said hurtful or insulting things to me	0.858	0.832
	I felt someone in my family hated me	0.858	0.859
	I believe I was emotionally abused	0.905	0.907
Physical abuse			0.891

CTQ dimension	Question	First Order CFA	Second Order CFA
	I got hit so hard by someone in my family that I had to see a doctor or go to the hospital	0.787	0.786
	People in my family hit me so hard that it left me with bruises or marks	0.900	0.900
	I was punished with a belt, a board, a cord, or some other hard object	0.831	0.830
	I believe that I was physically abused	0.942	0.944
	I got hit or beaten so badly that it was noticed by someone like a teacher, neighbour, or doctor	0.898	0.898
Sexual abuse			0.683
	Someone tried to touch me in a sexual way or tried to make me touch them	0.962	0.962
	Someone threatened to hurt me or tell lies about me unless I did something sexual with them	0.929	0.929
	Someone tried to make me do sexual things or watch sexual things	0.950	0.950
	Someone molested me	0.980	0.980
	I believe that I was sexually abused	0.990	0.991
Emotional neglect			0.611
	There was someone in my family who helped me feel that I was important or special	0.596	0.591
	I felt loved	0.801	0.800
	People in my family looked out for each other	0.840	0.841
	People in my family felt close to each other	0.783	0.785
	My family as a source of strength and support	0.843	0.844
Physical neglect			0.863
	I didn't have enough to eat	0.575	0.584
	I knew that there was someone to take care of me and protect me	0.607	0.591
	My parents were too drunk or high to take care of the family	0.724	0.734
	I had to wear dirty clothes	0.717	0.725
	There was someone to take me to the doctor if I needed it	0.634	0.621

Table 6.4: Bivariate Pearson Correlations of the five-factor Childhood Trauma Questionnaire model among all participants (n=266)

Maltreatment Type^{a,b}	EA	PA	SA	EN	PN
Emotional Abuse	-				
Physical Abuse	0.77	-			
Sexual Abuse	0.52	0.51	-		
Emotional Neglect	0.49	0.43	0.26	-	
Physical Neglect	0.60	0.58	0.48	0.54	-

a. EA: emotional abuse; PA: physical abuse; SA: sexual abuse; EN: emotional neglect; PN: physical neglect

b. All correlations were significant at the $p < 0.001$ level

6.3.5 Longitudinal outcomes associated with childhood maltreatment

Table 6.5 displays the numbers of outcome events for baseline and longitudinal events – for all participants and separately for men and women. Participants returned to the study sites for a minimum of two and a maximum of 16 interviews; the median number of follow-up interviews was 13. Tables 6.6 through 6.11 display the unadjusted and adjusted results from the GLMM analyses of the effect of the CTQ subscales and the maltreatment summary score on longitudinal study outcomes. Each table displays results for all participants and separate results for male and female participants. Each model regressed the childhood maltreatment variables and the continuous maltreatment summary score on study outcomes. Odds ratios may therefore be interpreted as the likelihood of an outcome occurring for each level increase in severity (i.e. the likelihood of an outcome for the difference between the ‘none’ level and the ‘low/moderate’ level, and between the ‘none’ level and the ‘severe’ level of maltreatment).

Table 6.5: Baseline and longitudinal observation counts for all participants (n=266), male participants (n=126) and female participants (n=140)

Study Outcomes	All Baseline		All Observations over time		Males Baseline		Males Observations over time		Females Baseline		Females Observations over time	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
General												
Slept on streets for >3 nights	95	170	1869	781	46	80	881	352	49	90	988	429
Daily or more smoking crack	127	132	1564	977	76	48	837	348	51	84	727	629
Binge drinking	88	20	1172	358	50	6	606	188	38	14	566	170
Blackouts from drinking	69	39	960	575	41	15	484	313	28	24	476	262
Quit using	41	79	327	1056	27	31	160	496	14	48	167	303
Access drug/alcohol treatment	207	59	1744	883	109	17	919	299	98	42	825	584
Sexual risks												
Sex work	154	111	2029	609	115	10	1161	66	39	101	868	543
Inconsistent condom use with regular partner	15	66	185	521	6	18	81	194	8	30	104	327
Inconsistent condom use with casual partner	23	11	354	202	14	3	223	118	9	8	131	84
Sexual assault	101	4	2252	81	50	0	1058	20	51	4	1194	61
Sexually transmitted infection	245	21	2499	152	123	3	1199	34	122	18	1300	118
Injection drug use related												
Any injection drug use	124	142	1615	1036	70	56	852	381	54	86	763	655
Daily or more injection cocaine	102	36	747	207	45	11	294	305	57	25	453	142
Daily or more injection opiates	69	30	361	342	35	4	154	98	34	26	207	244
Binge injection	33	11	647	166	16	3	235	59	17	8	412	107
Sharing rigs	57	27	814	98	18	1	305	23	19	5	509	75
Need help to inject	36	47	663	244	17	2	263	66	14	10	400	178
Infectious disease												
HIV positive serostatus	241	24	2208	406	118	7	1075	138	123	17	1133	268
HCV positive serostatus	192	72	1488	987	103	21	872	277	89	51	616	710

Emotional abuse subscale

Table 6.6 displays the results of the unadjusted and adjusted GLMM models examining the relationship between the study outcomes and the emotional abuse subscale Table 6. In the multivariate analysis including all participants, each level increase in emotional abuse severity was associated with a 41% increased likelihood of having slept on the streets for 3 nights or longer (95% Confidence Interval (CI): 1.077, 1.851); a 37% increased likelihood of having blackouts while drinking (95% CI: 0.991, 1.884); a 38% increased likelihood of accessing drug or alcohol treatment (95% CI: 1.118, 1.703); a 2-fold increased probability of sex work involvement (95% CI: 1.200, 3.500); a 53% increased likelihood of having unsafe sex with regular sexual partners (95% CI: 1.019, 2.315); a 49% increased likelihood of having unsafe sex with casual partners (95% CI: 1.037, 2.150); a 73% increased likelihood of sexual assault (95% CI: 1.116, 2.704), and; a 31% increased likelihood of having an STI (95% CI: 0.978, 1.752).

For participants who had injected drugs, each level increase of emotional abuse severity was associated with a 60% increased likelihood of binging with injection drugs (95% CI: 1.131, 2.254). In models that included male participants only, each level of increased severity of emotional abuse was associated with a 41% increased likelihood of accessing drug or alcohol treatment (95% CI: 1.021, 1.944); a 7.9-fold-greater likelihood of sex work involvement (95% CI: 1.240, 48.905); a 59% increased likelihood of inconsistent condom use with casual sex partners (95% CI: 1.037, 2.448); a 92% increased likelihood for having a self-reported STI (95% CI: 1.083, 3.411); and a 2.44-fold increased probability of sharing rigs for men who had injected drugs (95% CI: 1.212, 4.936). In models that included female participants only, each level of increased severity of emotional abuse was associated with an increased likelihood of sleeping on the streets for 3 nights or longer (from 36% in the unadjusted model to 75% in the adjusted

model) (95% CI: 1.207, 2.526); and a 37% increased likelihood of accessing drug or alcohol treatment (95% CI: 1.039, 1.809). Each increased level of emotional abuse severity among women was associated with an 89% increased likelihood of sexual assault (95% CI: 1.098, 3.257). In models that included only women who had injected drugs, increased levels of emotional abuse were associated with a decreased likelihood for high frequency opiate injection (AOR: 0.484, 95% CI: 0.228-1.029), although the likelihood of binge injection increased by 54% (95% CI: 1.063, 2.245).

Table 6.6: Longitudinal outcomes associated with childhood emotional abuse among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants emotional abuse severity						Male participants emotional abuse severity						Female participants emotional abuse severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.185	0.966-1.453	0.103	1.412	1.077-1.851	0.012	0.999	0.738-1.352	0.995	-	-	-	1.360	1.012-1.828	0.042	1.746	1.207-2.526	0.003
Daily or more smoking crack	1.095	0.804-1.490	0.566	-	-	-	0.876	0.572-1.340	0.541	-	-	-	0.880	0.572-1.353	0.560	-	-	-
Binge drinking	1.192	0.900-1.578	0.220	-	-	-	1.169	0.807-1.692	0.408	-	-	-	1.419	0.882-2.283	0.149	-	-	-
Blackouts from drinking	1.284	0.949-1.738	0.105	1.367	0.991-1.884	0.057	1.454	0.969-2.180	0.070	1.353	0.899-2.039	0.148	1.543	0.880-2.704	0.130	-	-	-
Quit using	1.048	0.827-1.326	0.700	-	-	-	1.182	0.820-1.704	0.370	-	-	-	0.810	0.554-1.184	0.276	-	-	-
Access drug/alcohol treatment	1.668	1.353-2.056	<0.001	1.380	1.118-1.703	0.003	1.503	1.101-2.051	0.010	1.409	1.021-1.944	0.037	1.440	1.095-1.895	0.009	1.371	1.039-1.809	0.026
Sexual risks																		
Sex work	4.133	2.456-6.956	<0.001	2.050	1.200-3.502	0.009	4.346	0.985-19.170	0.052	7.788	1.240-48.905	0.029	1.293	0.847-1.973	0.233	-	-	-
Inconsistent condom use with regular partner	1.671	1.120-2.493	0.012	1.536	1.019-2.315	0.040	1.551	0.894-2.693	0.119	-	-	-	1.878	0.985-3.578	0.055	1.815	0.943-3.493	0.074
Inconsistent condom use with casual partner	1.475	1.045-2.080	0.027	1.493	1.037-2.150	0.031	1.517	1.019-2.258	0.040	1.593	1.037-2.448	0.034	1.400	0.674-2.908	0.367	-	-	-
Sexual assault	2.003	1.307-3.070	0.001	1.737	1.116-2.704	0.014	1.105	0.497-2.454	0.806	-	-	-	2.080	1.202-3.601	0.009	1.891	1.098-3.257	0.022
Sexually transmitted infection	1.870	1.357-2.577	0.000	1.310	0.978-1.752	0.070	2.125	1.174-3.846	0.013	1.922	1.083-3.411	0.026	1.064	0.745-1.518	0.734	-	-	-
Injection drug use related																		
Any injection drug use	1.644	1.000-2.703	0.050	1.477	0.812-2.688	0.202	1.310	0.578-2.969	0.518	-	-	-	1.253	0.635-2.471	0.515	-	-	-
Daily or more injection cocaine	1.522	1.012-2.286	0.043	1.242	0.825-1.869	0.299	1.626	0.791-3.340	0.186	-	-	-	1.188	0.713-1.979	0.509	-	-	-
Daily or more injection opiates	1.131	0.597-2.141	0.707	-	-	-	2.108	0.633-7.022	0.225	-	-	-	0.509	0.236-1.095	0.084	0.484	0.228-1.029	0.059
Binge injection	1.608	1.159-2.231	0.005	1.597	1.131-2.254	0.008	1.440	0.780-2.659	0.244	-	-	-	1.539	1.066-2.223	0.022	1.545	1.063-2.245	0.023

Study Outcomes	All participants emotional abuse severity						Male participants emotional abuse severity						Female participants emotional abuse severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.471	0.969-2.235	0.070	1.278	0.865-1.887	0.218	3.395	1.369-8.421	0.008	2.446	1.212-4.936	0.013	0.844	0.553-1.289	0.433	-	-	-
Need help to inject	0.953	0.621-1.464	0.827	-	-	-	0.947	0.390-2.298	0.904	-	-	-	0.828	0.506-1.352	0.450	-	-	-
Infectious disease																		
HIV positive serostatus	0.654	0.217-1.971	0.450	-	-	-	0.712	0.053-9.568	0.798	-	-	-	0.476	0.121-1.865	0.286	-	-	-
HCV positive serostatus	2.369	0.278-20.204	0.430	-	-	-	0.569	0.022-14.819	0.735	-	-	-	1.181	0.017-82.264	0.939	-	-	-

Physical abuse subscale

Table 6.7 demonstrates the unadjusted and adjusted GLMM results for study outcomes associated with the physical abuse subscale. In the multivariate analysis including all participants, an increase of one level of physical abuse severity was associated with a 27% higher likelihood of sleeping on the streets for 3 nights or longer (95% CI: 1.012, 1.586), a 31% higher likelihood of binge drinking (95% CI: 1.015, 1.699); a 50% higher likelihood of being involved in sex work (95% CI: 0.952, 2.373); a 74% higher likelihood of inconsistent condom use with regular sexual partners (95% CI: 1.213, 2.498), and; a 53% increased likelihood of sexual assault (95% CI: 1.053, 2.225). In models including all participants who had injected drugs, each level increase of physical abuse severity was associated with a 37% increased likelihood of high frequency cocaine injection (95% CI: 0.973, 1.920) and a 70% increased likelihood of binge injection drug use (95% CI: 1.259, 2.309). In addition, there was a negative association between increased levels of physical abuse and needing help injecting (AOR: 0.696, 95% CI: 0.473, 1.023).

For the stratified models including male participants, each level increase of physical abuse severity was marginally associated with a 3.66-fold greater probability of being involved in sex work (95% CI: 0.956, 14.000); and marginally associated with a 52% greater likelihood of inconsistently using condoms with regular sexual partners (95% CI: 0.951, 2.437). However each increase in physical abuse severity among the men was associated with a 2.4-fold greater probability for sexual assault over the study period (95% CI: 1.120, 5.107). In models addressing injection-related risks among male participants who had injected drugs, an increase of one-level of physical abuse severity was associated with a 3.4-fold increased probability of high frequency opiate injection (95% CI: 0.970, 12.420) and a 78% increased likelihood of sharing rigs (95% CI:

0.971, 3.255). In the stratified models including female participants, each level increase of physical abuse severity was associated with a 56% increased likelihood of sleeping on the streets for 3 nights or longer (95% CI: 1.131, 2.157); a 93% increased likelihood of using condoms inconsistently with regular sexual partners (95% CI: 1.128, 3.317), and a 78% increased likelihood of binge injection among the women who had injected drugs (95% CI: 1.234, 2.555).

Table 6.7: Longitudinal outcomes associated with childhood physical abuse among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants physical abuse severity						Male participants physical abuse severity						Female participants physical abuse severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.185	0.993-1.414	0.060	1.267	1.012-1.586	0.039	1.010	0.782-1.303	0.940	-	-	-	1.372	1.066-1.766	0.014	1.562	1.131-2.157	0.007
Daily or more smoking crack	1.018	0.773-1.341	0.899	-	-	-	0.817	0.547-1.219	0.321	-	-	-	1.013	0.701-1.464	0.944	-	-	-
Binge drinking	1.249	0.966-1.614	0.089	1.313	1.015-1.699	0.038	1.198	0.865-1.658	0.277	-	-	-	1.383	0.908-2.107	0.131	-	-	-
Blackouts from drinking	1.161	0.887-1.521	0.277	-	-	-	1.069	0.737-1.550	0.727	-	-	-	1.374	0.914-2.065	0.127	-	-	-
Quit using	1.099	0.895-1.349	0.366	-	-	-	1.096	0.818-1.470	0.539	-	-	-	1.072	0.798-1.439	0.644	-	-	-
Access drug/alcohol treatment	1.212	1.002-1.466	0.047	1.107	0.922-1.328	0.276	1.142	0.872-1.496	0.333	-	-	-	1.117	0.872-1.431	0.382	-	-	-
Sexual risks																		
Sex work	2.016	1.283-3.165	0.002	1.503	0.952-2.373	0.080	3.559	1.053-12.031	0.041	3.659	0.956-14.00	0.058	1.149	0.781-1.690	0.480	-	-	-
Inconsistent condom use with regular partner	1.817	1.255-2.630	0.002	1.741	1.213-2.498	0.003	1.623	0.960-2.744	0.070	1.523	0.951-2.437	0.080	1.999	1.183-3.379	0.010	1.935	1.128-3.317	0.016
Inconsistent condom use with casual partner	1.190	0.870-1.627	0.276	-	-	-	1.345	0.919-1.966	0.127	-	-	-	0.927	0.538-1.595	0.783	-	-	-
Sexual assault	1.595	1.098-2.317	0.014	1.531	1.053-2.225	0.026	2.485	1.146-5.389	0.021	2.392	1.120-5.107	0.024	1.320	0.867-2.010	0.195	-	-	-
Sexually transmitted infection	1.372	1.035-1.819	0.028	1.154	0.894-1.491	0.271	1.272	0.758-2.134	0.362	-	-	-	1.013	0.745-1.377	0.933	-	-	-
Injection drug use related																		
Any injection drug use	1.363	0.888-2.092	0.157	-	-	-	0.902	0.444-1.835	0.777	-	-	-	1.439	0.841-2.460	0.184	-	-	-
Daily or more injection cocaine	1.442	1.040-1.999	0.028	1.367	0.973-1.920	0.072	1.218	0.651-2.279	0.537	-	-	-	1.357	0.891-2.066	0.155	-	-	-
Daily or more injection opiates	1.327	0.781-2.256	0.295	-	-	-	2.229	0.799-6.220	0.126	3.472	0.970-12.420	0.056	0.801	0.419-1.531	0.502	-	-	-
Binge injection	1.715	1.270-2.317	0.000	1.705	1.259-2.309	0.001	1.534	0.920-2.558	0.101	1.522	0.910-2.548	0.110	1.780	1.240-2.555	0.002	1.776	1.234-2.555	0.002

Study Outcomes	All participants physical abuse severity						Male participants physical abuse severity						Female participants physical abuse severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.109	0.774-1.587	0.573	-	-	-	1.991	0.973-4.072	0.059	1.778	0.971-3.255	0.062	0.750	0.514-1.092	0.133	-	-	-
Need help to inject	0.704	0.496-0.998	0.049	0.696	0.473-1.023	0.065	0.738	0.380-1.434	0.371	-	-	-	0.673	0.448-1.009	0.055	0.753	0.484-1.172	0.209
Infectious disease																		
HIV positive serostatus	0.873	0.220-3.457	0.847	-	-	-	0.599	0.256-1.401	0.238	-	-	-	0.759	0.105-5.483	0.785	-	-	-
HCV positive serostatus	1.807	0.330-9.905	0.495	-	-	-	0.951	0.066-13.756	0.971	-	-	-	3.349	0.202-55.571	0.399	-	-	-

Sexual abuse subscale

The unadjusted and adjusted GLMM results of study outcomes related to the sexual abuse subscale are displayed in Table 6.8. In the adjusted models including all participants, an increase of one level on the sexual abuse severity scale was significantly associated with a 25% increased probability of accessing drug or alcohol treatment (95% CI: 1.028, 1.554); a 2-fold increased likelihood of being involved in sex work (95% CI: 1.293, 3.221); a 58% greater likelihood for inconsistently using condoms with regular sexual partners (95% CI: 1.081, 2.323); a 50% greater likelihood of a sexual assault (95% CI: 0.990, 2.288), and; a 77% higher probability of injecting drugs (95% CI: 1.110, 2.843). In models including only participants who had injected drugs, each level increase of sexual abuse severity was associated with a 67% increased likelihood of injecting cocaine once or more daily 67% (95% CI: 1.158, 2.397) and a 58% increased likelihood of binge injection drug use (95% CI: 1.165, 2.132). Finally, in the adjusted model for all participants, the probability of HCV infection increased by 3.5-fold for each level increase of sexual abuse severity (95% CI: 1.655, 7.243).

In the stratified models including male participants only, each level of sexual abuse severity was associated with a 57% increased likelihood of accessing alcohol or drug treatment (95% CI: 1.172, 2.111); a 7-fold higher probability of sex work involvement (95% CI: 1.919, 26.788); a 42% increased likelihood of inconsistently using condoms with casual sexual partners (95%CI: 0.980, 2.055), and; a 2.1-fold higher probability of injecting drugs (95% CI: 0.889, 4.986). For models including only men who had reported injection drug use, each level increase of sexual abuse severity was associated with a 4.7-fold increased probability of injecting opiates once or more a day (95% CI: 1.343, 16.522). In the stratified models that included female participants only, with each level of sexual abuse severity was associated with a 73% increased

likelihood of binge drinking (95% CI: 1.015, 2.942) and a 62% increased likelihood of unsafe sex with regular sexual partners (95% CI: 0.912, 2.868). For models including only women who had injected drugs, each level increase of sexual abuse severity was marginally associated with a decreased likelihood of high frequency opiate injection (AOR: 0.586, 95% CI: 0.342, 1.002) and marginally associated with sharing rigs (AOR: 0.714, 95% CI: 0.493, 1.035). However each increase was strongly associated with a 58% greater likelihood of binge injection drug use (95% CI: 1.132, 2.210).

Table 6.8: Longitudinal outcomes associated with childhood sexual abuse among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants sexual abuse severity						Male participants sexual abuse severity						Female participants sexual abuse severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.139	0.960-1.352	0.135	-	-	-	1.228	0.946-1.594	0.123	-	-	-	1.009	0.783-1.298	0.947	-	-	-
Daily or more smoking crack	1.482	1.138-1.930	0.003	1.215	0.886-1.666	0.228	1.373	0.936-2.015	0.105	1.288	0.827-2.004	0.263	0.996	0.665-1.490	0.984	-	-	-
Binge drinking	1.018	0.781-1.327	0.895	-	-	-	0.742	0.500-1.100	0.137	-	-	-	1.685	0.978-2.902	0.060	1.728	1.015-2.942	0.044
Blackouts from drinking	0.908	0.687-1.199	0.495	-	-	-	0.815	0.536-1.239	0.339	-	-	-	1.213	0.777-1.892	0.395	-	-	-
Quit using	1.106	0.896-1.364	0.348	-	-	-	1.102	0.799-1.519	0.555	-	-	-	1.074	0.798-1.445	0.639	-	-	-
Access drug/alcohol treatment	1.488	1.233-1.794	<0.001	1.264	1.028-1.554	0.026	1.530	1.148-2.039	0.004	1.573	1.172-2.111	0.003	1.166	0.892-1.523	0.262	-	-	-
Sexual risks																		
Sex work	4.970	3.035-8.140	<0.001	2.041	1.293-3.221	0.002	3.947	1.162-13.407	0.028	7.170	1.919-26.788	0.003	1.118	0.740-1.691	0.596	-	-	-
Inconsistent condom use with regular partner	1.679	1.161-2.429	0.006	1.584	1.081-2.323	0.018	1.473	0.814-2.663	0.200	-	-	-	1.693	0.980-2.924	0.059	1.618	0.912-2.868	0.100
Inconsistent condom use with casual partner	1.132	0.837-1.530	0.421	-	-	-	1.409	0.992-2.001	0.056	1.420	0.980-2.055	0.063	0.648	0.331-1.268	0.205	-	-	-
Sexual assault	1.841	1.231-2.752	0.003	1.505	0.990-2.288	0.056	1.598	0.781-3.266	0.199	-	-	-	1.521	0.896-2.583	0.121	-	-	-
Sexually transmitted infection	1.324	1.003-1.747	0.047	1.015	0.780-1.320	0.911	1.167	0.662-2.055	0.594	-	-	-	0.853	0.623-1.168	0.323	-	-	-
Injection drug use related																		
Any injection drug use	2.010	1.310-3.085	0.001	1.777	1.110-2.843	0.017	2.540	1.204-5.361	0.014	2.106	0.889-4.986	0.090	0.999	0.560-1.782	0.997	-	-	-
Daily or more injection cocaine	1.486	1.063, 2.077	0.021	1.666	1.158-2.397	0.006	1.280	0.658-2.490	0.466	-	-	-	1.293	0.838-1.995	0.246	-	-	-
Daily or more injection opiates	1.248	0.699, 2.225	0.454	-	-	-	3.361	1.171-9.643	0.024	4.710	1.343-16.522	0.016	0.536	0.293-0.980	0.043	0.586	0.342-1.002	0.051
Binge injection	1.554	1.159, 2.083	0.003	1.576	1.165-2.132	0.003	1.342	0.774-2.328	0.294	-	-	-	1.605	1.144-2.250	0.006	1.581	1.132-2.210	0.007

Study Outcomes	All participants sexual abuse severity						Male participants sexual abuse severity						Female participants sexual abuse severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.010	0.709, 1.441	0.954	-	-	-	1.439	0.690-2.998	0.331	-	-	-	0.674	0.473-0.959	0.029	0.714	0.493-1.035	0.076
Need help to inject	0.770	0.539, 1.100	0.151	-	-	-	0.557	0.264-1.176	0.125	-	-	-	0.830	0.570-1.210	0.333	-	-	-
Infectious disease																		
HIV positive serostatus	0.702	0.218, 2.257	0.553	-	-	-	1.001	0.291-3.447	0.999	-	-	-	0.491	0.120-2.009	0.323	-	-	-
HCV positive serostatus	3.413	1.152, 10.108	0.027	3.462	1.655-7.243	0.001	1.262	0.057-27.870	0.883	-	-	-	3.991	0.234-68.099	0.339	-	-	-

Emotional neglect subscale

Unadjusted and adjusted GLMM models examining the effect of the emotional neglect subscale on study outcomes are displayed in Table 6.9. In the adjusted models for all participants, each level increase of emotional neglect severity was associated with a 38% increased likelihood of accessing drugs or alcohol treatment (95% CI: 1.118, 1.703); an 88% increased likelihood of being involved in sex work (95% CI: 1.041, 3.412), and; a 2-fold increased likelihood of injection drug use (95% CI: 1.113, 3.849). In the adjusted models for men only, the probability of accessing drug or alcohol treatment increased by 41% (95% CI: 1.021, 1.944), the odds of sexual assault increased by 8-fold (95% CI: 2.405, 26.972), and there was a 9.4-fold increased likelihood of sex work involvement – an effect size that increased after adjustment for confounders but had a wide confidence interval (95% CI: 1.027, 72.661). For the injection-related models including men only, there was a decreased likelihood of high frequency cocaine injection (AOR: 0.406, 95% CI: 0.192, 0.859). Finally, in the adjusted models for women only, each level increase of emotional neglect severity increased the odds of having accessed alcohol and drug treatment in the previous 6 months by 40% (95% CI: 0.999, 1.975) and the likelihood of having unsafe sex with a regular sexual partner by 2.2-fold (95% CI: 1.089, 4.426).

Table 6.9: Longitudinal outcomes associated with childhood emotional neglect among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants emotional neglect severity						Male participants emotional neglect severity						Female participants emotional neglect severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.129	0.906-1.406	0.280	-	-	-	1.175	0.862-1.601	0.306	-	-	-	1.027	0.752-1.402	0.869	-	-	-
Daily or more smoking crack	0.936	0.657-1.332	0.712	-	-	-	0.798	0.483-1.319	0.379	-	-	-	0.908	0.568-1.451	0.685	-	-	-
Binge drinking	1.216	0.870-1.699	0.252	-	-	-	1.133	0.736-1.745	0.57	-	-	-	1.345	0.781-2.318	0.286	-	-	-
Blackouts from drinking	1.186	0.835-1.684	0.341	-	-	-	1.090	0.665-1.787	0.732	-	-	-	1.255	0.730-2.156	0.411	-	-	-
Quit using	1.043	0.785-1.387	0.770	-	-	-	1.211	0.807-1.818	0.354	-	-	-	0.865	0.580-1.291	0.479	-	-	-
Access drug/alcohol treatment	1.515	1.189-1.930	0.001	1.380	1.118-1.703	0.003	1.420	1.020-1.975	0.038	1.409	1.021-1.944	0.037	1.485	1.055-2.090	0.023	1.405	0.999-1.975	0.051
Sexual risks																		
Sex work	2.261	1.298-3.938	0.004	1.885	1.041-3.412	0.036	8.735	1.691-45.109	0.010	9.368	1.207-72.661	0.032	0.942	0.587-1.512	0.805	-	-	-
Inconsistent condom use with regular partner	1.384	0.866-2.211	0.174	-	-	-	1.018	0.544-1.903	0.955	-	-	-	2.069	1.053-4.068	0.035	2.195	1.089-4.426	0.028
Inconsistent condom use with casual partner	1.240	0.781-1.966	0.362	-	-	-	1.215	0.689-2.143	0.501	-	-	-	1.432	0.701-2.925	0.324	-	-	-
Sexual assault	1.398	0.872-2.240	0.164	-	-	-	8.156	2.419-27.499	0.001	8.055	2.405, 26.972	0.001	0.992	0.579-1.696	0.975	-	-	-
Sexually transmitted infection	1.324	0.926-1.893	0.124	-	-	-	1.136	0.566-2.280	0.719	-	-	-	1.017	0.676-1.531	0.934	-	-	-
Injection drug use related																		
Any injection drug use	1.962	1.135-3.390	0.016	2.069	1.113-3.849	0.022	2.020	0.836-4.877	0.118	-	-	-	1.677	0.852-3.303	0.135	-	-	-
Daily or more injection cocaine	0.763	0.501-1.159	0.205	-	-	-	0.330	0.137-0.797	0.014	0.406	0.192- 0.859	0.018	1.122	0.676-1.860	0.656	-	-	-
Daily or more injection opiates	0.988	0.472-2.066	0.974	-	-	-	0.871	0.256-2.968	0.826	-	-	-	1.129	0.512-2.490	0.764	-	-	-
Binge injection	1.039	0.726-1.487	0.834	-	-	-	1.215	0.618-2.387	0.572	-	-	-	0.961	0.633-1.457	0.850	-	-	-

Study Outcomes	All participants emotional neglect severity						Male participants emotional neglect severity						Female participants emotional neglect severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.324	0.836-2.097	0.231	-	-	-	1.006	0.422-2.395	0.990	-	-	-	1.487	0.919-2.405	0.106	1.485	0.877-2.513	0.141
Need help to inject	1.079	0.659-1.767	0.762	-	-	-	1.131	0.496-2.574	0.770	-	-	-	0.939	0.519-1.697	0.835	-	-	-
Infectious disease																		
HIV positive serostatus	0.747	0.151-3.690	0.721	-	-	-	0.829	0.312-2.196	0.705	-	-	-	1.213	0.339-4.333	0.767	-	-	-
HCV positive serostatus	1.050	0.127-8.651	0.964	-	-	-	0.814	0.189-3.500	0.783	-	-	-	1.423	0.007-3054.769	0.928	-	-	-

Physical neglect subscale

Table 6.10 features the unadjusted and adjusted GLMM results for study outcomes related to the physical neglect subscale. In the adjusted model including all participants, each level increase of physical neglect severity was associated with a 33% increased likelihood of sleeping on the streets for 3 nights or longer (95% CI: 1.014, 1.740); a 50% increased likelihood of binge drinking 50% (95% CI: 1.094, 2.098); a 51% increased likelihood of blacking out while drinking (95% CI: 1.082, 2.105); a 52% increased likelihood of inconsistently using condoms with regular sexual partners (95% CI: 1.025, 2.258), and; a 64% increased likelihood of binge injection among those participants who injected drugs (95% CI: 1.164, 2.325). In models that included male participants only, with each level increase of physical neglect severity was associated with a 64% greater likelihood of inconsistent condom use with casual sexual partners (95% CI: 1.058, 2.547). In models that included female participants only, with each level increase of physical neglect severity increased the likelihood of binge drinking by 90% (95% CI: 1.085, 3.312); the likelihood of blackout drinking by 65% (95% CI: 0.995, 2.735), and; the likelihood of inconsistent condom use with regular sexual partners by 2.7 fold (95% CI: 1.559, 4.797). In addition, physical neglect was associated with a decreased likelihood of high frequency opiate injection among women who had injected drugs (AOR: 0.405, 95% CI: 0.211, 0.775). However, each level increase of physical neglect severity among the women was associated with a 79% increased likelihood of binge injection (95% CI: 1.177, 2.276).

Table 6.10: Longitudinal outcomes associated with childhood physical neglect among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants physical neglect severity						Male participants physical neglect severity						Female participants physical neglect severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.275	1.037-1.567	0.021	1.328	1.014-1.740	0.039	1.321	0.955-1.827	0.092	1.329	0.897-1.968	0.157	1.214	0.914-1.613	0.181	-	-	-
Daily or more smoking crack	1.182	0.861-1.621	0.300	-	-	-	1.207	0.766-1.900	0.417	-	-	-	0.959	0.631-1.456	0.844	-	-	-
Binge drinking	1.418	1.029-1.954	0.033	1.515	1.094-2.098	0.012	1.235	0.821-1.858	0.310	-	-	-	1.902	1.074-3.681	0.028	1.896	1.085-3.312	0.025
Blackouts from drinking	1.491	1.062-2.094	0.021	1.509	1.082-2.105	0.015	1.572	0.990-2.498	0.055	1.366	0.877-2.126	0.168	1.594	0.960-2.647	0.072	1.649	0.995-2.735	0.052
Quit using	1.135	0.893-1.443	0.300	-	-	-	1.222	0.862-1.730	0.260	-	-	-	1.025	0.729-1.440	0.888	-	-	-
Access drug/alcohol treatment	1.324	1.055-1.659	0.015	1.198	0.962-1.492	0.106	1.271	0.924-1.746	0.140	-	-	-	1.152	0.860-1.543	0.342	-	-	-
Sexual risks																		
Sex work	3.455	1.903-6.271	<0.001	1.557	0.893-2.714	0.119	3.690	4.021-33.864	0.248	-	-	-	1.117	0.692-1.800	0.651	-	-	-
Inconsistent condom use with regular partner	1.690	1.145-2.495	0.008	1.521	1.025-2.258	0.037	0.913	0.500-1.666	0.766	-	-	-	2.622	1.554-4.422	0.000	2.735	1.559-4.797	0.000
Inconsistent condom use with casual partner	1.191	0.827-1.717	0.347	-	-	-	1.513	1.004-2.282	0.048	1.642	1.058-2.547	0.027	0.786	0.369-1.675	0.533	-	-	-
Sexual assault	1.761	1.110-2.792	0.016	1.340	0.865-2.076	0.190	1.589	0.680-3.715	0.285	-	-	-	1.376	0.816-2.320	0.231	-	-	-
Sexually transmitted infection	1.194	0.866-1.645	0.280	-	-	-	1.372	0.735-2.558	0.320	-	-	-	0.840	0.598-1.182	0.317	-	-	-
Injection drug use related																		
Any injection drug use	1.534	0.923-2.549	0.099	1.147	0.632-2.082	0.652	1.283	0.554-2.972	0.561	-	-	-	1.289	0.683-2.431	0.433	-	-	-
Daily or more injection cocaine	1.093	0.720-1.661	0.676	-	-	-	0.779	0.372-1.628	0.507	-	-	-	1.129	0.667-1.910	0.651	-	-	-
Daily or more injection opiates	0.878	0.472-1.631	0.680	-	-	-	2.535	0.730-8.801	0.143	-	-	-	0.421	0.228-0.779	0.006	0.405	0.211-0.775	0.006
Binge injection	1.642	1.171-2.302	0.004	1.645	1.164-2.325	0.005	1.390	0.745-2.591	0.301	-	-	-	1.792	1.179-2.723	0.006	1.791	1.177-2.726	0.007

Study Outcomes	All participants physical neglect severity						Male participants physical neglect severity						Female participants physical neglect severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.240	0.808-1.903	0.324	-	-	-	2.278	0.825-6.290	0.112	1.642	0.814-3.311	0.166	0.818	0.531-1.259	0.361	-	-	-
Need help to inject	1.253	0.796-1.972	0.330	-	-	-	1.938	0.776-4.836	0.156	-	-	-	0.994	0.611-1.618	0.982	-	-	-
Infectious disease																		
HIV positive serostatus	0.580	0.152-2.214	0.425	-	-	-	0.678	0.281-1.637	0.388	-	-	-	0.552	0.185-1.646	0.287	-	-	-
HCV positive serostatus	3.183	0.417-24.296	0.264	-	-	-	1.095	0.035-34.540	0.959	-	-	-	1.678	0.052-53.962	0.770	-	-	-

Maltreatment summary score

The results of the unadjusted and adjusted GLMM models estimating the association between the maltreatment summary score and study outcomes are listed in Table 6.11. In the adjusted models including all participants, each incremental increase in the maltreatment summary score was associated with a 21% increased likelihood of sleeping on the streets for 3 nights or longer (95% CI: 1.059, 1.385); a 21% increased likelihood of binge drinking (95% CI: 1.038, 1.412); a 14% increased likelihood of having accessed alcohol or drug treatment (95% CI: 1.021, 1.266); a 36% increased likelihood of involvement in sex work (95% CI: 1.058, 1.744); a 27% increased likelihood of inconsistently using condoms with regular sexual partners (95% CI: 1.054, 1.519); a 30% increased likelihood of inconsistent condom use with casual partners (95% CI: 1.066, 1.591), and; a 25% increased likelihood of injection drug use (95% CI: 0.961, 1.622). For participants who used injection drugs, each incremental 1-maltreatment increase in the maltreatment summary score was associated with a 35% increased probability of binge injection drug use (95% CI: 1.137, 1.602). For the stratified adjusted models including male participants only, each incremental increase in the maltreatment summary score was associated with a 44% increased likelihood of inconsistent condom use with casual sexual partners (95% CI: 1.144, 1.816). In models that included only men who had injected drugs, a 1-point incremental change in the maltreatment summary score was associated with a 2.9-fold increase in the probability of injecting opiates once or more a day (95% CI: 1.368, 6.160) and a 52% increased likelihood of binge injection drug use (95% CI: 1.062, 2.174). In the adjusted stratified models including female participants only, each 1-point incremental change in the maltreatment summary score was associated with a 31% increased likelihood of sleeping on the streets for 3 nights or longer (95% CI: 1.083, 1.580); a 46% increased likelihood of binge drinking (95% CI: 1.151, 1.850); a

33% increased likelihood of blacking out while drinking (95% CI: 1.052, 1.675), and; a 48% increased likelihood of inconsistently using condoms with regular sexual partners (95% CI: 1.085, 2.018). Finally, each incremental change in the maltreatment summary score increased the likelihood of binge injection drugs by 35% for women who had injected drugs (95% CI: 1.105, 1.662).

Table 6.11: Longitudinal outcomes associated with the childhood maltreatment summary score among all participants (n=266), males (n=126), and females (n=140)

Study Outcomes	All participants maltreatment summary score severity						Male participants maltreatment summary score severity						Female participants maltreatment summary score severity					
	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value	OR	95% CI	p-value	AOR	95% CI	p-value
General																		
Slept on streets for >3 nights	1.118	1.007-1.242	0.037	1.211	1.059-1.385	0.005	1.063	0.901-1.254	0.467	-	-	-	1.161	1.008-1.337	0.039	1.308	1.083-1.580	0.005
Daily or more smoking crack	1.129	0.967-1.318	0.126	-	-	-	1.003	0.795-1.267	0.977	-	-	-	0.999	0.811-1.230	0.991	-	-	-
Binge drinking	1.161	1.002-1.346	0.047	1.210	1.038-1.412	0.015	1.008	0.836-1.217	0.930	-	-	-	1.432	1.126-1.821	0.003	1.459	1.151-1.850	0.002
Blackouts from drinking	1.078	0.933-1.246	0.308	-	-	-	1.003	0.820-1.226	0.978	-	-	-	1.292	1.024-1.631	0.031	1.328	1.052-1.675	0.017
Quit using	1.075	0.964-1.198	0.196	-	-	-	1.054	0.881-1.260	0.566	-	-	-	1.081	0.924-1.264	0.331	-	-	-
Access drug/alcohol treatment	1.233	1.110-1.370	<0.001	1.137	1.021-1.266	0.019	1.164	0.981-1.380	0.082	1.123	0.937-1.345	0.209	1.127	0.986-1.288	0.079	1.125	0.976-1.297	0.104
Sexual risks																		
Sex work	1.968	1.503-2.576	<0.001	1.358	1.058-1.744	0.016	1.840	0.850-3.982	0.122	-	-	-	1.014	0.808-1.272	0.903	-	-	-
Inconsistent condom use with regular partner	1.314	1.098-1.572	0.003	1.266	1.054-1.519	0.011	1.184	0.903-1.552	0.222	-	-	-	1.402	1.098-1.788	0.007	1.480	1.085-2.018	0.013
Inconsistent condom use with casual partner	1.280	1.055-1.552	0.012	1.302	1.066-1.591	0.010	1.377	1.108-1.712	0.004	1.441	1.144- 1.816	0.002	1.183	0.776-1.803	0.435	-	-	-
Sexual assault	1.264	1.023-1.562	0.030	1.190	0.960-1.474	0.112	1.374	0.908-2.078	0.132	-	-	-	1.127	0.894-1.420	0.311	-	-	-
Sexually transmitted infection	1.267	1.074-1.494	0.005	1.109	0.958-1.283	0.165	1.218	0.908-1.633	0.189	-	-	-	0.932	0.766-1.135	0.485	-	-	-
Injection drug use related																		
Any injection drug use	1.323	1.050-1.668	0.018	1.248	0.961-1.622	0.097	1.281	0.868-1.889	0.212	-	-	-	1.110	0.844-1.459	0.455	-	-	-
Daily or more injection cocaine	1.091	0.914-1.302	0.336	-	-	-	1.004	0.673-1.497	0.985	-	-	-	1.034	0.830-1.287	0.768	-	-	-
Daily or more injection opiates	1.319	0.933-1.864	0.117	-	-	-	2.214	1.272-3.853	0.005	2.903	1.368-6.160	0.006	0.723	0.474-1.102	0.131	-	-	-
Binge injection	1.345	1.139-1.589	0.000	1.350	1.137-1.602	0.001	1.265	0.951-1.683	0.107	-	-	-	1.349	1.105-1.646	0.003	1.355	1.105-1.662	0.004

Study Outcomes	All participants maltreatment summary score severity						Male participants maltreatment summary score severity						Female participants maltreatment summary score severity					
	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value	OR	95% CI	<i>p</i> -value	AOR	95% CI	<i>p</i> -value
Sharing rigs	1.154	0.941-1.415	0.168	-	-	-	1.876	1.101-3.194	0.021	1.519	1.062-2.174	0.022	0.862	0.714-1.041	0.123	-	-	-
Need help to inject	0.940	0.776-1.138	0.527	-	-	-	0.846	0.576-1.241	0.392	-	-	-	0.948	0.773-1.163	0.608	-	-	-
Infectious disease																		
HIV positive serostatus	0.687	0.375-1.258	0.224	-	-	-	0.748	0.237-2.361	0.621	-	-	-	0.670	0.268-1.674	0.391	-	-	-
HCV positive serostatus	1.144	0.632-2.071	0.657	-	-	-	0.893	0.178-4.466	0.890	-	-	-	1.070	0.253-4.529	0.926	-	-	-

6.4 Discussion

Childhood maltreatment among Indigenous young people in Canada is a critical human rights and public health issue rooted in colonialism, historical trauma, and cultural genocide (Christian & Spittal, 2008; Hylton, 2002). Indigenous leadership, scholars, and Elders have repeatedly emphasized the importance of addressing the relationship between childhood maltreatment and the HIV and HCV epidemics among Indigenous people within the context of intergenerational trauma (Barlow, 2003; Christian & Spittal, 2008; Vernon, 2001). This study has demonstrated that the vast majority of participants experienced at least one form of childhood abuse or neglect. It was evident that significantly greater proportions of participants with severe sexual abuse and physical neglect had at least one parent who had attended residential school. In addition, it was not surprising that there were strong associations between all but one of the types of maltreatment and having been in the foster care system. These results confirm what many Indigenous communities already know: that the interdependent cycles of intergenerational trauma, childhood maltreatment, and family disconnection persist among the current generation of young Indigenous people who use drugs (Duran & Walters, 2004; Walters et al., 2011; Walters & Simoni, 1999; Yellow Horse Brave Heart, 2003). Further, these results demonstrate that the young men and women in this study continue to be severely negatively impacted by childhood maltreatment experiences, as each type of abuse and neglect had numerous independent associations with participants' longitudinal health outcomes, including HIV and HCV risk and infection. Moreover, the probability of negative health outcomes often worsened with increasing levels of abuse/neglect severity and each incremental increase in the maltreatment summary score. This study therefore highlights the complex and severe effects that childhood maltreatment has on HIV and HCV risk among young Indigenous men and women

who use drugs in Canada. The urgent need to develop public health and human rights responses that reduce these risks while recognizing the profound grief and multiple traumas that impact young Indigenous people's lives cannot be understated.

We found that all five clinical subscales of childhood maltreatment had satisfactory internal reliability. Additionally, the CFA demonstrated that the Cedar Project data fit the hypothesized five-factor model specified by the CTQ authors (Bernstein & Fink, 1998). The CFA results for this study were consistent with previous studies that have validated the CTQ's use in a sample of urban adults, including a sample of youth who used drugs in New York City, U.S.A. (Bernstein et al., 2003) and a sample of homeless youth in Vancouver, Canada (of whom 14% were Aboriginal people) (Forde et al., 2012). We therefore have confidence in the CTQ's measurement of childhood maltreatment for this study sample of young Indigenous people who use drugs in BC.

Comparing the prevalence of maltreatment with other studies

The proportions of participants in this study (especially women) who reported that they had experienced severe childhood maltreatments was very high. These proportions are similar to or higher than those reported by other studies that were conducted among people who use drugs and also utilized the CTQ. For example, 37% of women and 20% of men in an ethnically diverse sample of 676 people who used drugs in San Antonio, U.S.A., reported that they had experienced severe emotional abuse (Medrano et al., 2002), while 46% of women and 20% of men in the present study reported that they had experienced severe emotional abuse. However, the prevalence of severe sexual abuse appeared to be higher among Cedar Project participants, as 52.5% of women and 23.2% of men in this study reported severe levels of sexual abuse in comparison to 44% of women and 14% of men in the San Antonio sample. The proportions of

participants in this study who had had severe experiences were higher for each maltreatment subscale in comparison to a sample of n=87 adult heroin users in Vancouver, BC (of whom 15% were Aboriginal people) (Krausz et al., 2013). In addition, the proportion of male and female Cedar Project participants with >0 maltreatments is higher than the proportion in several other study samples: a sample of 140 at-risk young Indigenous people in New South Wales, Australia (60%) (Moore, Gaskin, & Indig, 2013); a sample of 234 adult American Indian women accessing primary care in New Mexico, U.S.A. (76.5%) (Duran et al., 2004), and; a sample of 432 adults who were long-term term heroin users in New York City, U.S.A. (79%) (Kang et al., 2002).

When stratified by sex, the majority of men in the Cedar Project sample had three or less maltreatment types (63.2%), while the majority of women had four or five maltreatment types (61.8%). Over twice as many women than men experienced all five maltreatment types. Finally, there were significant differences in the severity of sexual abuse and physical neglect among participants who had a parent who had attended a residential school and those who did not, with the proportions of participants in each severity category increasing when they became certain that their parents' had attended residential school. To our knowledge, no epidemiological study has previously demonstrated this finding.

In sum, these results demonstrate that high proportions of Cedar Project participants experienced childhood maltreatment that was often extreme and frequent and that the young women appear to have been more severely impacted by childhood traumas than the young men. In general, it is deeply concerning that 91.7% of the participants experienced at least one form of childhood abuse or neglect, which emphasizes the reality that most childhood experiences of abuse are complex.

Childhood maltreatment and HIV and HCV vulnerability

In adjusted models that included longitudinal observations for all participants, the likelihood of sleeping on the streets for three or more nights increased significantly with each severity level of emotional abuse, physical abuse, and physical neglect, and with each incremental increase in the maltreatment summary score. In the stratified models for women only, the likelihood of sleeping on the streets for three nights or longer was significantly associated with emotional and physical abuse, as well as with each incremental increase in the maltreatment summary score. These findings are informed by previous studies that have described the mechanisms and pathways by which maltreated children and youth become runaways, involved in drug use, and susceptible to long term homelessness and the associated dangers of living on the street (Herman, Susser, Struening, & Link, 1997; Stein, Leslie, & Nyamathi, 2002). For example, Stein et al. (2002) demonstrated that the psychological and emotional impacts of childhood physical abuse were associated with chronic homelessness among adult women living in Los Angeles, U.S.A. Indigenous people are greatly overrepresented among the homeless in Vancouver and Prince George, where at last count they comprised 27% and 66% respectively of those cities' homeless populations (Kutzner & Ameyaw, 2010; Metro Vancouver, 2012). Moreover, young urban Indigenous people in BC who are unstably housed or absolutely homeless face considerable structural and safety barriers when accessing shelter or permanent housing, including the absence of privacy in shelters and the lack of security in low-income housing (Jongbloed, 2012; Krusi, Fast, Small, Wood, & Kerr, 2010). These barriers may be exacerbated by the impacts of multiple and severe childhood maltreatment. Providing safe, secure, and affordable housing options is therefore essential to

empowering young Indigenous people who use drugs and have experienced childhood maltreatment to begin their healing journey.

This study also demonstrated that all types of maltreatment except emotional neglect were associated with increased odds for problematic drinking patterns, including binge and blackout drinking. The odds were particularly high for participants who had experienced physical neglect. Participants who had experienced low/moderate physical neglect were 1.5 times more likely to have problematic drinking patterns than those who had not experienced any physical neglect and this likelihood doubled for those who had experienced severe physical neglect. These associations were significant in the models for women only and an additional association between sexual abuse severity and binge drinking was found to be specific to young women. This was a finding that is consistent with previous research (Wilsnack, Vogeltanz, Klassen, & Harris, 1997).

These findings are important in light of the fact that there is a dearth of research that focuses on alcohol use among young, at-risk Indigenous people in Canada, even though the relationship between childhood maltreatment and problematic alcohol use has been studied extensively. For example, a study conducted among a cohort of n=1013 predominantly African American adults in Detroit, U.S.A found that each 1-unit increase in the CTQ-based maltreatment summary score was associated with a 10% increased probability of binge drinking (Keyes et al., 2012). In contrast, the present study demonstrated that each incremental increase in the maltreatment summary score was associated with a 21% increased probability of binge drinking among all participants and a 46% increased probability of binge drinking among female participants. Female participants who had experienced all 5 types of maltreatment types had 6.6-fold greater odds for binge drinking and 4.2-fold greater odds for having blackouts from

drinking, which emphasizes the stark impact that childhood maltreatment has on drinking related harms. Although this research provides insight into the relationship between early childhood maltreatment and problematic alcohol use among young Indigenous people in BC, there is a clear need for further epidemiological research.

This study demonstrated that each type of childhood maltreatment and the maltreatment summary score were associated with multiple sexual vulnerabilities among all participants (while adjusting for sex). The stratified models revealed that there were important gender differences in outcomes related to sexual vulnerabilities. These are consistent with a growing body of literature that addresses the relationship between childhood sexual abuse, sexual risk, and subsequent HIV infection. A number of studies highlight sexual abuse survivors' feelings of powerlessness and low-self esteem, which contribute to decreased self-efficacy and an increase in sexual HIV risk behaviours (Allers, Benjack, White, & Rousey, 1993; Amaro, 1995; Parillo, Freeman, Collier, & Young, 2001; Zierler et al., 1991). However, the impact of non-sexual forms of abuse and neglect on sexual risk-taking have not been studied extensively. In this study, the models that included all participants and adjusted for sex demonstrated that inconsistent condom use with regular partners was associated with all types of abuse and neglect and the maltreatment summary score, while inconsistent condom use with casual partners was associated with emotional abuse and the maltreatment summary score. When models were stratified by sex, the findings revealed that women who had experienced childhood maltreatment were more likely to have unsafe sex with regular partners, while men who had experienced childhood maltreatment were more likely to have unsafe sex with casual partners. Further, the stratified analysis found that emotional abuse was associated with STIs among males only, which is consistent with a large study among men conducted by Hillis et al. (2000).

The gendered differences in condom use identified by this study have important implications for public sexual health interventions tailored to Indigenous youth. As evidenced by Brown et al., HIV prevention interventions must be cognizant of the mediating effect that childhood maltreatment has on young people's self-efficacy to refuse unwanted sexual activity, attain a balanced power dynamic in romantic relationships, and negotiate condom use (2014). Therapeutic HIV interventions are urgently required for young Indigenous people who have experienced childhood maltreatment because the cumulative layers of lifetime trauma that have impacted their lives increase the likelihood that they will internalize blame and powerlessness in intimate relationships (Filipas & Ullman, 2006). Such interventions must be culturally safe if they are to achieve optimal effectiveness. To this end, young Indigenous people who use drugs must be meaningfully involved in the design and implementation of such interventions (Chavoshi et al., 2012).

The study also found that each severity level increase in emotional abuse, physical abuse, sexual abuse, and emotional neglect, and each incremental increase in the maltreatment summary score was associated with a significant increase in the likelihood of involvement in sex work for all participants. This finding mirrors that generated by a study among another cohort of young people who use drugs in Vancouver, Canada (Stoltz et al., 2007). In addition, the study's stratified models demonstrated significant associations between childhood maltreatment and sex work among male participants. This finding was unexpected and highlights the paucity of research on Indigenous men's involvement in sex work (Heath et al., 1999).

In contrast to the present research, previous studies including Cedar Project-based analyses have found that sexual abuse is a very strong predictor for sex work involvement among young Indigenous women who use drugs (For the Cedar Project Partnership et al., 2008;

Mehrabadi, 2008). This suggests that our analysis may have been limited in terms of sample size or the co-linearity between the variables for sex work and the maltreatment subscales among women. For instance, 59.4% of the women in this study who had experienced severe sexual abuse had been involved in sex work at baseline compared to 45.7% of women who had not experienced sexual abuse ($p=0.294$) (data not shown). The adjusted models that controlled for participants' sex found that the odds of involvement in sex work increased 5-fold for each level increase of sexual abuse severity. Not surprisingly, available studies have indicated that Indigenous women comprise more than half of the women involved in street-based sex work in Vancouver. Most of these women experience staggering levels of violence and drug-related harms, and have a heightened HIV risk due to structural and environmental conditions that impede condom negotiation, coercively pressure them to engage in unprotected sex, and require them to rely on pimps for security (Farley, Lynne, & Cotton, 2005; Mehrabadi, 2008; Pearce et al., *In Press*; Shannon et al., 2009).

It is highly concerning that this study further demonstrated that the adjusted effects of emotional, physical, and sexual abuse significantly increased the odds of being sexually assaulted over the study period. When the models were stratified, male participants who had experienced physical abuse and emotional neglect were at many times greater risk for being sexually assaulted. These outcomes are consistent with previous research on revictimization among people who have experienced childhood maltreatment (Classen, Palesh, & Aggarwal, 2005) and contributes empirical evidence to the scarce scientific literature addressing Indigenous men's risk for sexual violence. We suspect that the models for sexual assault among women only were not statistically significant because vastly more women than men were sexually assaulted over the study period and because a higher proportion of women than men had experienced

childhood maltreatments – especially sexual abuse. Indeed, this was demonstrated by Pearce et al. (*In Press*) in a previous analysis of sexual violence among 259 women participating in the Cedar Project. In the study, it was found that the women who had histories of childhood sexual abuse were 9.7 times as likely to be sexually assaulted between 2003 and 2010 compared to the women without childhood sexual abuse histories. Additional research is required to investigate the psychological processes that may be on the causal pathway between specific types of childhood maltreatment and the risk for sexual assault among young Indigenous people. Indigenous psychologists and researchers have suggested that therapeutic environments specifically designed to engender a deeper understanding of the role that intergenerational trauma plays in the lives of young Indigenous people may be beneficial for those who have experienced childhood sexual abuse, rape, and intimate partner violence (Evans-Campbell et al., 2006).

Participants with childhood maltreatment histories in this study were at significantly greater odds for multiple longitudinal drug-related harms, including drug injection, high frequency cocaine and opiate injection, binge injection, needing help to inject drugs, and sharing rigs. Many of the associations between childhood maltreatment and high-risk injection drug use were dramatic. For example, men who had injected drugs and experienced 1, 2, 3, 4, and 5 maltreatment types respectively had a 1.5-fold, 2-fold, 3.5-fold, 5-fold, and 8-fold greater likelihood of sharing rigs than men who had injected drugs but not been maltreated. Likewise, women who had injected drugs and experienced 1, 2, 3, 4, and 5 maltreatment types respectively had a 1.3-fold, 1.8-fold, 2.5-fold, 3.3-fold, and 4.5-fold greater likelihood of binge injecting than women who had injected drugs and not experienced maltreatment. A considerable body of literature has found associations between each of these risky injection patterns and practices and

the HIV and HCV epidemics (Mathers et al., 2008; Miller, Kerr, et al., 2006; Nelson et al., 2011; Thomas et al., 1995; Tyndall et al., 2003; Wood et al., 2003). Moreover, as injection drug use continues to be the primary mode of HIV and HCV transmission among Indigenous people in BC and throughout Canada, childhood maltreatment among young Indigenous people continues to be strongly associated with risk for HIV and HCV infection (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & For The Cedar Project Partnership, 2009; Duncan et al., 2011; Miller, Strathdee, Spittal, et al., 2006; Spittal et al., 2012).

The fact that the probability for HCV infection was 3.5-fold higher among study participants who had experienced low/moderate levels of sexual abuse and 7-fold higher among participants with severe sexual abuse is clearly cause for concern. While legal and harm reduction strategies aiming to curb the HIV and HCV epidemics among people who use injection drugs in BC have made encouraging progress, there is increasing recognition that many people who inject drugs and have experienced childhood maltreatment continue to be at high risk for infection because these strategies do not specifically address trauma (Amaro et al., 2007; British Columbia Centre of Excellence for Women's Health, 2009; Smye et al., 2011). For example, studies have reported that people who use drugs and have experienced childhood maltreatment struggle to adhere to methadone maintenance treatment regimens (Branstetter et al., 2008) and are more likely to drop out of addiction treatment programs (Claus & Kindleberger, 2002). However, this study demonstrated that participants who had maltreatment histories were significantly more likely to access treatment for alcohol or drug addictions, which suggests that Indigenous young people are able to overcome emotional, psychological, environmental, and structural barriers to seeking help. Taken together, the study's findings on risk factors related to HIV and HCV have critical implications for harm reduction services and addiction treatment

programs in BC. As most harm reduction services in BC – especially those in the north of the province– subsist on limited budgets, they generally do not provide integrated substance use and trauma programming. This study supports recent studies recognizing the efficacy of safe interventions for people who use drugs that include trauma-informed programming (Amaro et al., 2007; Hien, Campbell, et al., 2010; Hien, Jiang, et al., 2010; Messina et al., 2014). However, the relevance of these studies to general populations of young people and specific populations of Indigenous peoples has yet to be established. Nonetheless, it is clear that the design of interventions for urban Indigenous young people who use drugs must be innovative and incorporate culture and ceremony to support positive cultural identity and self-esteem (Currie, Wild, Schopflocher, Laing, & Veugelers, 2013; Henderson, 2014).

Lastly, the limitations of this study must be addressed. First, the Cedar Project study is based on self-reported behavioural data obtained from a non-probabilistic sample of street-involved young men and women. Therefore, selection bias may have been introduced if, for example, there were young Indigenous people who were not connected to any services in the downtown areas of the study locations and were therefore unreachable to the study team. While we cannot rule out selection bias and its impact, we are confident that our recruitment methods and rigorous eligibility criteria ensured that our sample was approximately representative of Indigenous young people who use drugs in Vancouver, Prince George, and Chase. Nevertheless, there was the potential for recall bias, socially desirable reporting and the misclassification of exposure (except for HIV and HCV serostatus) and outcome variables. Second, responses to historical questions may have been influenced by the participant's ability to recall single or multiple events. The effect of memory on these study variables is difficult to assess. Third, although these data were analyzed using repeated measures over nine years, we cannot draw

conclusions regarding the causality between risk factors and study outcomes. Despite these limitations, we believe this study provides new and important epidemiological evidence regarding health outcomes associated with childhood maltreatment.

This study has demonstrated that a high prevalence of childhood maltreatment and its association with historical trauma, family disconnection, and longitudinal harms put young Indigenous people who use drugs at high risk for HIV and HCV infection. There is a clear need to address the complex intersections of historical, structural, and social processes that continue to gravely affect the lives of young Indigenous people in Canada. Innovative interventions that include trauma-informed programming and help young Indigenous people who use drugs to achieve self-determination and resilience are urgently required. Such interventions should be long-term, low-threshold, emotionally and culturally supportive, and facilitate health and healing at the individual, family, organizational, community, and policy levels (Oetzel & Duran, 2004; Zierler et al., 1991).

Chapter 7: Psychological distress and HIV vulnerability among young Indigenous people who use drugs in three Canadian cities

7.1 Introduction

Indigenous scholars and Elders have explained that the traditional Indigenous concept of mental wellness incorporates the emotional, physical, and spiritual realms of health, and must extend to the immediate family, extended family, and community (Henderson, 2008; Nechi Institute, 2002). Imbalance in any one of these areas may cause significant mental distress. Accordingly, prior to Europe's colonization of North America, Elders taught young Indigenous people life skills and mechanisms for stress-coping that supported their connections to the environment as well as their community, culture, spirituality, and traditions, which guided them toward attaining clear yet flexible positions in society (Chansonneuve, 2005; Gunn Allen, 1986). Colonization in North America has spanned over 500 years and has involved aggressive political, legal, ideological, and economic agendas to control lands and resources and to assimilate Indigenous peoples. It is now well known that the residential school system, which was implemented in 1874 and not entirely phased out until 1996, was especially devastating to the psyche of Indigenous peoples in Canada. Over 150,000 Indigenous children were forcibly removed from their communities and placed in residential schools as part of a national strategy to "have the 'Indian' educated out of them" without interference by their parents, Elders, and leaders (Miller, 2009). Multiple commissions have been mandated to uncover the realities of the residential school system and have confirmed that they were "opportunistic sites of abuse" (Hylton, 2002, p. 367) where children routinely faced emotional, physical, and sexual predation

(Canada, 1996; Milloy, 1999). In addition, the schools instilled a sense of shame in the children about their cultures, languages, and identities, which caused extensive psychological trauma (Law Commission of Canada, 2000; Truth and Reconciliation Commission of Canada, 2012).

Research has demonstrated that the psychological effects of having been in the residential school system include major depression (Froese et al., 2008; Public Health Agency of Canada, 2006b), post-traumatic stress disorder (Corrado & Cohen, 2003; Söchting et al., 2007), problematic substance use (Chansonneuve, 2007; Yellow Horse Brave Heart, 2003), and suicidality (Canada, 1995). In many cases the psychological wounds have been intergenerational, as many residential school survivors inadvertently re-enacted their painful experiences in their own families. The intergenerational impacts of the residential school system are evident in communities characterized by widespread poverty, violence, family breakdown, and problematic substance use (Chansonneuve, 2007; Fournier & Crey, 1997; Hylton, 2002; Wesley-Esquimaux & Smolewski, 2004). The disproportionate numbers of Indigenous children in Canada who experience abuse and neglect is considered to be one of the most disastrous legacies of the system (For the Cedar Project Partnership et al., 2008; Hylton, 2002; Public Health Agency of Canada, 2010a).

Very little research has explored the ways in which historical trauma affects the mental health of young Indigenous people today. However, recent research has demonstrated that this effect is similar to that experienced by previous generations. Indigenous youth experience psychological distress – including depression, problematic substance use, and suicidality – due to the historical losses of their people (Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & Schechter, 2009; For the Cedar Project Partnership et al., 2008; Moniruzzaman et al., 2009; Wexler, 2006; Whitbeck et al., 2009). Finally, Indigenous activists

and scholars have long argued that these psychological outcomes are exacerbated by provincial child welfare systems as per capita funding incentivizes long-term separations of Indigenous children from their families, communities, and cultures (Blackstock & Trocmé, 2004; Fournier & Crey, 1997; Johnston, 1983; Trocmé et al., 2006).

Psychological literature has hypothesized that the complex pathways by which lifetime trauma leads to substance misuse and psychological distress involve mediation and moderation of factors such as insecure attachment to family and community; the internalization of blame and powerlessness; harmful coping strategies, and; reluctance to seek social support (Barker-Collo & Read, 2003; Cohen, Mannarino, Zhitova, & Capone, 2003; Steel et al., 2004). Epidemiological literature has subsequently explored the relationship between psychological distress and heightened risk of HIV and HCV infection. This research highlights the relationships between trauma and addiction (Simoni et al., 2004), and addiction and mental health problems (Medrano et al., 2002). Indigenous leaders and communities are therefore deeply concerned about psychological distress among their young people and believe that the complex intersections of historical and lifetime traumas, addiction, and mental health increase young people's vulnerability to HIV and HCV infection (Christian, 2010; Christian & Spittal, 2008).

The temporal association between childhood maltreatment and adult psychological distress has been well established in the psychological literature (Beitchman, Zucker, Hood, daCosta, & Akman, 1991; Beitchman et al., 1992; Steel et al., 2004). For example, a meta analysis of 37 international observational studies found significant adjusted associations between a history of childhood sexual abuse and anxiety disorder (Odds Ratio (OR): 2.72), depression (OR: 2.66), and post-traumatic stress disorder (OR: 2.34) (Chen et al., 2010). A small number of studies have investigated the association between childhood maltreatment and psychological

distress among Indigenous peoples and one of these, a cross sectional study of 3084 American Indian people in two Southwest and Northern Plains tribes in the United States, found an association between childhood physical and sexual abuse and depressive disorders (OR: 2.45), post-traumatic stress disorder (PTSD) (OR: 5.3) and generalized anxiety disorder (OR: 2.30) (Libby, 2005). Another study conducted among 234 urban American Indian women in New Mexico, U.S.A. indicated that severe maltreatment of any form increases the lifetime prevalence of mood disorders (Prevalence Ratio (PR): 2.10), anxiety disorder (PR: 1.65), and PTSD (PR: 3.91) (Duran et al., 2004)

Health researchers have focused on the effect that concurrent addiction and psychological distress have on unsafe sex or risky drug use practices in order to examine the relationship between psychological distress and vulnerability to HIV and HCV infection (Mandell, Kim, Latkin, & Suh, 1999; Meade et al., 2009; Pilowsky et al., 2011). For example, a cross sectional study of 343 opioid-dependent adults in 12 cities across the United States found that having concurrent clinical depression was associated with high frequency injection drug use and needle sharing (Pilowsky et al., 2011). The Adverse Childhood Experiences study, which was conducted among 9323 adults in California, U.S.A., demonstrated that there was a strong graded relationship between number of childhood maltreatments, mental health symptoms, and self-reported histories of sexually transmitted infections (STIs) (Hillis et al., 2000). Several studies have addressed the associations between trauma, addiction, and psychological distress among Indigenous men and women in Canada. One of these was a Cedar Project analysis conducted by Pearce et al. (2008), that involved 543 young Indigenous people who use drugs in Vancouver and Prince George, BC. The study found that participants who reported childhood sexual abuse

were two times as likely to self-report that they had ever been diagnosed with a mental illness and two times as likely to be HIV positive than participants who had not experienced abuse.

7.1.1 Objectives and rationale

Indigenous author Karina Walters has described how the process of colonization has eroded traditional Indigenous practices or “cultural buffers” that ameliorated stress (2002, p. 523) and mediated risk. Kirmayer et al. (2003) also observed that Indigenous community and familial infrastructures that support the development of healthy individuals have been fractured. Nevertheless, it must be emphasized that despite these deleterious effects, many Indigenous cultures, traditions, and languages have survived and these clearly strengthen individuals’ ability to cope with stress and promote mental wellness among both individuals and communities (Currie, Wild, Schopflocher, Laing, & Veugelers, 2013; Dion-Stout et al., 2001; Kirmayer et al., 2003; Korhonen & Ajunniginiq, 2006; Lavalley & Clearsky, 2006). However, few studies have addressed the negative or positive influence that social determinants of health have on the mental well-being of young, urban Indigenous people who use drugs. In addition, few studies have explored the temporal associations between vulnerability to HIV infection and psychological distress among young people who use drugs. This study addresses this gap in the research by investigating findings from the Cedar Project, a cohort study involving young Indigenous people who use drugs in three cities in BC, Canada. The objectives of the study were to; a) evaluate the psychometric validity of the Symptom Checklist-90-R (SCL-90-R) for measuring psychological distress among young Indigenous people who use drugs; b) to describe the correlation between childhood maltreatment and psychological distress; c) to describe temporal trends in psychological distress over time and examine differences in these trends between men and women, and; d) to use the SCL-90-R to examine of the effects of historical traumas (including

childhood maltreatment), protective factors, (including access to Indigenous culture, traditions, and language), and drug- and sex-related risk factors on psychological distress, while adjusting for confounders. A longitudinal analysis is especially important to fulfilling these objectives because it can generate inferences about the independent effect of historical and current determinants of psychological distress over time.

7.2 Methods

7.2.1 The Cedar Project study design and measures

In brief, the Cedar Project is a prospective cohort study of 793 young Indigenous people who used drugs in Vancouver, Prince George, and Chase, BC. Participants were eligible for the Cedar Project study if they self-identified as a descendant of the First Nations Peoples of North America (including Indigenous, Aboriginal, Métis, First Nations, Inuit and Status and non-Status Indians); were between 14 and 30 years old, and; had smoked or injected illicit drugs in the month before enrolment. Since 2003, the study has followed-up participants every six months to gather information about historical and demographic factors, childhood maltreatment experiences, drug- and sex-related HIV risk patterns, psychological distress, resiliency, health services access, and other health measures. Venous blood samples have also been collected for HIV and hepatitis C antibody tests at each visit. Variables for this analysis were chosen from the Cedar Project Questionnaire based on their theoretical and empirical importance to the study hypotheses. The cut-point for the longitudinal data in this research was November 2012. First Nations collaborators and investigators (the Cedar Project Partnership) governed the entire research process, were involved in the conception, design, and interpretation of the study, and approved this manuscript for publication. The University of British Columbia/Providence Health Care Research Ethics Board also approved the study. A full description of the Cedar Project

study design and definition of variables may be found in Chapter 3 (pages 53-57) of this dissertation.

Time-invariant factors

The time-invariant demographic and historical variables that were included this study included: sex; study location; having at least one parent who attended residential school; having been taken away from biological parents and placed in foster care; sexual identity; education level; how much family had lived by traditional culture; how often family had spoken traditional languages at home, and; ability to speak own traditional language. Please refer to Chapter 3 of this dissertation (pages 64-65) for full explanations of the time-invariant factors.

Time-varying factors

The time-varying factors and outcomes were longitudinal variables that could change in value in the six months preceding the questionnaire. The time-varying demographic factors included participants' age, and relationship status. Time varying independent variables in this study included: frequency of living by traditional culture; having participated in any traditional ceremonies; having accessed alcohol or drug treatment; having accessed counseling; having tried to quit using drugs; having slept on the streets for more than three consecutive nights; frequency of having smoked crack; injection drug use; having accessed drug or alcohol treatment; having attempted to quit using drugs; binge drinking; having had blackouts from drinking; involvement in sex work; consistency of condom use with regular or casual sexual partners; having any sexually transmitted infection; having been sexually assaulted; frequency of injecting cocaine and opiates; binge injection drug use; sharing rigs; needing help to inject drugs; and HIV and HCV serostatus. Please refer to Chapter 3 of this dissertation (pages 65-66) for full explanations of the time-varying factors used in this study.

Symptom Checklist-90 Revised

Since 2010, the Symptom Checklist-90-R (SCL-90-R) (Derogatis, 1994) has been administered at 6-month intervals together with the main Cedar Project Questionnaire follow-up interviews. The SCL-90-R is a 90-item self-reported symptom inventory that measures the intensity or severity of nine dimensions of psychological distress symptoms including somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Each of the 90 items in the SCL-90-R questionnaire were scored on a five-point Likert scale that quantified how distressed participants were the amount of distress caused by their symptoms in the past three months (from *not at all* to *extremely*). Each participant's SCL-90-R score was transformed into an average Global Severity Index (GSI), providing a single average measure that profiles overall degree of psychological distress (Derogatis, 1994). Higher scores for the GSI indicate a higher approximation of a higher level of overall psychological distress. The GSI was the main outcome variable in this study for the analysis of psychological distress. A full description of the psychometric properties, validation studies, and our coding scheme for the SCL-90-R may be found in Chapter 3 (pages 69-70).

The Childhood Trauma Questionnaire

Beginning in 2011, Cedar Project study staff offered participants the option to complete the Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998). The CTQ is a retrospective and self-reported 28-item inventory that measures five types of childhood maltreatment: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). Answers were endorsed on a 5-point Likert-type scale according to the frequency the experiences occurred (from *never true* to *very often true*). We

transformed the subscales into variables composed of three categories for levels of maltreatment – none (0), low/moderate (1), and severe (2) – and treated the subscales as categorical variables in the analyses. The regression coefficient for the maltreatment subscales may therefore be interpreted as the mean change in the GSI for the low/moderate levels vs. the none and the severe vs. the none levels of maltreatment. In addition, a maltreatment summary score variable was created in order to examine the effect of the total ‘dose’ of exposure to childhood maltreatment on health outcomes by first categorizing participants as “maltreated” or “not maltreated”, then summing the number of thresholds that were exceeded (Rodgers et al., 2004). The maltreatment summary score variable ranged from zero to five and was treated as a continuous variable in the analyses. The regression coefficient for this variable could then be interpreted as the mean change in the GSI for each incremental increase in the maltreatment summary score. A full description of the psychometric properties, validation studies, and our coding scheme for the CTQ may be found in Chapter 3 (pages 66-69) of this dissertation.

7.2.2 Study participants

In total, 793 participants enrolled in the Cedar Project between September 2003 and December 2012. Among those participants, 452 either returned for a follow-up interview or were newly enrolled in the study between 2010 and 2012, and therefore completed a baseline SCL-90-R questionnaire. Because we were interested in informing the longitudinal analysis of factors associated with psychological distress over time, we restricted our baseline sample to the 246 participants who returned for at least one six-month follow-up interview (which also included a SCL-90-R questionnaire) between 2010 and December 2012. With the additional criteria of having completed the CTQ, the sample was 212. Finally, 10 of these participants had >20%

missing data in the SCL-90-R and were removed from the study. Therefore the final study sample size was 202 participants who are included in subsequent analyses.

7.2.3 Statistical analysis

First, cross-sectional descriptive statistics measured the mean and standard deviations for each psychological distress dimension and the GSI for all participants, and separately for males and females. T-tests were used to determine significant differences between men and women, and robust t-tests were used when Levene's test established that there were unequal variances. Second, the construct validity of the SCL-90-R was examined using first and second order Confirmatory Factor Analyses (CFA) using Mplus software (Muthén & Muthén, 2008-2012). The first order CFA was carried out according to the scale author's hypothesized 9-factor model (Derogatis, 1994), which involved loading the 83 scale items (excluding the additional seven items) onto the nine latent variables of psychological distress (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism). The second order CFA included regression paths between the first order factors and the broad, higher order factor of psychological distress. A full description of the indexes used to assess the goodness of fit and the approximation of fit of the CFA models may be found in Chapter 3 (pages 72-73).

Third, Bivariate Pearson's correlations were carried out between the baseline SCL-90-R symptom dimensions and the continuous CTQ subscales. Fourth, linear mixed effects (LME) models for the trend of the mean GSI were fitted where the elapsed time from baseline to each visit was included as an independent variable and a random statement was included to account for initial differences between individuals. Separate LME models estimated the effect of risk factors on the mean change in GSI over three follow-ups between 2010 and 2012. Fifth, multiple

unadjusted and adjusted models estimated the effect of the size of study variables on the mean GSI. Sixth, as recommended by Derogatis (1994), who noted that women routinely report more psychological symptoms than men, the SCL-90-R results were stratified by sex after being run for all participants. This gave the study results greater precision and meaning. Individual variable selection for multi-variable models was based on statistical significance at the bivariable level ($p < 0.200$). Final model selection was based on Bayesian Information Criteria (BIC) to choose between a fixed effect or random effect handling of study variables. Associations between study variables with the GSI that were significant at the $p < 0.100$ level were further tested in adjusted (multivariate) models that controlled for confounders. Confounders specific to each model were chosen because of their theoretical and empirical importance (i.e. significant when associated with the study variable and the mean GSI at the $p < 0.200$ level). Potential confounders that were empirically tested included sexual identity, having a parent who had attended residential school, ever having been in foster care, location, relationship status, education level, and the childhood maltreatment subscales (emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect). Participant's sex was included in each multivariable model that included all participants. Time-varying age was included in every analysis because of its potential importance as a confounder relative to a time induced cohort effect adjustment in this study, as is recommended for longitudinal studies (Korn et al., 1997). R statistical software Version 2.15.0 with the lme4 package was used for all LME analyses (The R Foundation for Statistical Computing, 2012).

7.2.4 Handling missing data

As suggested by Derogatis (1994), participants' data with more than 20% missingness were removed from the analysis ($n=10$). For the remaining participants, many had missing SCL-

90-R items, ranging from 0.01% to 1.2% of observations. SCL-90-R questionnaires with data missing at random may be validly scored if the actual number of responses (rather than the total number) are summed for the denominator in the division of summed scores. Most study variables also had missing data, ranging from 0.05% to 14.9% of observations. Mplus handles missing data via the full information maximum likelihood method and therefore all cases were included in the CFA of the SCL-90-R. R statistical software, specifically the lme4 package (Bates et al., 2014) utilized for the LME analyses, uses the maximum likelihood estimation method for random missingness within outcome variables and uses listwise deletion for missingness within independent variables.

7.3 Results

Descriptive statistics

Baseline and longitudinal sample proportions for each of the demographic, historical and lifetime traumas, and the other study variables are presented in the first four columns of Table 7.5 for all participants, Table 7.6 for male participants, and Table 7.7 for female participants. The mean age of all participants in 2010 was 28.5 years (SD: 5.0); 53% were women and 47% were men. Nearly half (49%) of the participants had at least one parent who had attended residential school and most (70%) had previously been in the foster care system. The majority had less than high school education (81%) and were in a relationship (91%). With respect to the CTQ subscales, 70% of participants had been emotionally abused, among whom 35% had severe emotional abuse; 58% of participants had been physically abused, among whom 42% had severe physical abuse; 58% had been sexually abused, among whom 40% had severe sexual abuse; 72% had been emotionally neglected, among whom 19% had been severely emotional neglected, and; 78% had been physically neglected, among whom 38% had been severely physically neglected.

For the maltreatment summary score, only 7% of participants reported no experiences of childhood maltreatment and with each incremental increase in the number of maltreatments, the proportions of participants who endorsed the CTQ subscales also increased. In total, 34% of participants had experienced all five types of abuse and neglect. When stratified, greater proportions of women than men had had severe experiences of each type of childhood maltreatment, and there were greater proportions of women than men within each increased level of the maltreatment summary score.

Table 7.1 presents the mean raw scores and standard deviations (SD) for each of the SCL-90-R symptom dimensions and the GSI for all participants as well as separately for men and women. In the model for all participants, depression and obsessive-compulsive received the highest scores, while phobic anxiety had the lowest score. The overall mean GSI was 1.044 (SD: 0.863). When stratified, the mean GSI for men was 0.813 (SD: 0.769) and the mean GSI for women was 1.249 (SD: 0.893). There were very strong significant differences in levels of psychological distress between men and women, with women having higher scores than men for every symptom dimension and the GSI. Men scored highest for obsessive-compulsive and hostility, while women scored highest for depression and obsessive-compulsive.

Table 7.1: Baseline means and standard deviations (SD) of the SCL-90-R symptom dimensions and Global Severity Index (GSI) among all participants (n=202), and comparisons (t-tests) between males (n=95), and females (n=107)

Dimension	All participants n=202		Male participants n=95		Female participants n=107		<i>p-value</i>
	Mean	SD	Mean	SD	Mean	SD	
Somatization*	1.064	0.885	0.792	0.729	1.305	0.943	<0.001
Obsessive-compulsive	1.202	0.976	0.957	0.869	1.420	1.017	0.001
Interpersonal sensitivity	1.030	0.971	0.790	0.890	1.242	0.995	0.001
Depression*	1.201	0.965	0.872	0.846	1.493	0.974	<0.001
Anxiety*	0.963	0.974	0.714	0.860	1.185	1.018	<0.001
Hostility*	1.188	1.062	0.933	0.911	1.414	1.138	0.001
Phobic anxiety	0.739	0.882	0.587	0.842	0.875	0.898	0.020
Paranoid ideation	1.034	0.993	0.872	0.924	1.179	1.034	0.028
Psychoticism	0.771	0.872	0.614	0.818	0.910	0.899	0.016
Global severity index	1.044	0.863	0.813	0.769	1.249	0.893	<0.001

* Due to unequal variances, a robust t-test was used

Confirmatory Factor Analysis of the SCL-90-R

Table 7.2 displays results from the first and second order CFA of the SCL-90-R. All of the scale items had salient loadings that ranged from 0.643 to 0.891. For the nine-factor model fit indices, the Chi-square p-value was <0.05. The more relevant fit indices suggested a very good fit to the hypothesized model: CFI =0.975, TLI= 0.972, RMSEA=0.090, CRS= 0.992. The second order CFA demonstrated that interpersonal sensitivity (0.998) and anxiety (0.993) had the highest loadings for the higher order factor of psychological distress among participants. The internal reliability of coefficients (Cronbach's α) for the nine clinical scales of the SCL-90-R symptom dimensions were also very good: α = 0.915 for somatization, α = 0.906 for obsessive-compulsive, α = 0.906 for interpersonal sensitivity, α = 0.929 for depression, α = 0.924 for anxiety,

$\alpha= 0.878$ for hostility, $\alpha= 0.872$ for phobic anxiety, $\alpha= 0.856$ for paranoid ideation, and $\alpha= 0.895$ for psychoticism (data not shown).

Table 7.2: Standardized loadings from first and second order Confirmatory Factor Analysis of the SCL-90-R symptom dimensions among all participants (n=202)

Symptom dimension	Symptom	First Order Standardized Loadings	Second Order Standardized Loadings
Somatization			0.920
	Heavy feelings in your arms or legs	0.863	0.863
	Feeling weak in parts of your body	0.837	0.838
	Hot or cold spells	0.836	0.836
	Numbness or tingling in parts of your body	0.817	0.817
	A lump in your throat	0.788	0.788
	Nausea or upset stomach	0.773	0.773
	Soreness of your muscles	0.737	0.736
	Trouble getting your breath	0.730	0.730
	Faintness or dizziness	0.721	0.721
	Pains in lower back	0.691	0.691
	Pains in heart or chest	0.688	0.687
	Headaches	0.496	0.496
Obsessive compulsive			0.973
	Trouble concentrating	0.840	0.840
	Having to check and double-check what you do	0.836	0.836
	Difficulty making decisions	0.819	0.819
	Your mind going blank	0.819	0.819
	Feeling blocked in getting things done	0.807	0.807
	Having to do things very slowly to ensure correctness	0.804	0.804
	Repeated unpleasant thoughts that won't leave your mind	0.783	0.783
	Having to repeat the same actions such as touching, counting, or washing	0.759	0.759
	Worried about sloppiness or carelessness	0.744	0.744
	Trouble remembering things	0.648	0.649

Symptom dimension	Symptom	First Order Standardized Loadings	Second Order Standardized Loadings
Interpersonal sensitivity			0.998
	Feeling very self-conscious with others	0.836	0.836
	Feeling that people are unfriendly or dislike you	0.823	0.823
	Feeling others do not understand you or are unsympathetic	0.833	0.833
	Your feelings being easily hurt	0.824	0.824
	Feeling uneasy when people are watching or talking about you	0.823	0.824
	Feeling inferior to others	0.735	0.734
	Feeling critical of others	0.748	0.748
	Feeling shy or uneasy with the opposite sex	0.729	0.729
	Feeling uncomfortable about eating or drinking in public	0.670	0.670
Depression			0.970
	Feelings of worthlessness	0.891	0.891
	Feelings of being trapped or caught	0.863	0.863
	Feeling hopeless about the future	0.853	0.853
	Feeling everything is an effort	0.818	0.817
	Feeling lonely	0.814	0.814
	Blaming yourself for things	0.797	0.798
	Feeling blue	0.797	0.797
	Worrying too much about things	0.776	0.776
	Crying easily	0.754	0.754
	Feeling low in energy or slowed down	0.729	0.729
	Feeling no interest in things	0.724	0.724
	Thoughts of ending your life	0.705	0.704
	Loss of sexual interest or pleasure	0.643	0.643
Anxiety			0.993
	Feeling tense or keyed up	0.872	0.871
	Spells of terror or panic	0.865	0.866
	Thoughts and images of a frightening nature	0.836	0.836
	Suddenly scared for no reason	0.835	0.837
	The feeling that something bad is going to happen to you	0.819	0.819
	Feeling fearful	0.817	0.817
	Heart pounding or racing	0.803	0.803
	Trembling	0.801	0.802

Symptom dimension	Symptom	First Order Standardized Loadings	Second Order Standardized Loadings
	Feeling so restless you couldn't sit still	0.787	0.786
	Nervousness or shakiness inside	0.746	0.745
Hostility			0.891
	Having urges to break or smash things	0.868	0.869
	Temper outbursts that you could not control	0.864	0.864
	Feeling easily annoyed or irritated	0.836	0.836
	Getting into frequent arguments	0.766	0.766
	Having urges to beat, injure, or harm someone	0.760	0.760
	Shouting or throwing things	0.737	0.737
Phobic anxiety			0.906
	Feeling nervous when you are left alone	0.859	0.860
	Feeling afraid to go out of your house alone	0.820	0.820
	Feeling afraid in open spaces or on the streets	0.814	0.814
	Feeling uneasy in crowds, such as shopping or at a movie	0.799	0.798
	Having to avoid certain things, places, or activities because they frighten you	0.778	0.778
	Feeling afraid you will faint in public	0.776	0.776
	Feeling afraid to travel on buses, subways, or trains	0.766	0.766
Paranoid ideation			0.972
	Feeling that you are watched or talked about by others	0.859	0.860
	Feeling that most people cannot be trusted	0.800	0.801
	Having ideas or beliefs that others do not share	0.795	0.795
	Others not giving you proper credit for your achievements	0.779	0.779
	Feeling that people will take advantage of you if you let them	0.700	0.700
	Feeling others are to blame for most of your troubles	0.662	0.662
Psychoticism			0.973
	The idea that something is wrong with your mind	0.867	0.867
	Never feeling close to another person	0.847	0.847
	Feeling lonely even when you are with people	0.826	0.826
	the idea that something serious is wrong with your body	0.824	0.824
	Other people being aware of your private thoughts	0.794	0.794

Symptom dimension	Symptom	First Order Standardized Loadings	Second Order Standardized Loadings
	Having thoughts that are not your own	0.765	0.764
	Having thoughts about sex that bother you a lot	0.744	0.744
	The idea that you should be punished for your sins	0.732	0.732
	The idea that someone else can control your thoughts	0.731	0.731
	Hearing voices that other people do not hear	0.646	0.646

Table 7.3 presents the correlations between factors based on the nine-factor model of psychological distress suggested by Derogatis (1994). The correlations ranged from 0.609 (hostility and phobic anxiety) to 0.903 (depression and interpersonal sensitivity), and they were all significant at the $p < 0.001$ level. Table 7.4 presents the correlations between the nine-factor model of the SCL-90-R symptom dimensions in addition to the GSI, with the CTQ maltreatment subscales based on Bernstein and Fink's five-factor model (1998). Correlations between scales ranged from 0.140 to 0.457. The strongest correlations were between depression and emotional abuse (0.457, $p < 0.001$), interpersonal sensitivity and emotional abuse (0.420, $p < 0.001$), and obsessive-compulsive and emotional abuse (0.402, $p < 0.001$). The GSI had very strong correlations with each of the CTQ subscales and the strongest was between emotional abuse (0.420, $p < 0.001$) and physical neglect (0.336, $p < 0.001$).

Table 7.3 Bivariate Pearson correlations between the baseline SCL-90-R symptom dimensions

Symptom Dimensions	SOM	O-C	IPS	DEP	ANX	HOS	PHA	PAI	PSY
Somatization	-								
Obsessive-compulsive	0.83**	-							
Interpersonal sensitivity	0.80**	0.88**	-						
Depression	0.83**	0.88**	0.90**	-					
Anxiety	0.84**	0.86**	0.89**	0.88**	-				
Hostility	0.72**	0.77**	0.79**	0.79**	0.75**	-			
Phobic anxiety	0.72**	0.77**	0.78**	0.739**	0.848**	0.61**	-		
Paranoid ideation	0.72**	0.81**	0.87**	0.81**	0.83**	0.83**	0.71**	-	
Psychoticism	0.76**	0.83**	0.88**	0.85**	0.89**	0.76**	0.79**	0.85**	-

SOM=somatization; O-C= obsessive-compulsive; IPS=interpersonal sensitivity; DEP=depression, ANX=anxiety; HOS=hostility; PHA=phobic anxiety; PAI=paranoid ideation; PSY=psychoticism

* Significant at $p<0.05$; **Significant at $p<0.001$

Table 7.4: Bivariate Pearson correlations between baseline SCL-90-R symptom dimensions and CTQ

subscales

SCL-90-R symptom dimensions	CTQ subscales				
	Emotional abuse	Physical abuse	Sexual abuse	Emotional neglect	Physical neglect
Somatization	0.38**	0.24**	0.26**	0.15*	0.29**
Obsessive-compulsive	0.40**	0.27**	0.26**	0.15*	0.30**
Interpersonal sensitivity	0.42**	0.29**	0.21**	0.15*	0.30**
Depression	0.46**	0.29**	0.27**	0.15*	0.33**
Anxiety	0.34**	0.22**	0.24**	0.11	0.29**
Hostility	0.39**	0.24**	0.24**	0.15*	0.29**
Phobic anxiety	0.28**	0.21**	0.19**	0.12	0.30**
Paranoid ideation	0.39**	0.24**	0.19**	0.18*	0.33**
Psychoticism	0.36**	0.26**	0.24**	0.14	0.34**
Global severity index	0.42**	0.28**	0.26**	0.15*	0.34**

* Significant at $p<0.05$; **Significant at $p<0.001$

Trends of psychological distress over the study period

Tables 7.5, 7.6, and 7.7 display the sample sizes, means and standard deviations (SD) of the GSI at each follow-up. Overall, participants returned for a minimum of 2 and a maximum of 3 interviews; the median number of follow-up interviews was 2. In the model for all participants, the mean GSI decreased significantly between the baseline and first follow-up ($p=0.003$). The mean GSI in the third follow-up was also lower than baseline, but this difference was non-significant ($p=0.187$). When time was treated as continuous variable, on average there was a marginally significant 6% decrease in the mean GSI across all 511 study observations ($p=0.051$) (data not shown). In the stratified model for men only, there was no significant difference between the mean GSI at baseline and the first or second follow-ups. This was confirmed by the continuous measure of time across all 236 study observations among men ($\beta = -0.015$, $p=0.705$) (data not shown). In the stratified models for women only, the mean GSI decreased significantly between baseline and the first follow-up ($p=0.009$), and again the mean GSI was lower in the third follow-up, but this difference was non-significant ($p=0.087$). When time was treated continuously, on average there was a significant 9.8% decrease in the mean GSI across all 275 observations among women ($p=0.033$) (data not shown).

Table 7.5: Means, standard deviations (SD) and average changes in the Global Severity Index (GSI) among all participants (n=202)

Categorical time points	Year	Sample size	All participants mean GSI	SD	β all participants	SE	t-value	95%CI	p-value
Baseline					1.044				
SCL-90-R	2010	202	1.044	0.862	(intercept)	0.059	17.582		
Follow-up 1	2011/2012	202	0.895	0.809	-0.149	0.049	-3.021	-0.245, -0.053	0.003
Follow-up 2	2012	107	1.017	0.882	-0.083	0.063	-1.322	-0.206, -0.108	0.187

Table 7.6: Means, standard deviations (SD) and average changes in the Global Severity Index (GSI) among male participants (n=95)

Categorical time points	Year	Sample size	All participants mean GSI	SD	β all participants	SE	t-value	95%CI	p-value
Baseline					1.044				
SCL-90-R	2010	202	1.044	0.862	(intercept)	0.059	17.582		
Follow-up 1	2011/2012	202	0.895	0.809	-0.149	0.049	-3.021	-0.245, -0.053	0.003
Follow-up 2	2012	107	1.017	0.882	-0.083	0.063	-1.322	-0.206, -0.108	0.187

Table 7.7: Means, standard deviations (SD) and average changes in the Global Severity Index (GSI) among female participants (n=107)

Time point	Year	Sample size	Female mean GSI	SD	β female participants	SE	t-value	95%CI	p-value
Baseline					1.249				
SCL-90-R	2010	107	1.249	0.874	(intercept)	0.085	14.699		
Follow-up 1	2011/2012	107	1.051	0.834	-0.198	0.075	-2.643	-0.345, -0.051	0.009
Follow-up 2	2012	61	1.130	0.942	-0.161	0.093	-1.742	-0.343, 0.021	0.084

Tables 7.8-7.10 present the overall and sex-stratified baseline and longitudinal observations and the associated proportions, as well as the results from the unadjusted and adjusted LME models. Regression coefficients, standard errors (SE), and *t*-values represent the effect of the study variable compared to the reference group on the mean change in the GSI over the study period.

Factors associated with psychological distress among all participants

Table 7.8 presents the study results for all 202 study participants. There was a weak inverse association between participants' age and the mean GSI ($p=0.157$). Sex had the strongest effect on the mean GSI, as on average women's GSI scores were 0.361 higher than men's ($p<0.001$). Prince George participants had experienced significantly greater psychological distress than Chase participants ($p=0.052$) and Vancouver participants' mean GSI was also higher than those in Chase, although the latter association was relatively weak ($p=0.131$). All other potential confounders were not associated significantly with the mean GSI over the study period.

Increases in each subscale of childhood maltreatment with the exception of emotional neglect were associated with significant increases in participants' mean GSI in unadjusted analyses. When adjusted for age, sex, and study location, these correlations remained significant, with the exception of low/moderate levels of physical and sexual abuse. Childhood emotional abuse had the strongest association with greater psychological distress over the study period. For the adjusted analysis of the maltreatment summary score, the mean GSI increased significantly by 0.121 for each 1-unit increase in the number of maltreatments experienced by participants ($p<0.001$).

For multivariate analyses of protective factors, frequently living by traditional culture in the past 6 months was significantly associated with decreased psychological distress ($\beta=-0.151$, $p=0.051$) and this association was negatively confounded by participants' age and sex. In addition, trying to quit drugs in the previous 6 months was associated with lower psychological distress ($\beta=-0.151$, $p=0.062$), although this was only weakly significant after adjustments for age and sex. In the unadjusted analyses, having accessed counseling services in the previous six months and having participated in traditional ceremonies were both associated with increased psychological distress, although these associations became non-significant after being adjusted for confounders.

For risk factors, having injected drugs in the previous 6 months was marginally significant with an increased mean GSI over the study period after adjusting for age, sex, study location, and childhood sexual abuse ($\beta=0.145$, $p=0.090$). Involvement in sex work had the strongest effect on increased mean psychological distress after adjusting for age, sex, and childhood emotional and sexual abuse, ($\beta=0.436$, $p<0.001$). Sexual assault had the second greatest effect on participants' increased psychological distress, after adjusting for age and sex ($\beta=0.410$, $p=0.052$). Finally, having blackouts from drinking significantly increased participants' mean GSI over the study period after adjusting for age, sex, and study location ($\beta=0.261$, $p=0.001$).

Table 7.8: Coefficient estimates (β), standard errors (SE), and associated t-values and p-values for each study variable on the GSI among all participants (n=202)

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Potential Confounders														
Mean age (SD)	28.52	5.02	29.09	4.92	-0.015	0.010	-1.424	-0.035, 0.005	0.157					
Sex														
Male	95	47%	-	-	ref									
Female	107	53%	-	-	0.361	0.103	3.494	0.039, 0.682	<0.001					
Sexual identity														
Straight	24	12%	-	-	ref									
LGBTQ	178	88%	-	-	-0.049	0.164	-0.296	-0.370, 0.272	0.767					
Ever in Foster Care														
No	61	30%	-	-	ref									
Yes	141	70%	-	-	-0.051	0.116	-0.441	-0.278, 0.176	0.660					
Parents attended residential school														
No	43	21%	-	-	ref									
Unsure	59	29%	-	-	-0.133	0.152	-0.877	-0.431, 0.165	0.381					
At least one parent attended	99	49%	-	-	-0.087	0.138	-0.627	-0.357, 0.183	0.531					
Location														
Chase	15	7%	-	-	ref									
Prince George	112	55%	-	-	0.409	0.209	1.955	0.001, 0.819	0.052					
Vancouver	75	37%	-	-	0.326	0.215	1.516	-0.095, 0.747	0.131					
Education level														
Less than high school	169	85%	-	-	ref									
High school	31	16%	-	-	-0.034	0.148	-0.229	-0.324, 0.256	0.819					

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)										
	N	%	N	%	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj.		<i>t</i> -value	95% CI	<i>p</i> -value	
										β	SE				
education or higher Relationship status															
Single	19	10%	-	-	ref										
In relationship	181	91%	-	-	-0.132	0.123	-1.076	-0.373, 0.109	0.283						
Childhood Maltreatment Variables															
Emotional abuse severity			-	-											
None	57	29%			ref					ref					
Low / Moderate	69	35%	-	-	0.406	0.122	3.333	0.167, 0.645	0.001	0.454	0.125	3.626	0.209, 0.699	<0.001	
Severe	69	35%	-	-	0.691	0.122	5.679	0.452, 0.930	<0.001	0.681	0.134	5.067	0.418, 0.944	<0.001	
Physical abuse severity			-	-											
None	83	42%			ref					ref					
Low / Moderate	32	16%	-	-	0.163	0.150	1.091	-0.131, 0.457	0.276	0.090	0.152	0.596	-0.078, 1.258	0.552	
Severe	82	42%	-	-	0.463	0.111	4.157	0.245, 0.680	<0.001	0.389	0.113	3.452	0.167, 0.610	0.007	
Sexual abuse severity			-	-											
None	82	42%			ref					ref					
Low / Moderate	35	18%	-	-	0.184	0.143	1.286	-0.096, 0.464	0.200	0.149	0.152	0.981	-0.149, 0.447	0.329	
Severe	77	40%	-	-	0.350	0.119	2.942	0.117, 0.583	0.004	0.222	0.127	1.748	-0.027, 0.471	0.082	
Emotional neglect severity			-	-											
None	55	28%			ref					ref					
Low / Moderate	103	53%	-	-	0.152	0.125	1.214	-0.093, 0.397	0.226	-	-	-	-	-	-
Severe	38	19%	-	-	0.264	0.172	1.535	-0.073, 0.601	0.126	-	-	-	-	-	-

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Physical neglect severity			-	-										
None	42	22%			ref					ref				
Low / Moderate	78	40%	-	-	0.238	0.110	2.161	0.022, 0.454	0.032	0.222	0.111	2.000	0.004, 0.439	0.047
Severe	75	38%	-	-	0.524	0.123	4.254	0.283, 0.765	<0.001	0.424	0.126	3.354	0.177, 0.671	0.001
Maltreatment summary score			-	-										
0	15	7%	-	-	ref					ref				
1	22	11%	-	-	0.146	0.028	5.290	0.091, 0.201	<0.001	0.121	0.032	3.825	0.058, 0.184	<0.001
2	29	14%	-	-										
3	34	17%	-	-										
4	34	17%	-	-										
5	68	34%	-	-										
Cultural factors														
How much family lived by traditional culture														
Never/Rarely	96	58%	-	-	ref					ref				
Often/Always	69	42%	-	-	0.042	0.076	0.556	-0.107, 0.191	0.579	-	-	-	-	-
Frequency traditional language was spoken at home														
Never/Rarely	101	58%	-	-	ref					ref				
Often/Always	74	42%	-	-	0.025	0.075	0.330	-0.122, 0.172	0.742	-	-	-	-	-
Know how to speak traditional language			-	-										
No	89	50%	-	-	ref					ref				

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
A little bit	70	40%	-	-	-0.002	0.072	-0.022	-0.143, 0.139	0.982	-	-	-	-	-
Yes	18	10%			-0.039	0.126	-0.311	-0.286, 0.208	0.756	-	-	-	-	-
Frequency of living by traditional culture in past 6 months														
Never/Rarely	132	75%	363	77%	ref					ref				
Often/Always	44	25%	111	23%	-0.141	0.077	-1.821	-0.292, 0.009	0.070	-0.151	0.077	-1.96	-0.302, -0.00	0.051
Participated in traditional ceremonies in past 6 months														
No	70	40%	275	57%	ref					ref				
Yes	107	60%	208	43%	0.099	0.056	1.780	-0.011, 0.209	0.076	0.084	0.057	1.469	-0.028, 0.196	0.143
Other potential protective factors														
Accessed drug/alcohol treatment in past 6 months														
No	135	67%	323	64%	ref					ref				
Yes	66	33%	184	36%	-0.018	0.063	-0.281	-0.141, 0.105	0.779	-	-	-	-	-
Accessed any counselling in past 6 months														
No	129	69%	352	72%	ref					ref				
Yes	57	31%	140	28%	0.134	0.067	1.992	0.003, 0.265	0.048	0.098	0.070	1.407	-0.039, 0.235	0.163
Tried quitting drugs in past 6 months														

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
No	35	23%	85	20%	ref					ref				
Yes	117	77%	332	80%	-0.156	0.080	-1.946	-0.313, 0.001	0.053	-0.151	0.080	1.886	-0.308, 0.006	0.062
Risk factors														
Slept on streets for >3 nights														
No	168	83%	441	86%	ref					ref				
Yes	34	17%	70	14%	0.153	0.085	1.809	-0.085, 0.320	0.072	-	-	-	-	-
Frequency of smoking crack														
Less than daily	141	73%	362	73%	ref					ref				
Daily or more	53	27%	132	27%	0.075	0.079	0.952	-0.080, 0.230	0.342	-	-	-	-	-
Injected drugs														
No	138	68%	358	70%	ref					ref				
Yes	64	32%	153	30%	0.182	0.083	2.180	0.019, 0.345	0.030	0.145	0.085	1.702	-0.022, 0.312	0.090
Blackouts from drinking														
No	76	67%	214	66%	ref					ref				
Yes	37	33%	110	34%	0.237	0.081	2.938	0.078, 0.396	0.004	0.261	0.080	3.273	0.104, 0.418	0.001
Binge drinking														
No	85	77%	241	75%	ref					ref				
Yes	26	23%	79	25%	0.091	0.088	1.043	-0.081, 0.263	0.298	-	-	-	-	-
Sex work														
No	165	82%	424	83%	ref					ref				
Yes	37	18%	85	17%	0.444	0.088	5.024	0.271, 0.616	<0.001	0.436	0.096	4.517	0.248, 0.624	<0.001
Condom use with casual partners														
Always	26	58%	71	65%	ref					ref				

	Baseline Frequencies		Observations over time		All participants (n=202; 511 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Condom use with regular partners														
Not always	19	42%	39	35%	0.029	0.145	0.199	-0.255, 0.313	0.843	-	-	-	-	-
Always	20	32%	44	29%	ref					ref				
Sexually transmitted infection														
Not always	42	68%	107	71%	0.071	0.161	0.443	-0.244, 0.386	0.659	-	-	-	-	-
No	191	95%	487	95%	ref					ref				
Yes	11	5%	24	5%	0.193	0.139	1.389	-0.079, 0.465	0.166	-	-	-	-	-
Sexual assault														
No	173	99%	469	98%	ref					ref				
Yes	2	1%	11	2%	0.444	0.210	2.11	0.032, 0.856	0.036	0.410	0.210	1.955	-0.002, 0.822	0.052
HIV serostatus														
Negative	167	84%	413	84%	ref					ref				
Positive	31	16%	80	16%	-0.094	0.144	-0.654	-0.376, 0.188	0.514	-	-	-	-	-
HCV serostatus														
Negative	110	61%	265	59%	ref					ref				
Positive	71	39%	182	41%	0.027	0.117	0.228	-0.202, 0.256	0.820	-	-	-	-	-

Factors associated with psychological distress among male participants

Results from the stratified models for male participants are displayed in Table 7.9. Nearly all potential confounders that were tested had no statistically significant association with the men's GSI, although there was a weak association between being located in Vancouver and an increased mean GSI ($p=0.144$).

In the unadjusted analyses, the CTQ subscales that were significantly associated with increased psychological distress included low/moderate emotional abuse, severe physical abuse, and severe physical neglect. These associations remained significant after adjusting for age and study location and again emotional abuse had the greatest effect on psychological distress. Further, for each 1-unit increase in the maltreatment summary score the mean GSI increased by 0.156 ($p<0.001$).

For men, the protective factor of having lived by traditional culture in the previous 6 months was significantly associated with decreased psychological distress after adjustment for age ($\beta=-0.199$, $p=0.047$). For risk factors, sex work had the greatest negative effect on men's mean GSI over the study period after adjustment for age ($\beta=0.955$, $p<0.001$). Finally, having blackouts from drinking was strongly associated with increased psychological distress among men after adjusting for age, childhood physical abuse, and study location ($\beta=0.244$, $p=0.016$).

Table 7.9: Coefficient estimates (β), standard errors (SE), and associated t-values and p-values for each study variable on the GSI among male participants (n=95)

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	t-value	95%CI	p-value	β	SE	t-value	95%CI	p-value
Potential Confounders														
Mean age (SD)	28.73	5.39	29.32	5.23	-0.009	0.013	-0.679	-0.034, 0.016	0.499					
Sexual identity														
Straight	11	12%	-	-	ref									
GBTQ	84	88%	-	-	-0.009	0.223	-0.040	-0.446, 0.428	0.968					
Ever in Foster Care														
No	30	32%	-	-										
Yes	65	68%	-	-	-0.146	0.153	-0.955	-0.446, 0.154	0.342					
Parents attended residential school														
No	20	21%	-	-	ref									
Unsure	30	32%	-	-	0.148	0.201	0.734	-0.246, 0.542	0.465					
At least one parent attended	45	47%	-	-	0.088	0.187	0.469	-0.278, 0.454	0.469					
Location														
Chase	10	11%	-	-	ref									
Prince George	45	47%	-	-	0.203	0.243	0.835	-0.273, 0.679	0.406					
Vancouver	40	42%	-	-	0.362	0.246	1.472	-0.120, 0.844	0.144					
Education level														
Less than high school	76	80%	-	-	ref									
High school education or higher	19	20%	-	-	0.227	0.177	1.284	-0.120, 0.574	0.202					

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
Relationship status (past 6 months)														
Single	11	12%	-	-	ref									
In relationship	84	88%	-	-	0.170	0.151	1.127	-0.126, 0.466	0.262					
Childhood Maltreatment Variables														
Emotional abuse severity														
None	40	43%	-	-	ref					ref				
Low / Moderate	35	37%	-	-	0.532	0.148	3.591	0.242, 0.822	<0.001	0.570	0.145	3.928	0.286, 0.854	<0.001
Severe	19	20%	-	-	0.539	0.178	3.025	0.190, 0.888	0.003	0.571	0.182	3.130	0.214, 0.928	0.002
Physical abuse severity														
None	49	52%	-	-	ref					ref				
Low / Moderate	13	14%	-	-	0.020	0.205	0.098	-0.312, 0.422	0.922	0.104	0.145	0.717	-0.180, 0.388	0.475
Severe	32	34%	-	-	0.454	0.150	3.026	0.160, 0.748	0.003	0.477	0.173	2.759	0.138, 0.816	0.007
Sexual abuse severity														
None	57	61%	-	-	ref					ref				
Low / Moderate	17	18%	-	-	0.194	0.169	1.147	-0.137, 0.525	0.254	-	-	-	-	-
Severe	20	21%	-	-	0.297	0.182	1.634	-0.060, 0.654	0.106	-	-	-	-	-
Emotional neglect severity														
None	28	30%	-	-	ref					ref				
Low / Moderate	48	52%	-	-	0.205	0.145	1.411	-0.079, 0.489	0.161	-	-	-	-	-
Severe	16	17%	-	-	0.238	0.237	1.006	-0.226, 0.702	0.317	-	-	-	-	-
Physical neglect severity														

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
None	26	41%	-	-	ref					ref				
Low / Moderate	39	43%	-	-	-0.026	0.141	-0.187	-0.302, 0.250	0.852	-0.01	0.140	-0.083	-0.286, 0.262	0.934
Severe	25	28%	-	-	0.460	0.212	2.166	0.044, 0.875	0.033	0.413	0.207	1.999	0.007, 0.819	0.049
Maltreatment summary score														
0	7	7%	-	-	ref					ref				
1	15	16%	-	-	0.160	0.048	3.331	0.066, 0.254	0.001	0.156	0.043	3.647	0.072, 0.240	<0.001
2	21	22%	-	-										
3	19	20%	-	-										
4	15	16%	-	-										
5	18	19%	-	-										
Cultural factors														
How much family lived by traditional culture														
Never/Rarely	43	57%	-	-	ref					ref				
Often/Always	32	43%	-	-	0.093	0.097	0.958	-0.097, 0.283	0.344	-	-	-	-	-
Frequency traditional language was spoken at home														
Never/Rarely	50	62%	-	-	ref					ref				
Often/Always	31	38%	-	-	-0.132	0.104	-1.269	-0.356, 0.072	0.208	-	-	-	-	-
Know how to speak traditional language														
No	43	52%	-	-	ref					ref				
A little bit	29	35%	-	-	-0.047	0.095	-0.493	0.233, 0.139	0.623	-	-	-	-	-
Yes	10	12%	-	-	-0.242	0.172	-1.407	-0.579, 0.095	0.163	-	-	-	-	-

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	t-value	95%CI	p-value	β	SE	t-value	95%CI	p-value
Frequency of living by traditional culture in past 6 months														
Never/Rarely	59	74%	165	76%	ref					ref				
Often/Always	21	26%	52	24%	-0.189	0.099	-1.916	-0.383, 0.005	0.058	-0.20	0.099	-2.013	-0.393, -0.005	0.047
Participated in traditional ceremonies in past 6 months														
No	32	39%	130	59%	ref					ref				
Yes	50	61%	92	41%	0.054	0.070	0.772	-0.083, 0.191	0.442	-	-	-	-	-
Other protective factors														
Accessed drug/alcohol treatment in past 6 months														
No	71	75%	159	68%	ref					ref				
Yes	24	25%	75	32%	0.126	0.080	1.575	-0.031, 0.283	0.119	-	-	-	-	-
Accessed any counselling in past 6 months														
No	61	73%	165	74%	ref					ref				
Yes	22	27%	57	26%	0.147	0.091	1.625	-0.031, 0.325	0.107	-	-	-	-	-
Tried quitting drugs in past 6 months														
No	14	20%	36	19%	ref					ref				
Yes	57	80%	156	81%	0.021	0.110	0.191	-0.195, 0.237	0.849	-	-	-	-	-

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	t-value	95%CI	p-value	β	SE	t-value	95%CI	p-value
Risk factors														
Slept on streets for >3 nights														
No	77	81%	203	86%	ref					ref				
Yes	18	19%	33	14%	0.007	0.105	0.069	-0.199, 0.213	0.945	-	-	-	-	-
Frequency of smoking crack														
Less than daily	73	79%	183	80%	ref					ref				
Daily or more	19	21%	45	20%	0.098	0.111	0.884	-0.119, 0.315	0.379	-	-	-	-	-
Injected drugs														
No	69	73%	177	75%	ref					ref				
Yes	26	27%	59	25%	0.130	0.114	1.143	-0.093, 0.353	0.256	-	-	-	-	-
Blackouts from drinking														
No	38	64%	101	63%	ref					ref				
Yes	21	36%	60	37%	0.228	0.101	2.266	0.030, 0.426	0.026	0.244	0.099	2.454	0.050, 0.438	0.016
Binge drinking														
No	43	75%	122	77%	ref					ref				
Yes	14	25%	36	23%	0.078	0.119	0.657	-0.155, 0.311	0.513	-	-	-	-	-
Sex work														
No	92	97%	229	97%	ref					ref				
Yes	3	3%	6	3%	0.950	0.262	3.629	0.436, 1.463	<0.001	0.955	0.262	3.642	0.441, 1.468	<0.001
Condom use with casual partners														
Always	14	50%	42	62%	ref					ref				
Not always	14	50%	26	38%	0.130	0.159	0.819	-0.182, 0.442	0.415	-	-	-	-	-
Condom use														

	Baseline Frequencies		Observations over time		Male participants (n=95, observations=236)					Adj.				
	N	%	N	%	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
with regular partners														
Always	10	48%	22	39%	ref					ref				
Not always	11	52%	35	61%	0.071	0.161	0.443	0.244, 0.386	0.659	-	-	-	-	-
Sexually transmitted infection														
No	94	99%	232	98%	ref					ref				
Yes	1	1%	4	2%	-0.278	0.251	-1.111	-0.770, 0.214	0.270	-	-	-	-	-
Sexual assault														
No	78	100%	216	100%	ref					ref				
Yes	0	0%	1	0%	-0.088	0.518	-0.170	-1.103, 0.927	0.865	-	-	-	-	-
HIV serostatus														
Negative	81	87%	193	85%	ref					ref				
Positive	12	13%	33	15%	-0.028	0.198	-0.140	-0.416, 0.360	0.889	-	-	-	-	-
HCV serostatus														
Negative	65	76%	149	73%	ref					ref				
Positive	20	24%	54	27%	-0.075	0.173	-0.433	-0.414, 0.264	0.666	-	-	-	-	-

Factors associated with psychological distress among female participants

Stratified models for factors associated with female participants' GSI are shown in Table 7.10. Testing for potential confounders between demographic variables and women's mean GSI revealed a weak association between being unsure if parents had attended residential school and a decreased mean GSI ($p=0.095$), and a strong association between being in a relationship and a decreased mean GSI ($p=0.025$).

In the unadjusted analyses for female participants, the childhood maltreatment variables of severe emotional and physical abuse, and low/moderate and severe physical neglect, were significantly associated with higher psychological distress. These relationships remained significant after adjusting for age and parental attendance at residential school, with severe emotional abuse having the greatest negative effect on women's psychological distress ($\beta=0.596$, $p=0.003$). The mean GSI for women increased significantly by 0.103 for each 1-unit increase in the maltreatment summary score.

In the adjusted analyses of the effects of protective factors, having tried to quit using drugs in the previous 6 months had a significant inverse association with mean GSI among female participants after adjusting for age and parental attendance at residential school ($\beta=-0.249$, $p=0.033$). Having been sexually assaulted over the study period had the greatest significant negative impact on psychological distress for female participants and this result remained significant after adjusting for age, relationship status, and parental attendance at residential school ($\beta=0.499$, $p=0.042$). Involvement in sex work also significantly increased women's psychological distress after adjusting for age and relationship status ($\beta=0.320$, $p=0.002$). Finally, experiencing blackouts from drinking significantly increased the mean GSI among women, after adjusting for age and childhood emotional abuse ($\beta=0.302$, $p=0.022$).

Table 7.10: Coefficient estimates (β), standard errors (SE), and associated t-values and p-values for each study variable on the GSI among female participants (n=107)

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Potential Confounders														
Mean age (SD)	28.34	4.68	28.89	4.65	-0.017	0.015	-1.113	-0.046, 0.012	0.268					
Sexual identity														
Straight	13	12%	33	12%	ref									
LGBTQ	94	88%	242	88%	-0.072	0.229	-0.313	-0.395, 0.251	0.754					
Ever in Foster Care														
No	31	29%	79	29%	ref									
Yes	76	71%	196	71%	0.016	0.165	0.098	-0.307, 0.339	0.922					
Parents attended residential school														
No	23	22%	60	22%	ref									
Unsure	29	27%	75	28%	-0.361	0.214	-1.683	-0.780, 0.058	0.095					
At least one parent attended	54	51%	137	50%	-0.240	0.191	-1.253	-0.614, 0.134	0.213					
Location														
Chase	5	5%	10	4%	ref									
Prince George	67	63%	178	65%	0.425	0.363	1.168	-0.286, 1.136	0.245					
Vancouver	35	33%	87	32%	0.206	0.374	0.549	-0.527, 0.939	0.584					
Education level														
Less than high school	93	89%	242	89%	ref									
High school education or higher	12	11%	29	11%	-0.259	0.237	-1.089	-0.723, 0.205	0.279					
Relationship status														
Single	8	8%	14	5%	ref									
In relationship	97	92%	257	95%	-0.427	0.187	-2.289	-0.793, -0.06	0.025					

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)										
	N	%	N	%	β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj.		<i>t</i> -value	95% CI	<i>p</i> -value	
										β	SE				
Childhood Maltreatment Variables															
Emotional abuse severity															
None	17	17%	46	18%	ref						ref				
Low / Moderate	34	34%	86	33%	0.190	0.198	0.960	-0.198, 0.578	0.339	0.180	0.204	0.880	-0.220, 0.580	0.381	
Severe	50	50%	128	49%	0.583	0.185	3.154	0.220, 0.946	0.002	0.596	0.194	3.065	0.286, 0.906	0.003	
Physical abuse severity															
None	34	33%	89	34%	ref						ref				
Low / Moderate	19	18%	47	18%	0.185	0.213	0.866	-0.232, 0.602	0.388	0.087	0.229	0.379	-0.362, 0.536	0.353	
Severe	50	49%	128	48%	0.382	0.163	2.353	0.062, 0.701	0.021	0.370	0.158	2.338	0.061, 0.681	0.011	
Sexual abuse severity															
None	25	25%	65	25%	ref						ref				
Low / Moderate	18	18%	46	18%	0.031	0.242	0.130	0.443, 0.505	0.897	-	-	-	-	-	
Severe	57	57%	147	57%	0.160	0.186	0.861	-0.204, 0.524	0.391	-	-	-	-	-	
Emotional neglect severity															
None	27	26%	72	27%	ref						ref				
Low / Moderate	55	53%	139	52%	0.073	0.196	0.374	-0.311, 0.457	0.354	-	-	-	-	-	
Severe	22	21%	56	21%	0.221	0.245	0.901	-0.259, 0.701	0.185	-	-	-	-	-	
Physical neglect severity															
None	16	15%	42	15%	ref						ref				
Low / Moderate	39	37%	99	37%	0.502	0.150	3.353	0.208, 0.796	<0.001	0.526	0.154	3.405	0.224, 0.828	<0.001	
Severe	50	48%	130	48%	0.562	0.145	3.865	0.278, 0.846	<0.001	0.547	0.145	3.774	0.263, 0.831	<0.001	
Maltreatment summary score															

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
0	8	7%	21	8%										
1	7	7%	19	7%	0.128	0.036	3.599	0.057, 0.198	<0.001	0.103	0.048	2.176	0.009, 0.197	0.032
2	8	7%	22	8%										
3	15	14%	37	13%										
4	19	18%	48	17%										
5	50	47%	128	47%										
Cultural factors														
How much family lived by traditional culture														
Never/Rarely	53	59%	135	58%	ref					ref				
Often/Always	37	41%	98	42%	0.003	0.114	0.025	-0.220, 0.226	0.980	-	-	-	-	-
Frequency traditional language was spoken at home														
Never/Rarely	51	54%	137	53%	ref					ref				
Often/Always	43	46%	122	47%	0.124	0.106	1.171	-0.084, 0.332	0.244	-	-	-	-	-
Know how to speak traditional language														
No	46	48%	143	55%	ref					ref				
A little bit	41	43%	97	37%	0.038	0.103	0.367	-0.164, 0.240	0.714	-	-	-	-	-
Yes	8	8%	22	8%	0.152	0.180	0.848	-0.201, 0.505	0.398	-	-	-	-	-
Frequency of living by traditional culture in past 6 months														

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Participated in traditional ceremonies in past 6 months					ref									
Never/Rarely	73	76%	198	77%						ref				
Often/Always	23	24%	59	23%	-0.089	0.114	-0.778	-0.312, 0.134	0.438	-	-	-	-	-
No	38	40%	145	56%	ref					ref				
Yes	57	60%	116	44%	0.127	0.084	1.514	-0.038, 0.292	0.133	-	-	-	-	-
Other potential protective factors														
Accessed drug/alcohol treatment in past 6 months														
No	64	60%	164	60%	ref					ref				
Yes	42	40%	109	40%	-0.151	0.092	-1.634	-0.331, 0.029	0.105	-	-	-	-	-
Accessed any counselling in past 6 months														
No	68	66%	187	69%	ref					ref				
Yes	35	34%	83	31%	0.110	0.10	1.154	-0.086, 0.306	0.251	-	-	-	-	-
Tried quitting drugs in past 6 months														
No	21	26%	49	22%	ref					ref				
Yes	60	74%	176	78%	-0.246	0.113	-2.180	-0.467,-0.02	0.031	-0.249	0.115	-2.16	-0.47, -0.024	0.033
Risk factors														
Slept on streets for >3 nights														
No	91	85%	238	87%	ref					ref				

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Frequency of smoking crack														
Yes	16	15%	37	13%	0.318	0.179	1.779	-0.033, 0.669	0.078	-	-	-	-	-
Less than daily	68	67%	179	67%	ref					ref				
Daily or more	34	33%	87	33%	0.020	0.110	0.179	-0.196, 0.236	0.858	-	-	-	-	-
Injected drugs														
No	69	64%	181	66%	ref					ref				
Yes	38	36%	94	34%	0.173	0.117	1.477	-0.056, 0.402	0.143	-	-	-	-	-
Blackouts from drinking														
No	38	70%	113	69%	ref					ref				
Yes	16	30%	50	31%	0.286	0.124	2.302	0.043, 0.529	0.024	0.302	0.129	2.346	0.049, 0.555	0.022
Binge drinking														
No	42	78%	119	73%	ref					ref				
Yes	12	22%	43	27%	0.093	0.126	0.738	-0.154, 0.340	0.463	-	-	-	-	-
Sex work														
No	73	68%	195	71%	ref					ref				
Yes	34	32%	79	29%	0.351	0.104	3.386	0.147, 0.555	0.001	0.320	0.103	3.097	0.118, 0.522	0.002
Condom use with casual partners														
Always	12	71%	29	69%	ref					ref				
Not always	5	29%	13	31%	0.069	0.286	0.241	-0.491, 0.629	0.811	-	-	-	-	-
Condom use with regular partners														
Always	10	24%	22	23%	ref					ref				
Not always	31	76%	72	77%	0.071	0.161	0.443	-0.244, 0.386	0.659	-	-	-	-	-
Sexually transmitted infection														
No	97	91%	255	93%	ref					ref				

	Baseline Frequencies		Observations over time		Female participants (n=107; 236 observations)									
	N	%	N	%	β	SE	t-value	95%CI	p-value	Adj. β	SE	t-value	95% CI	p-value
Sexual assault														
Yes	10	9%	20	7%	0.277	0.172	1.609	-0.060, 0.614	0.111	-	-	-	-	-
No	95	98%	253	96%	ref					ref				
HIV serostatus														
Yes	2	2%	10	4%	0.489	0.241	2.028	0.017, 0.961	0.045	0.499	0.242	2.06	0.297, 0.701	0.042
Negative	86	82%	220	82%	ref					ref				
Positive	19	18%	47	18%	-0.190	0.197	-0.966	-0.576, 0.196	0.336	-	-	-	-	-
HCV serostatus														
Negative	45	47%	116	48%	ref					ref				
Positive	51	53%	128	52%	-0.098	0.162	-0.607	-0.415, 0.219	0.545	-	-	-	-	-

7.4 Discussion

In 2009, the World Health Organization stated that understanding population-specific mental health must extend beyond individual pathologies and consider responses to the “relative deprivation and social injustice which erode the emotional, spiritual and intellectual resources essential to psychological wellbeing” (Friedli, 2009). This position affirms what Indigenous scholars and Elders have maintained for decades: that the intergenerational effects of historical trauma and loss continue to have damaging effects on the mental health of young Indigenous people in Canada today (Barlow, 2003; Corrado & Cohen, 2003; Henderson, 2008; Nechi Institute, 2002; Whitbeck et al., 2009). However, Indigenous scholars have also asserted that identifying factors that support resilience and have a healing effect on the psyche of young Indigenous people is an essential part of the decolonization of health research – particularly those factors that promote pride in Indigenous identities and the continuity of culture, languages, and traditions (Mitchell & Maracle, 2005; *Research as resistance: Critical, indigenous, and anti-oppressive approaches*, 2005; Smith, 1999; Storck, Beal, Bacon, & Olsen, 2009; Walters et al., 2009). Further, as Fleming & Ledogar have pointed out, the importance of finding ways to support the wellness and resilience of at-risk Indigenous young people in Canada who may be disconnected from their families, communities, and cultures is often overlooked (2008b). Urban public health providers must therefore find ways to provide culturally safe mental health supports to young Indigenous people who use drugs and address harmful patterns that may exacerbate psychological distress and increase vulnerability to HIV and HCV infection.

This study has demonstrated that high proportions of Cedar Project participants have experienced childhood maltreatment, and that those experiences have had severe psychological outcomes individually and cumulatively. Although HIV and HCV positive status were not

independently associated with psychological distress in this study, a number of the sex and drug use factors that were associated with increased psychological distress are the same vulnerabilities that continue to put young Indigenous men and women at high risk of infection. This is cause for concern. Nevertheless, it was heartening to find that frequently trying to live by traditional culture and attempting to quit using drugs were protective factors on the mental health of Cedar Project participants. Taken together, these findings have critically important implications for public health programming that seeks to support the mental wellness of young Indigenous people in Canada who use drugs.

We found satisfactory internal reliability for all nine clinical subscales of psychological distress. The CFA demonstrated that the Cedar Project data supported the hypothesized nine-factor model of psychological distress dimensions specified by the SCL-90-R authors (Derogatis, 1994). These findings support the use of the SCL-90-R among Cedar Project participants for the measurement of psychiatric symptoms. In addition, we found significant correlations between most of the CTQ maltreatment subscales and the SCL-90-R symptom dimensions. The strongest correlations were between emotional abuse and obsessive-compulsive, interpersonal sensitivity, depression, and the GSI measure of overall psychological distress. These results are consistent with previous research suggesting that childhood emotional abuse may be as harmful or more harmful to mental health over the life course than childhood physical or sexual abuse (Burns, Jackson, & Harding, 2010; Kaplan, Pelcovitz, & Labruna, 1999).

Comparing mean psychological distress with other studies

Few studies have used the SCL-90-R among Indigenous populations. One of these involved a sample of American Indian adults from the Northern Plains in the United States. The overall mean GSI among Cedar Project participants (1.044, SD=0.863) was higher than the mean

GSI for the American Indian adults without mental health diagnoses ($n=327$, mean GSI=0.50, SD=0.54), but lower than the mean GSI for the Indian adults who had been clinically diagnosed with depression or anxiety ($n=273$, mean GSI=1.13, SD=0.76) (Davis et al., 2011). Similar findings emerged when the Cedar Project participants were compared to a sample in New Mexico, U.S.A. of Indigenous Zuni youth. The overall mean GSI among Cedar Project participants was higher than the mean GSI among the Zuni youth who had never attempted suicide ($n=23$, mean GSI=0.80, SD=not provided), but lower than the mean GSI among the Zuni youth who had attempted suicide ($n=54$, mean GSI=1.24, SD=not provided) (Howard-Pitney et al., 1992). Similarities again emerged when the Cedar Project participants were compared to samples of non-Indigenous individuals with concurrent addiction and mental health conditions. For example, the overall mean GSI for Cedar Project participants was higher than the overall mean GSI for a proportion of a psychiatric inpatient sample without concurrent substance use disorder in New York state, U.S.A. (mean GSI=0.75, SD=0.73), but lower than the mean GSI for the proportion for inpatients with concurrent substance use disorder (mean GSI=1.15, SD=0.74) (Carey, Carey, & Meisler, 1991).

The stratified results for the mean GSI between men and women in this study also revealed important gender differences in psychological distress symptoms and the global severity index. Women scored significantly higher than men for each symptom dimension. One of the few studies that reported differences in the mean GSI between men and women involved a sample of male and female adults in an urban centre in the United States who were entering an outpatient treatment program for sexual abuse. The mean GSI among male Cedar Project participants (0.813, SD=0.769) was much lower than the men in this sample ($n=25$ men, mean GSI=1.67, SD=0.66) (Gold et al., 1999), while the mean GSI among female Cedar Project

participants (1.245, SD=0.893) was much higher than the women in this sample (n=162, mean GSI=1.81, SD=0.82). The comparisons above indicate that the average baseline level of psychological distress was higher for Cedar Project participants than samples of Indigenous and non-Indigenous non-patients, non-clinically diagnosed individuals, and psychiatric inpatients without concurrent addiction. However, the baseline mean level of psychological distress was lower for young Indigenous men and women in the present study than studies involving samples of individuals with clinical diagnoses, histories of suicidality, and psychiatric inpatients with concurrent addiction.

Psychological distress among Cedar Project participants over time

When the mean GSI was measured over time, there was a significant decrease in the trends of psychological distress for the entire sample and for the model including women only. The reasons for these observed decreases in GSI are unclear. There were no significant changes in psychological distress for men over the study period. While it is encouraging that the severity of psychological distress decreased between the first and second follow-up interviews, in each model the mean GSI again increased between the second and third follow-up interviews. Future research should measure these trends for longer time periods in order to better understand temporal changes in psychological distress among young Indigenous people who use drugs.

Childhood maltreatment and psychological distress

To our knowledge, this is the first study in Canada that has examined the longitudinal effect of different childhood maltreatment types on psychological distress among young Indigenous people who use drugs. The proportions of participants in this study who reported having experienced childhood maltreatment were high, particularly among women. Each CTQ subscale (with the exception of emotional neglect) and each incremental increase in the maltreatment

summary score was strongly associated with psychological distress over time. In the models that adjusted for age and sex, both low/moderate and severe levels of emotional abuse had the strongest effect on psychological distress. These associations were the same in the models that included male participants only and the severe level of emotional abuse remained a significant factor in the models for females only. Emotional abuse has received little attention in mental health research compared to sexual and physical abuses, likely because untangling its effects from those caused by the other forms of abuse is difficult (Edwards, Holden, Felitti, & Anda, 2003). In fact, only two participants in this study reported that they had experienced only childhood emotional abuse (data not shown). However, available research indicates that the distinct effects of childhood emotional abuse are devastating to self-esteem and family relationships over the long term (Doyle, 2001), and increase the likelihood of initiating illicit drug use over the life course (Dube et al., 2003). The results of our study are consistent with those of the Adverse Childhood Experiences Study (A.C.E.), which randomly selected over 8000 adult men and women in California, U.S.A., and demonstrated that emotional abuse predicted poor mental health over the life course (Edwards et al., 2003).

For physical abuse, the severe category was significantly associated with higher psychological distress in the overall and stratified models after controlling for confounders. These findings are consistent with previous research involving both young people and adults. For example, a national study of 4850 adult siblings in the United States found an independent association between childhood physical abuse and depression, anxiety, and anger (Springer, Sheridan, Kuo, & Carnes, 2007). One of the few studies that has explored the mechanisms by which child physical abuse affects mental health over the life course involved 375 young adults in an American city. The study demonstrated that young men and women who had been

physically abused in childhood were more likely to internalize and externalize negative self-beliefs and to have lower life satisfaction, which subsequently led to lower psychological, social, and occupational functioning (Silverman et al., 1996).

Unexpectedly, our study found that childhood sexual abuse had a relatively weak effect on psychological distress after adjustment for age and that the association was non-significant in the stratified models. Given that sexual abuse has been found to be a predictor of negative mental health outcomes in previous Cedar Project research (For the Cedar Project Partnership et al., 2008), we suspect that this finding may have been due to women having an overall high mean GSI score and the probable co-linearity between being female and sexual abuse. Seventy-five percent of the women in this study had either low/moderate or severe sexual abuse histories and there was no difference in the mean GSI between women with and without histories of sexual abuse ($p=0.210$) (data not shown). Nevertheless, the large body of literature that has examined the effects of childhood sexual abuse on men's and women's mental health has highlighted the destructive pathways that link sexual abuse to psychological distress, which include self-blame, internalization, and using alcohol and drugs to control or escape emotions (Dhaliwal, 1996; Gold et al., 1999; Ruggiero, McLeer, & Dixon, 2000; Sparato, 2004; Steel et al., 2004).

Low/moderate and severe categories of physical neglect were significantly associated with higher psychological distress for all participants and for women only, and only severe physical neglect was significant in the models for men only. Again, our results are consistent with those from the A.C.E. study, which is among the relatively few studies that have addressed the effect of childhood physical neglect on mental health. The A.C.E. study also reported that serious neglect in childhood independently predicted a greater likelihood of depression and drug use in young adulthood (Schilling et al., 2007).

Finally, this study found a strong, graded association with respect to the number of maltreatments and psychological distress in all statistical models. These results affirm literature demonstrating that childhood experiences of abuses and neglect can occur concurrently or at different points in time and that there is a dose response between the number of abuse types and negative health outcomes. Once again, these results are consistent with another A.C.E. study, which demonstrated a dose effect between the number of childhood maltreatment experiences and psychiatric symptoms and disorders in childhood (Anda et al., 2006).

It is widely accepted that prior to European colonization of North America, instances of child maltreatment and family violence within Aboriginal communities were relatively rare (Fournier & Crey, 1997; Gunn Allen, 1986; Hylton, 2002; LaRocque, 1994). Further, tribal justice and community responses promoted the healing of psychological and emotional wounds while supporting healthy stress-coping for the whole family (Abadian, 2006; Manuel & Posluns, 1974). This study's findings highlight the continuing effects of historical trauma on childhood maltreatment and subsequent psychological health among young Indigenous people who use drugs. In addition, this study affirms that psychological distress often exists concurrently with addiction (Kessler et al., 1995). However, few mental health services or drug treatment options in BC offer low-threshold supports that address the presence of childhood trauma and consequently, many Indigenous young people who use drugs may be hesitant to seek help. There is growing consensus that an integrated approach to addictions and mental health treatment is more appropriate and efficacious, and as such, urgently needed. This approach incorporates healing from trauma and it has been found to have long-term positive results for young people (Cohen et al., 2003). Service providers who work with young Indigenous people who use drugs must be knowledgeable about historical and intergenerational trauma and include traditional

Indigenous cultural practices in their integrated approach to addressing trauma and mental health issues (Mitchell & Maracle, 2005). Lastly, future researchers must work to understand the complex pathways by which different types of abuse and neglect types interact to affect the mental health of Indigenous youth who use drugs.

Risk factors and psychological distress

In the adjusted analyses for the overall model and the stratified models for men and women, involvement in sex work had the strongest effect on Cedar Project participants' psychological distress. Research that has addressed the association between mental health and sex work is rare and mostly based on samples of women (el-Bassel et al., 1997a; Rossler et al., 2010; Surratt, Kurtz, Chen, & Mooss, 2012). One study conducted among 562 women involved in sex work in Miami, U.S.A., found that 74% of participants had a serious mental illness (depression, anxiety, or traumatic stress), and that substance dependence and date violence independently predicted serious mental illness (Surratt et al., 2012). Available research has indicated that Indigenous women comprise over half of the population of women involved in street-based sex work in Vancouver and that these women experience staggering levels of violence, drug-related harms, and HIV risk. For example, a cross sectional Cedar Project analysis by Mehrabadi et al. (2008) demonstrated that among 262 young women in the study, participants who had been involved in sex work were over twice as likely to have been sexually abused, four times as likely inject cocaine daily or more, and nearly 3 times as likely to smoke crack daily or more. In addition, both qualitative and quantitative reports have demonstrated that young women involved in sex work in BC are frequently coercively pressured to engage in unprotected sex and often must rely on pimps for security (Farley et al., 2005; Shannon, Bright, Gibson, & Tyndall, 2007; Spittal et al., 2003).

As few of the men in our study were involved in sex work during the study period, the finding that men involved in sex work had significantly higher levels of psychological distress must be interpreted with caution. However, it is important to note that scant scientific research has addressed the health of Indigenous men who are involved in sex work in Canada (Heath et al., 1999). This study therefore contributes to a neglected area of research, and further highlights the need for further inquiry. It also indicates that there is a need for research to identify the barriers to accessing mental health supports and services faced by young Indigenous people involved in sex work, particularly those based on a mistrust of health services due to experiences of racism and stigma. Further, the findings highlight the need to develop innovative and culturally safe interventions for young Indigenous people involved in sex work that address symptoms of mental distress and help reduce the stigmas associated with mental health diagnoses and treatment (Grandbois, 2005).

This study demonstrated that having experienced sexual assault significantly increased psychological distress among all participants and the model that included female participants only. This finding is consistent with previous literature addressing the psychological effects of sexual assault on the mental health of Indigenous women (Farley et al., 2005) and contributes to a growing international body of research highlighting the shocking levels of violence experienced by Indigenous women (Amnesty International, 2004). Prior to European colonization, cultural values, traditions, and practices effectively enforced moral codes and protocols that upheld the sacredness of sexuality and the equal status of males and females (Gunn Allen, 1986). Rare instances of sexual violence were met with justice and physical, mental, emotional, and spiritual healing responses (Hylton, 2002; Manuel & Posluns, 1974). However, in November 2012, the Missing Women Commission of Inquiry's report highlighted

that in the aftermath of colonization Indigenous women were at increased risk for sexual violence because they live within a “society that poses a risk to their safety” (Oppal, 2012, p. 7). The present study and previous research have demonstrated that risks of sexual violence and psychological distress among young Indigenous people who use drugs often begin in childhood, and that have grave consequences in terms of their safety and vulnerability to HIV and HCV infection (Cedar Project et al., 2008; Mehrabadi, Craib, et al., 2008; Mehrabadi, Paterson, et al., 2008). Low-threshold, culturally safe interventions that aim to support the mental health of Indigenous youth who use drugs must therefore also address issues related to experiences of sexual violence in both childhood and adulthood. Indigenous psychologists and researchers argue that such therapeutic environments may be beneficial for those who have experienced childhood sexual abuse, rape, and intimate partner violence, particularly since they recognize not only the impacts of cumulative layers of trauma, but also the adverse effects of internalizing blame and powerlessness (Evans-Campbell et al., 2006; Filipas & Ullman, 2006).

Having experienced blackouts while drinking was significantly associated with increased psychological distress in the model for all participants and in the separate models for men and women. Although a large body of literature has examined the relationship between problem drinking and mental health, the results have been inconclusive (Haynes et al., 2005). Establishing the temporal sequence between alcohol use and mental health sequelae has been a key issue, but recent studies have suggested that poor mental health precedes heavy alcohol consumption (rather than vice versa) (Bell & Britton, 2014). Young Indigenous people may therefore be using large amounts of alcohol to self-medicate psychological distress symptoms. This potentiality is deeply concerning given that alcohol has been associated with inconsistent condom use and the subsequent increased risk of HIV infection (Schneider, Chersich, Neuman, & Parry, 2012).

Further, in the model with both male and female participants we found a marginally significant association between injection drug use and elevated psychological distress. It must be acknowledged that the temporal sequence between injection drug use and psychological distress is unclear. However, this finding is troubling in light of the fact that injection drug use continues to be the primary mode of HIV and HCV transmission among Indigenous people in Canada (Public Health Agency of Canada, 2010d), and because it suggests that that young Indigenous people may be using injection drugs to quell intolerable mental distress.

Taken together, these results indicate that the concurrency of high-risk drug and/or alcohol use and psychological distress may be exacerbating HIV and HCV risk among young Indigenous people. Moreover, many young Indigenous people turn to alcohol and drugs as a means to cope with the complex and interrelated stresses of intergenerational trauma, cultural loss, racism, systemic oppression (Barlow, 2003; Goodkind, Hess, et al., 2012; Whitbeck et al., 2009; Yellow Horse Brave Heart, 2003). Our study findings therefore have clear implications for clinicians who work with populations vulnerable to HIV and HCV, outreach workers, mental health workers, and harm reduction program planners. Many Indigenous organizations recognize the importance of “cultural interventions” (National Aboriginal Health Organization, 2006) and support mental health programming based on Indigenous histories of resistance and resilience in the face of adversity. However, very few culturally based programs exist that provide low-threshold mental health services and afford young Indigenous people the time and flexibility needed to reduce drug related harms.

Protective factors and psychological distress

This study found that participants who had lived by traditional culture in the previous 6 months had significantly decreased psychological distress compared to participants who had not.

This finding was significant after adjusting for confounders in the models for all participants and for men only. This hopeful result confirms the works of Indigenous scholars who have argued that mental health promotion programs that seek to support young Indigenous people must restore a strong sense of cultural identity and values (Brant Castellano, 2008). The finding also suggests that the participants in the Cedar Project Study who were able to access the inherent strength of their traditional cultural teachings achieved more balanced mental health, despite being street-involved, using illicit drugs, and being disconnected from family and community. Furthermore, this study demonstrated that female participants who had tried to quit drugs in the previous 6 months experienced a greater decrease in psychological distress than those who had not tried to quit. Although this finding was not significant in the models for men only, 80% of the male participants had tried to quit using drugs over the study period. This indicates that young Indigenous women who use illicit drugs are attempting to reduce or abstain from drug use and that it has a positive association with their mental health. Finally, it is important to note that on average only one third of participants had accessed any counseling over the study period.

As demonstrated, the findings of this study have critical implications for future mental health programming and interventions. Many mental health programs designed to address trauma and substance use among Indigenous people have not been informed by Indigenous people and been largely ineffective due to a lack of knowledge about Indigenous cultural understandings of mental health (Nechi Institute, 2002). The development of mental health programs for young Indigenous people who use drugs would do well to build upon the works by Goodkind et al., (2012) who used a community-based participatory research study to design an intervention that improved the long-term mental health of young American Indian people in New Mexico, U.S.A.. The intervention focused on increasing understandings of historical trauma, supporting cultural

connections to community, and improving stress-coping mechanisms and self-esteem. The young people in the study had marked clinical decreases in substance use, depression, and exposure to trauma one year after the intervention. Clearly, any program or intervention designed for urban Indigenous young people who use drugs must involve them at each stage of decision-making and implementation in a meaningful way, as well as meet Indigenous ethical standards (Kirmayer et al., 2003).

There are several important limitations to this study. First, the Cedar Project study is based on self-reported behavioural data obtained from a non-probabilistic sample of street-involved young men and women. Therefore, selection bias may have been introduced if, for example, there were young Indigenous people who were not connected to any services in the downtown areas of the study locations and were therefore unreachable to the study team. We cannot rule out selection bias and its impact, but are confident that our recruitment methods and rigorous eligibility criteria ensured that our sample is representative of Indigenous young people who use drugs in Vancouver, Prince George, and Chase. Nevertheless, there is potential for recall bias, socially desirable reporting, and the misclassification of exposure (except for HIV and HCV serostatus) and outcome variables. Responses to historical questions may be influenced by the participants' ability to recall event(s) and the effect of memory on these study variables is difficult to assess. Additionally, as this study analyzed data using repeated measures over one and a half years, we cannot draw conclusions regarding the causality between the time-varying study variables (events that occurred in the previous six months) and psychological distress. Despite these limitations, we believe that this study provides newly reported and important epidemiological evidence about the health outcomes associated with psychological distress among young Indigenous people who use drugs.

Indigenous authors and scholars have explained that colonization and the cultural genocide in North America has caused a “soul wound” among Indigenous peoples (Duran et al., 1998). This soul wound has been historical and intergenerational within Indigenous families and communities, and is perpetuated by ongoing structural and social violence. These authors have described the deep psychological and emotional symptoms of the soul wound – including psychological distress, addiction, and interpersonal violence – and the critical need for traditional Indigenous therapeutic interventions that base their practice on Indigenous teachings and clinical implementation. In this study, we have demonstrated that the young urban Indigenous people who use drugs in BC are also suffering from this soul wound. The analysis revealed that multiple forms and experiences of childhood maltreatment as well as involvement in sex work, experiences of sexual assault, blackout drinking, and using injection drugs use are significantly associated with increased psychological distress. This is highly concerning, given that there are so few culturally safe options for these young Indigenous people who use drugs to heal. Further, without meaningful intervention, these factors may also increase vulnerability for HIV and HCV infection. However, it was heartening that this study demonstrated that living by traditional culture and attempting to quit using drugs had a significant protective effect on the mental health of Cedar Project study participants. This finding confirms what Indigenous Elders have always known: that traditional culture buffers young Indigenous peoples psychologically and emotionally. Innovative, trauma-informed, and community based interventions that promote young Indigenous people’s mental wellness holistically must therefore focus on healing the soul wound and building resilience through culture, traditions, languages, and spirituality (Mitchell & Maracle, 2005).

Chapter 8: Resilience in the face of HIV vulnerability among young Indigenous people who use drugs in three Canadian cities

8.1 Introduction

Indigenous peoples have traditionally had well-developed methods for coping with stress in times of adversity that enabled them to process loss and release feelings of sadness and hopelessness (Abadian, 2006). Indigenous scholars and Elders concur that although Indigenous civilizations have always been richly diverse, they have also shared common traditions, ceremonies, and spiritual beliefs that facilitated healing, positive meanings, and confidence in the future (Abadian, 2006; Dion-Stout et al., 2001; Henderson, 2008; Walters & Simoni, 2002). Healing traditions were passed down intergenerationally as Elders used story-telling and observation to teach young people how to exercise resilience or find mental, physical, emotional, and spiritual balance when they experienced great difficulty (Kirmayer, Brass, & Valaskakis, 2009).

At the same time, Indigenous scholars emphasize that many Indigenous cultural practices, languages, and spiritual beliefs have survived despite 500 years of colonization (Henderson, 2008; Kirmayer et al., 2003; McIvor et al., 2009). This reinforces the imperative for health researchers to find alternatives to the risk models of disease in order to identify sources of strength or resilience that may protect the health of young Indigenous people who use drugs.

Resilience as a social determinant of health

The most widely accepted definition of resilience in psychological and health sciences research is *positive adaptation despite adversity* (Luthar et al., 2000). For resilience to be treated as a mental health outcome for an individual, family, or community, it must be a response to

substantial risk, stress, or trauma (Luthar et al., 2000). Resilience is also understood to be complex and very difficult to measure because it is a non-linear process that changes over time (rather than a fixed personality trait); may be a response to one area of risk, but not another, and; is strongly influenced by the presence or absence of protective factors and resources in the social environment (Richardson, 2002; Windle et al., 2011).

Resilience has gained considerable attention as a social determinant of mental health in the past 30 years as researchers have looked beyond deficit or problem-focused models of mental health to identify strength-based resources that promote wellness at the individual, family, and community levels. Mental health researchers interested in resilience have often focused on survivors of childhood trauma because it has enabled some of these individuals to adapt, cope, and thrive as adults, while others experience psychological issues and other negative health outcomes throughout their life course (O'Dougherty Wright, Masten, & Narayan, 2013). Researchers have therefore focused on identifying factors that protect against or “buffer” the effects of childhood adversities in order to develop clinical or community interventions that either create or support resilience among young people (Werner, 2013). However, as Unger has explained (2008), research on resilience among young people who have faced adversity has been limited because it is often based on the measurement of individualistic outcomes that are specifically valued by western cultures, such as self-sufficiency and self-esteem, and western definitions of healthy functioning, such as staying in school and not engaging in delinquent behaviour. Moreover, Ungar and others have emphasized that research has failed to consider complex community and cultural contexts when they measure resilience among non-western or marginalized youth (Clauss-Ehlers, 2008; Ungar, 2008). These researchers contend that resilience needs to be understood as a quality that is motivated by the personal aspiration to

overcome adversity or trauma, *and* as a health determinant that is highly sensitive to the social and cultural ecology which facilitates access to culturally meaningful resources (Ungar, 2013). It follows that any consideration of resilience as a determinant of health for young Indigenous people in Canada must acknowledge the historical and present-day injustices that impede resilience as well as the culturally-specific community strengths that support resilience (Tousignant & Sioui, 2009).

A preponderance of health studies have concentrated on the health disparities between Indigenous and non-Indigenous people, which has contributed to the stigmatization and pathologization of Indigenous people (Browne, Smye, & Varcoe, 2005; O'Neil, Reading, & Leader, 1998; Smith, 1999). Consequently, health research that applies the concept of resilience and strength-based approaches to studies involving Indigenous people in Canada is of key importance. A small but growing body of such research has emerged in North America as a result of influential movements within Indigenous communities that began pursuing cultural and linguistic renewal in the 1960s. These movements have been both tribe/Nation-specific and based upon “pan-Indian” values and practices (i.e. values and traditions that are now commonly shared across many Indigenous peoples, such as the medicine wheel and talking circles) (Brass, 2009; Christian, 2010; Kirmayer et al., 2009). They have led many First Nation communities to initiate cultural and linguistic immersion programs for children and youth (Kirmayer et al., 2003). This contributed to the promising result that 1 out of 6 Indigenous people reported that they knew how to speak their traditional language in the 2011 Canadian National Household Survey (Statistics Canada, 2013).

Subsequently, there is also a small but growing body of mental health research in Canada and the United States that has moved beyond individualistic, linear, and western notions of

resilience to identify the ways in which culture, language, and spirituality buffer adversity among Indigenous peoples and create “cultural resilience” (Fleming & Ledogar, 2008b, p. 3). Most of these studies have used psychometric and epidemiological outcome measures as proxies of resilience (such as self-esteem, perceived social support, and the absence of psychological distress) in combination with variables that approximate cultural connectedness (including actions or beliefs that reaffirm a sense of belonging to a specific Indigenous tribe/Nation or to pan-Indigenous culture). For example, a cross-sectional study involving 311 Métis youth living on-reserve in Alberta, Canada found that having pride in Métis heritage was associated with 5-fold greater odds of ‘feeling supported’ by family or community members (Andersson & Ledogar, 2008). Another cross sectional study involving 980 Indigenous adults (American Indians and First Nations living on 9 different reservations in the upper Midwest of the United States and Southern Ontario, Canada) found that individuals who participated in cultural activities were 48% as likely to cease drinking and that individuals who had identified with traditional spirituality were 34% as likely to cease drinking (Torres Stone et al., 2006). Finally, Chandler and Lalonde’s (1998) landmark study of 196 Indigenous bands within 29 tribal councils in British Columbia, Canada, demonstrated that factors associated with ‘cultural continuity’ – including self-governance, band-controlled health and education initiatives, and speaking traditional languages – were strongly associated with lower rates of suicide among Indigenous youth.

Very few studies have explored the roles that culture and resilience play in the health of young urban Indigenous people. In 2011, 56% of Indigenous people in Canada (median age estimated to be ~ 28 years) were living off-reserve and in urban areas (Place, 2012; Statistics Canada, 2014). Reports suggest that Indigenous people often leave their home reserves to seek

out better employment, education, housing, and health services in cities (Canada, 1993) and/or to escape high rates of family violence and poverty on reserve (Canada, 1996). Nevertheless, reports also indicate that Indigenous people who have moved to urban centres experience frequent racism, discrimination, substance use, and social exclusion within the lowest income neighbourhoods (Place, 2012). These conditions have been shown to negatively impact Indigenous people's capacity for resilience, particularly in the absence of "cultural buffers" (Walters & Simoni, 2002) that mitigate stress and support cultural connectedness and positive cultural identity. The negative impacts include psychological distress, (Whitbeck, McMorris, Hoyt, Stubben, & Lafromboise, 2002), substance misuse (Walters et al., 2002), and reluctance to access to health services (Browne et al., 2011; Harris et al., 2006). However, it is encouraging to observe the results of Currie et al. (2013), who conducted a cross-sectional study of 371 Indigenous adults living in Edmonton, Canada (62.5% of whom reported illicit drug use in the previous 12 months). This study demonstrated that higher scores on a pan-Indigenous enculturation scale were associated with decreased scores on an illicit drug use scale, after adjusting for socioeconomic and childhood abuse factors. Similarly, a study of 622 Indigenous adolescents and young adults in Winnipeg, Canada found that participants who felt that it was important to participate in traditional cultural activities were 2.6 times as likely to score higher on an emotional competence scale and less likely to use alcohol or be involved in crimes (Andersson & Ledogar, 2008).

8.1.1 Objectives and rationale

Fleming & Ledogar (2008b) identified an important gap in resilience research involving Indigenous people in Canada: a lack of understanding about how to support the health of young Indigenous people who are living in cities and may be disconnected from their home

communities, languages, cultures, and spirituality. Addressing this gap is critical to public health programming, particularly in light of the many studies demonstrating that young urban Indigenous people are vastly overrepresented among people who use injection drugs, people involved in sex work, and those living with HIV and hepatitis C (HCV) infection (BC Centre for Disease Control, 2010; Chettiar et al., 2010; Miller, Strathdee, Spittal, et al., 2006; Oviedo-Joekes et al., 2010; Public Health Agency of Canada, 2010b; Shannon et al., 2009; Spittal et al., 2012). Consequently, Indigenous authors Duran and Walters have long argued that it is critical for health researchers to identify factors related to cultural connectedness that may protect against HIV infection and buffer the effects of historical and lifetime traumatic stressors on Indigenous peoples (Duran & Walters, 2004).

To our knowledge no previous epidemiological studies have explored the effect that historical and lifetime traumas, cultural factors, and risk factors have on resilience among young, urban Indigenous people who use drugs. This study aims to address this paucity by investigating findings from the Cedar Project Study, which involved a cohort of young Indigenous people who use drugs in three cities in BC, Canada. The objectives of this study were to a) evaluate the psychometric validity of the Connor-Davidson Resilience Scale (CD-RISC) for measuring resilience among young Indigenous people who use drugs; b) to describe the correlations between childhood maltreatment, psychological distress, and resilience; c) to describe temporal trends in resilience over time and examine differences in these trends between men and women, and; d) to apply the CD-RISC to an exploration of the effects that historical and lifetime trauma (including childhood maltreatment), protective cultural connectedness factors (including access to Indigenous culture, traditions, and language), drug- and sex-related risk factors, and psychological distress have on resilience, while adjusting for confounders. A longitudinal

analysis is especially important to fulfilling these objectives because it can generate inferences about the independent effects of historical and current determinants of resilience over time

8.2 Methods

8.2.1 The Cedar Project study design and measures

In brief, the Cedar Project is a prospective cohort study of 793 young Indigenous people who used drugs in Vancouver, Prince George, and Chase, BC. Participants were eligible for the Cedar Project study if they self-identified as a descendant of the First Nations Peoples of North America (including Indigenous, Aboriginal, Métis, First Nations, Inuit and Status and non-Status Indians); were between 14 and 30 years old, and; had smoked or injected illicit drugs in the month before enrolment. Since 2003, the study has followed-up participants every six months to gather information about historical and demographic factors, childhood maltreatment experiences, drug- and sex-related HIV risk patterns, psychological distress, resiliency, health services access, and other health measures. Venous blood samples have also been collected for HIV and hepatitis C antibody tests at each visit. Variables for this analysis were chosen from the Cedar Project Questionnaire based on their theoretical and empirical importance to the study hypotheses. The cut-point for the longitudinal data in this research was November 2012. First Nations collaborators and investigators (the Cedar Project Partnership) governed the entire research process, were involved in the conception, design, and interpretation of the study, and approved this manuscript for publication. The University of British Columbia/Providence Health Care Research Ethics Board also approved the study. A full description of the Cedar Project study design and definition of variables may be found in Chapter 3 (page 47) of this dissertation.

Time-invariant factors

The time-invariant demographic and historical variables that were included this study included: sex; study location; having at least one parent who attended residential school; having been taken away from biological parents and placed in foster care; sexual identity; education level; how much family had lived by traditional culture; how often family had spoken traditional languages at home, and; ability to speak own traditional language (please see Chapter 3 page 48 for full definitions of study variables).

Time-varying factors

The time-varying factors and outcomes were longitudinal variables that could change in value in the six months preceding the questionnaire. The time-varying demographic factors included participants' age, and relationship status. Time varying independent variables in this study included: frequency of living by traditional culture; having participated in any traditional ceremonies; having accessed alcohol or drug treatment; having accessed counseling; having tried to quit using drugs; having slept on the streets for more than three consecutive nights; frequency of having smoked crack; injection drug use; having accessed drug or alcohol treatment; having attempted to quit using drugs; binge drinking; having had blackouts from drinking; involvement in sex work; consistency of condom use with regular or casual sexual partners; having any sexually transmitted infection; having been sexually assaulted; frequency of injecting cocaine and opiates; binge injection drug use; sharing rigs; needing help to inject drugs; and HIV and HCV serostatus (please see Chapter 3 page 48 for full definitions of study variables).

Connor-Davidson Resilience Checklist

Since 2011, the Connor-Davidson Resilience Scale (CD-RISC) (Connor & Davidson, 2003) has been administered at 6-month intervals, coinciding with the main Cedar Project

Questionnaire follow-up interviews. A full description of the psychometric properties, validation studies, and our coding scheme for the CD-RISC may be found in Chapter 3 (Section 3.2.4.2). The CD-RISC is a 25-item self-administered scale designed to clinically measure the ability to cope with stress. The scale consists of five factors: 1) personal competence, high standards, and tenacity; 2) the trust, tolerance, and strengthening effects of stress; 3) positive acceptance of change and secure relationships; 4) control, and; 5) spiritual influences. The CD-RISC statements on the scale are endorsed by response options on a five-point Likert scale (from *not true at all* to *true nearly all the time*). Overall scores were computed by summing all responses and therefore ranged between 0 and 100, with higher scores indicating greater resilience. The CD-RISC was the main outcome variable in this study for the analysis of resilience.

The Childhood Trauma Questionnaire

Beginning in 2011, Cedar Project study staff offered participants the option to complete the Childhood Trauma Questionnaire (CTQ) (Bernstein & Fink, 1998). A full description of the psychometric properties, validation studies, and our coding scheme for the CTQ may be found in Chapter 3 (Section 3.2.4.2) of this dissertation. The CTQ is a widely used retrospective and self-reported 28-item inventory that measures five types of childhood maltreatment: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect (Bernstein & Fink, 1998). Answers were endorsed on a 5-point Likert-type scale according to the frequency the experiences occurred (from *never true* to *very often true*). We transformed the subscales into variables composed of three categories for levels of maltreatment – none (0), low/moderate (1), and severe (2) – and treated the subscales as categorical variables in the analyses. The regression coefficient for the maltreatment subscales may therefore be interpreted as the mean change in the CD-RISC score for the low/moderate levels vs. the none and the severe vs. the none levels of

maltreatment. In addition, a maltreatment summary score variable was created in order to examine the effect of the total ‘dose’ of exposure to childhood maltreatment on health outcomes by first categorizing participants as “maltreated” or “not maltreated”, then summing the number of thresholds that were exceeded (Rodgers et al., 2004). The maltreatment summary score variable ranged from zero to five and was treated as a continuous variable in the analyses. The coefficient for this variable could then be interpreted as mean change in the resilience score for each incremental increase in the maltreatment summary score.

Symptom Checklist-90 Revised

Since 2010, the Symptom Checklist-90-R (SCL-90-R) (Derogatis, 1994) has been administered at 6-month intervals together with the main Cedar Project Questionnaire follow-up interviews. A full description of the psychometric properties, validation studies, and our coding scheme for the SCL-90-R may be found in Chapter 3 (Section 3.2.4.2). The SCL-90-R is a 90-item self-reported symptom inventory that measures the intensity or severity of nine dimensions of psychological distress symptoms including somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Each of the 90 items in the SCL-90-R questionnaire were scored on a five-point Likert scale that quantified the amount of distress that was caused by psychiatric symptoms in the past three months (from *not at all* to *extremely*). Each participant’s SCL-90-R score was transformed into an average Global Severity Index (GSI), providing a single average measure that profiles overall degree of psychological distress (Derogatis, 1994). Higher scores for the GSI indicate a higher approximation of a higher level of overall psychological distress.

8.2.2 Study participants

A total of 793 participants were enrolled into the Cedar Project between September 2003 and December 2012. Among those participants, 446 either returned for a follow-up interview or were newly enrolled in the study between 2010 and 2012. All 446 therefore completed baseline CD-RISC and SCL-90-R questionnaires. Because we were interested in informing the longitudinal analysis of factors associated with resilience over time, we restricted our baseline sample to the 232 participants who had returned for at least one follow-up interview that included completing a CD-RISC and an SCL-90-R questionnaire. There was one participant with >16% missing data in his/her baseline CD-RISC, and their data was therefore removed from the study. The additional criteria of having completed the CTQ resulted in a final sample of 191.

8.2.3 Statistical analysis

First, cross-sectional descriptive statistics (e.g. mean and standard deviations) were calculated for participants' CD-RISC scores. T-tests were used to determine significant differences in the mean CD-RISC scores between categories of the dichotomous study variables, and robust t-tests were used when Levene's test established unequal variances. A one-way variance analysis (ANOVA) was used for variables with more than two levels. Second, Mplus software (Muthén & Muthén, 2008-2012) was used to examine the construct validity of the CD-RISC, based on first and second order Confirmatory Factor Analyses (CFA) models. The first order CFA was carried out according to Connor & Davidson's (Connor & Davidson, 2003) hypothesized 5-factor model. Therein, the 25 scale items were loaded onto the five latent variables of resilience. The second order CFA regression paths between the first order factors and the broad, higher order factor of resilience. A full description of the indexes used to assess the goodness of fit and the approximation of fit of the CFA models may be found in Chapter 3

(Section 3.2.5). Third, bivariate Pearson's correlations were carried out between the baseline CD-RISC scores, the continuous CTQ subscales, and the SCL-90-R symptom dimensions.

Fourth, for the purpose of descriptively examining trends of mean CD-RISC scores over time, we used linear mixed effects (LME) models with the elapsed time from baseline to each follow-up visit was included as an independent variable and a random statement was included to account for initial differences between individuals. Separate LME models estimated the effect of risk factors on the mean change in CD-RISC scores over three follow-ups between 2011 and 2012. Fifth, LME models estimated the effect of risk and protective factors on the mean change in the CD-RISC score between 2011 and 2012. Model selection was based on Bayesian Information Criteria (BIC) to choose between a fixed or random effect handling of the study variables. The associations between the study variables and the CD-RISC were tested in unadjusted analyses and those significant at the $p < 0.10$ level were further tested in adjusted (multivariate) models that controlled for potential confounders. Confounders specific to each model were chosen because of their empirical importance (i.e. significant when associated with the study variable and the mean CD-RISC score at the $p < 0.200$ level). The potential confounders that were empirically tested included sexual identity, having a parent who had attended residential school, having been in foster care, location, relationship status, education level, and the childhood maltreatment subscales (emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect). Sex was included in every model to account for gender differences. Time-varying age was included in every model because of its potential importance as a confounder relative to the time-induced cohort effect adjustment in this study, as has been recommended for longitudinal studies (Korn et al., 1997). R statistical software Version 2.15.0

with the lme4 package (Bates et al., 2014) was used for all LME analyses (The R Foundation for Statistical Computing, 2012).

8.2.4 Handling missing data

Missing data in the CD-RISC scale was minimal: in the final sample, 10.5% (n=20) of participants had one missing data point. Participants with more than 16% missing data in any of their CD-RISC questionnaires were removed from the analysis (n=1). The overall amount of missing data for the CD-RISC items ranged from 0.06% to 1.9% of observations. Most study variables also had missing data, ranging from 0.05% to 14.9% of observations. The descriptive analyses, including the comparison between means and bivariate correlations, utilized list-wise deletion. Mplus handles missing data via full information maximum likelihood and therefore all cases were included in the CFA of the CD-RISC. The R software with the lme4 package that was utilized for the LME analyses uses the maximum likelihood estimation method for random missing data within the outcome variable (i.e. in this study, the mean CD-RISC score) and uses list-wise deletion for missing data within independent variables.

8.3 Results

Descriptive statistics

Sample proportions and means for baseline demographic variables, historical trauma factors, and the CTQ subscales are displayed in Table 8.1. In 2011, participants' mean age at baseline was 28.9 years (SD: 5.1); 49% (n=94) of these participants were male and 51% (n=97) were female. Fifty-three percent of participants were based in Prince George, 39% were in Vancouver, and 8% were in Chase. Nearly half (48%) of the participants had at least one parent who had attended residential school, and most (71%) had been in the foster care system. The majority of the participants had not graduated from high school (84%) and were in a relationship

(90%). The maltreatment summary score revealed that most participants had experienced more than one type of maltreatment, with the highest proportion having experienced all five types of abuse and neglect included in the CTQ (34%). Sixty-nine percent of participants reported they had been emotionally abused, among whom 33% the abuse had been severe; 56% had been physically abused, among whom 41% the abuse had been severe; 57% had been sexually abused, among whom 39% the abuse had been severe; 72% had been emotionally neglected, among whom 20% the neglect had been severe, and; 79% had been physically neglected, among whom 39% the neglect had been severe. The means, standard deviations, and differences in baseline CD-RISC scores between the study variable categories are also displayed in Table 1. The mean CD-RISC score was 62.04 (SD: 22.2) for the overall sample. There was no significant difference in the mean CD-RISC scores between males and females. Only two of the baseline demographic and historical variables had significant differences between categories: on average, participants who had not been in foster care had significantly greater resilience scores at baseline than those who had been in foster care ($p=0.044$) and on average participants who had graduated from high school had significantly higher resilience scores than those who had not ($p=0.037$). Significant differences in the mean CD-RISC score for the types of childhood maltreatment were found only for emotional neglect, with participants in the low/moderate and severe categories having significantly lower mean CD-RISC scores than participants who had not experienced emotional neglect ($p=0.005$).

Table 8.1: Baseline proportions, mean CD-RISC scores and standard deviations (SD), and mean CD-RISC score comparisons between study factors (t-tests) among all participants (n=191)

	Baseline Frequencies		CDRISC Score		
	N	%	Mean	SD	<i>p-value</i>
All participants	191	100%	62.041	22.216	-
Demographic and historical trauma variables					
Age (mean, SD)	28.89	5.071	-	-	-
Sex					
Male	94	49%	64.122	22.373	0.871
Female	97	51%	60.716	23.654	
Location					
Prince George	102	53%	60.132	25.225	0.248
Chase	15	8%	68.933	13.530	
Vancouver	74	39%	63.754	21.709	
Any parent attended residential school					
No	41	22%	63.974	21.452	0.629
Unsure	57	30%	61.122	23.267	
At least one parent attended	92	48%	62.647	23.974	
Ever in Foster Care					
No	56	29%	68.349	19.155	0.044
Yes	135	71%	59.990	24.073	
Education					
Less than high school	158	84%	61.546	22.730	0.037
High school education or higher	31	16%	67.833	19.210	
Relationship status					
Single	19	10%	64.063	15.013	0.798
In a relationship	169	90%	62.220	23.829	
Childhood Maltreatment					
Emotional abuse severity					
None	57	31%	64.133	24.275	0.503
Low / Moderate	68	37%	64.696	19.902	
Severe	61	33%	58.064	25.016	
Physical abuse severity					
None	81	44%	63.625	23.336	0.894
Low / Moderate	28	15%	63.800	22.149	
Severe	77	41%	60.525	23.259	
Sexual abuse severity					
None	80	43%	62.361	24.668	0.996
Low / Moderate	33	18%	62.567	24.668	
Severe	72	39%	62.404	22.889	

	Baseline Frequencies		CDRISC Score		
	N	%	Mean	SD	<i>p-value</i>
Emotional neglect severity					
None	53	29%	69.936	20.488	0.005
Low / Moderate	95	52%	60.740	23.208	
Severe	36	20%	53.083	23.409	
Physical neglect severity					
None	39	21%	67.469	19.106	0.580
Low / Moderate	73	40%	62.377	23.845	
Severe	72	39%	59.527	24.000	
CTQ Maltreatment Severity Score (0-5)					
0	16	8%	64.385	21.697	0.748
1	20	10%	61.235	26.504	
2	28	15%	61.765	26.624	
3	33	17%	67.880	18.974	
4	30	16%	61.500	18.484	
5	64	34%	60.739	22.100	
Cultural variables					
How much family lived by traditional culture					
Never/Rarely	93	60%	58.458	21.061	0.006
Often/Always	61	40%	69.321	22.114	
Frequency traditional language was spoken at home					
Never/Rarely	95	58%	58.473	22.509	0.001
Often/Always	69	42%	69.837	21.987	
Know how to speak traditional language					
No	87	51%	57.849	24.074	0.030
A little bit	63	37%	62.833	22.087	
Yes	19	11%	77.615	25.098	
Frequency of living by traditional culture in past 6 months					
Never/Rarely	129	78%	59.258	24.474	0.020
Often/Always	37	22%	71.630	18.698	
Participated in traditional ceremonies in past 6 months					
No	66	39%	52.927	25.554	0.003
Yes	103	61%	65.965	22.136	
Other protective variables					
Drug/alcohol treatment in past 6 months					
No	126	66%	61.459	23.535	0.500
Yes	64	34%	64.745	19.363	

	Baseline Frequencies		CDRISC Score		
	N	%	Mean	SD	<i>p-value</i>
Accessed any counselling in past 6 months					
No	131	74%	61.670	22.783	0.653
Yes	45	26%	65.528	19.885	
Tried quitting drugs in past 6 months					
No	32	22%	60.952	22.511	0.322
Yes	116	78%	63.076	23.967	
Risk factors					
Slept on streets for >3 nights in past 6 months					
No	160	84%	63.861	23.067	0.143
Yes	31	16%	55.654	21.894	
Frequency of smoking crack in past 6 months					
Less than daily	133	73%	68.053	33.144	0.002
Daily or more	50	27%	57.944	22.331	
Injected drugs in past 6 months					
No	135	71%	64.725	21.513	0.207
Yes	56	29%	58.578	22.778	
Sex work in past 6 months					
No	162	85%	63.148	21.467	0.235
Yes	29	15%	60.191	25.424	
Condom use with casual partners in past 6 months					
Always	25	64%	64.200	25.156	0.949
Not always	14	36%	65.385	14.494	
Condom use with regular partners in past 6 months					
Always	29	30%	59.826	21.011	0.399
Not always	69	70%	63.431	22.388	
Sexually transmitted infection in past 6 months					
No	180	94%	62.898	22.331	0.984
Yes	11	6%	59.375	17.703	
Sexual assault in past 6 months					
No	162	98%	63.176	21.809	0.037
Yes	4	2%	35.000	11.136	
Blackouts from drinking in past 6 months					
No	71	66%	66.397	22.791	0.034
Yes	37	34%	56.438	19.322	
Binge drinking in past 6 months					
No	84	79%	62.657	23.067	0.855

	Baseline Frequencies		CDRISC Score		
	N	%	Mean	SD	<i>p-value</i>
Yes	22	21%	62.947	18.802	
HIV serostatus					
Negative	155	83%	62.698	26.000	0.892
Positive	31	17%	63.938	15.000	
HCV serostatus					
Negative	106	62%	62.788	22.469	0.818
Positive	64	38%	62.391	24.479	

Confirmatory factor analysis of the CD-RISC

Table 8.2 displays the CFA of the CD-RISC scale. Standardized loadings of the scale items in the first order CFA ranged from 0.598 to 0.887. For the 5-factor model fit indices, the Chi-square p -value was <0.05 . The assessments of reliability and approximate fit indices suggested a very good fit to the hypothesized model: Cronbach's $\alpha = 0.961$, CFI= 0.938, TLI=0.930, and the CRS=0.970. However, the RMSEA was 0.096, suggesting a mediocre fit. For the second order CFA, the loadings of the five factors demonstrated that the control factor had the highest loading for the higher order factor of resilience, while spiritual influences had the lowest. The internal reliability (Cronbach's α) was very good for four of the five factors (data not shown): personal competence, high standards, and tenacity was $\alpha=0.932$; trust in one's instincts, tolerance of negative affect, and strengthening effects of stress was $\alpha=0.879$; positive acceptance of change and secure relationships was $\alpha=0.822$; and control was $\alpha=0.815$. The spiritual influences factor was weak for this sample, with $\alpha=0.574$.

Table 8.2: Standardized loadings based on first and second order Confirmatory Factor Analysis of the CD-RISC among all participants (n=191)

Factors of resilience	Item	First Order CFA factor loadings	Second Order CFA factor loadings
Personal competence, high standards, and tenacity	Think of self as a strong person	0.887	0.888
	You can achieve your goals	0.884	0.884
	Pride in your achievements	0.874	0.876
	You work to attain your goals	0.865	0.865
	When things look hopeless, I don't give up	0.836	0.835
	Best effort no matter what	0.830	0.828
	I like challenges	0.811	0.810
	Not easily discouraged by failure	0.762	0.760
Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress	Under pressure, focus and think clearly	0.848	0.847
	See the humorous side of things	0.816	0.818
	Can handle unpleasant feelings	0.797	0.797
	Make unpopular or difficult decisions	0.751	0.750
	Coping with stress strengthens	0.738	0.740
	Prefer to take the lead in problem solving	0.717	0.717
	Have to act on a hunch	0.661	0.662
	Positive acceptance of change and secure relationships	Can deal with whatever comes	0.815
Past success gives confidence for new challenge		0.770	0.771
Tend to bounce back after illness or hardship		0.760	0.761
Close and secure relationships		0.666	0.665
Able to adapt to change		0.662	0.662
Control		Strong sense of purpose	0.825
	In control of your life	0.782	0.785
	Know where to turn for help	0.772	0.769
Spiritual influences	Things happen for a reason	0.792	0.791
	Sometimes fate or God can help	0.598	0.598

Table 8.3 presents the bivariate correlation matrix between the five factors of the CD-RISC. The correlations ranged from 0.471 (spiritual influences) to 0.867 (control), and they were all significant at the $p < 0.010$ level. Table 8.4 presents correlations between the five factors of the CD-RISC [and the CTQ maltreatment subscales. Correlations between the scales ranged from -0.036 to -0.266. There were significant correlations between each of the CD-RISC factors and the emotional neglect subscale. The strongest correlations were between personal competence and emotional neglect, high standards and emotional neglect, and tenacity and emotional neglect (-0.266, $p < 0.001$). Table 8.5 presents correlations between the five factors of the CD-RISC resilience scale and the nine symptom dimensions of the SCL-90-R, as well as the GSI. There were significant correlations between the CD-RISC factor of control and each of the symptom dimensions. The strongest correlations were between control and interpersonal sensitivity (-0.227, $p < 0.010$), and between control and anxiety (-0.227, $p < 0.001$). The GSI was significantly correlated with the CD-RISC factors of personal competence, high standards, and tenacity (-0.416, $p < 0.05$), and control (-0.223, $p < 0.010$).

Table 8.3: Bivariate Pearson correlations between CD-RISC factors among all participants (n=191)

CD-RISC Factors	1	2	3	4	5
Personal competence, high standards, and tenacity	-				
Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress	0.819**	-			
Positive acceptance of change and secure relationships	0.717**	0.760**	-		
Control	0.867**	0.728**	0.641**	-	
Spiritual influences	0.527**	0.600*	0.618**	0.471**	-

*Significant at the $p < 0.05$ level; **Significant at the $p < 0.010$ level; ***Significant at the $p < 0.001$ level

Table 8.4: Bivariate Pearson correlations between baseline CD-RISC factors and the Childhood Trauma

Questionnaire maltreatment scores among all participants (n=191)

CD-RISC Factors	EA	PA	SA	EN	PN
Personal competence, high standards, and tenacity	-0.053	-0.021	-0.007	-0.266***	-0.094
Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress	-0.009	0.039	0.012	-0.250***	-0.089
Positive acceptance of change and secure relationships	-0.017	-0.009	0.058	-0.225***	-0.141
Control	-0.042	-0.037	-0.036	-0.188*	-0.100
Spiritual influences	0.096	0.091	0.237**	-0.157*	-0.022

EA: emotional abuse; PA: physical abuse; SA: sexual abuse; EN: emotional neglect; PN: physical neglect

*Significant at the $p<0.05$ level; **Significant at the $p<0.010$ level; ***Significant at the $p<0.001$ level

Table 8.5: Bivariate Pearson correlations between the baseline CD-RISC factors, and the SCL-90-R symptom dimensions among all participants

(n=191)

CD-RISC Factors	SOM	O-C	IPS	DEP	ANX	HOS	PHA	PAI	PSY	GSI
Personal competence, high standards, and tenacity	-0.111	-0.119	-0.158*	-0.148*	-0.141	-0.128	-0.158*	-0.107	-0.123	-0.146*
Trust in one's instincts, tolerance of negative affect, and strengthening effects of stress	-0.011	-0.034	-0.072	-0.06	-0.058	-0.08	-0.075	-0.050	-0.047	-0.057
Positive acceptance of change and secure relationships	0.007	-0.039	-0.07	-0.056	-0.06	-0.045	-0.11	-0.041	-0.036	-0.050
Control	-0.184*	-0.173*	-0.227**	-0.223**	-0.227**	-0.209**	-0.182*	-0.208**	-0.213**	-0.223**
Spiritual influences	0.153*	0.112	0.070	0.096	0.060	0.045	0.003	0.029	0.107	0.089

SOM=somatization; O-C= obsessive-compulsive; IPS=interpersonal sensitivity; DEP=depression, ANX=anxiety; HOS=hostility; PHA=phobic anxiety; PAI=paranoid ideation; PSY=psychoticism

*Significant at the $p<0.05$ level; **Significant at the $p<0.010$ level; ***Significant at the $p<0.001$ level

Trends of resilience over the study period

Tables 8.6, 8.7, and 8.8 display the tests for the trend of resilience over the study period for all participants and stratified by sex. Overall, participants returned for a minimum of two and a maximum of three interviews; the median number of follow-up interviews was two. There were no significant differences between baseline and the first follow-up and baseline and the second follow-up in the model with all participants or in the sex stratified models.

Factors associated with resilience over the study period

Table 8.9 presents the results of the linear mixed effects models for all participants. Regression coefficients, standard errors (SE), and *t*-values represent the effect of the study variable on the mean change in the CD-RISC score over the study period. For the demographic variables, only education and relationship status were significant at the $p < 0.200$ level. Although having been in foster care was significantly associated with the mean CD-RISC score at baseline (see Table 1), it was not associated with the mean CD-RISC score over time. For this reason, the foster care variable was still tested for confounding the relationship between the study variables and the CD-RISC score. All other potential confounders were not associated with the mean CD-RISC score over the study period.

For the CTQ subscales, only emotional neglect was significantly associated with the mean CD-RISC score. In the multivariate analysis, the average CD-RISC score for those who had experienced low/moderate emotional neglect was -5.476 lower ($p = 0.088$) and the average CD-RISC score for participants who had experienced severe emotional neglect was -13.334 lower ($p = 0.001$), after adjusting for age and sex.

Nearly all of the cultural factors that were based in participants' family environment while growing up and those that pertained to their lives in the previous 6 months were significantly associated with the mean CD-RISC score in the adjusted models. For the cultural factors, the mean CD-RISC score for participants whose families had lived by traditional culture was 7.697 higher ($p = 0.004$) than the score for participants whose families had not, after adjusting for age, sex, education level, and childhood emotional neglect. The mean CD-RISC score for participants whose families had frequently spoken traditional languages at home was 10.524 higher ($p < 0.001$) than the mean score for participants whose families never or rarely spoke

traditional languages at home, after adjusting for age, sex, and emotional neglect. Currently knowing how to speak their traditional language had the strongest positive influence on participants' resilience. The mean CD-RISC score for those who currently knew how to speak their traditional language was 13.059 higher ($p=0.001$) than the score for participants who did not know how to speak their traditional language, after adjusting for age and sex. The two cultural factors that applied only to the previous six months were significantly associated with the mean CD-RISC score in the adjusted models. The mean CD-RISC score for participants who often/always lived by traditional culture in the past 6 months was 6.500 higher ($p=0.025$) than the score for participants who never or rarely lived by traditional culture after adjusting for age, sex, and emotional neglect. Finally, in the unadjusted model, participating in traditional ceremonies in the previous 6 months was significantly associated with an increased mean CD-RISC score. However, the association became non-significant after adjusting for the confounders of age, sex, education level, relationship status, and emotional neglect.

Non-cultural protective factors also had positive relationships with the mean CD-RISC score over the study period. The mean CD-RISC score for participants who had accessed drug or alcohol treatment was 4.843 higher ($p=0.036$) than the score for participants who had not accessed treatment after adjusting for age, sex, education level, relationship status, and emotional neglect. The mean CD-RISC score for participants who had been to a counsellor was 4.214 higher ($p=0.079$) than the score for those who had not; this association was only marginally significant and negatively confounded by age and sex. Finally, the mean CD-RISC score for participants who had tried to quit using drugs was 4.978 higher ($p=0.075$) than the mean CD-RISC score for participants who had not tried to quit; this association was also only marginally

significant and negatively confounded by age, sex, education level, and having ever been in foster care.

For time-varying risk factors, the mean CD-RISC score for participants who smoked crack daily or more often was -5.419 lower ($p=0.044$) than the mean CD-RISC score for participants who smoked crack less often than daily after adjusting for age, sex, education level, and emotional neglect. Having been sexually assaulted had the greatest negative effect on participants' resilience. The mean CD-RISC score for participants who had been sexually assaulted was -14.422 lower ($p=0.041$) than the score for participants who had not after adjusting for age and sex. The mean CD-RISC score for participants who had blackouts from drinking was -6.187 lower ($p=0.027$) than the score for participants who had not blacked out after adjusting for age, sex, education level, and emotional neglect. Finally, in the unadjusted analysis, there was a marginal association between having injected drugs and a decreased mean CD-RISC score. However the association became non-significant in the multivariate analysis that adjusted for age, sex, and emotional neglect.

Table 8.9: Coefficient estimates (B), standard errors (SE), and associated t-values and p-values for each model predicting the effects of study variables on CD-RISC scores among all participants (n=191)

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
Potential Confounders												
Age	29.42	4.96										
	(mean)	(SD)	0.289	0.274	1.055	-0.248, 0.826	0.293					
Sex												
Male	224	48%	-									
Female	242	52%	-2.587	2.772	-0.933	8.020, 2.846	0.353					
Ever in Foster Care												
No	137	29%	-									
Yes	329	71%	-2.237	3.042	-0.735	-8.199, 3.725	0.463					
Parents attended residential school												
No	99	21%	-									
Unsure	146	32%	-4.444	3.864	-1.150	-12.017, 3.129	0.251					
At least one parent attended	218	47%	1.389	3.595	0.386	-5.657, 8.435	0.700					
Location												
Prince George	256	55%	-									
Chase	31	7%	6.025	5.324	1.130	-4.410, 16.460	0.260					
Vancouver	179	38%	-2.814	2.925	-0.960	-8.547, 2.919	0.338					
Education												
Less than high school	388	84%	-									

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
High school education or higher	74	16%	7.248	3.727	1.940	-0.057, 14.553	0.053					
Relationship status												
Single	437	95%	-									
In a relationship	25	5%	-7.004	4.266	-1.642	-15.365, 1.357	0.102					
Childhood Maltreatment factors												
Emotional abuse severity												
None	126	28%	-					-				
Low / Moderate	239	53%	2.857	3.525	0.810	-4.052, 9.766	0.419	-	-	-	-	-
Severe	85	19%	1.928	3.572	0.540	-5.073, 8.929	0.590	-	-	-	-	-
Physical abuse severity												
None	196	43%	-					-				
Low / Moderate	70	15%	5.596	3.773	1.483	-1.799, 12.991	0.140	-	-	-	-	-
Severe	189	42%	2.055	3.131	0.656	-4.082, 8.192	0.513	-	-	-	-	-
Sexual abuse severity												
None	196	43%	-					-				
Low / Moderate	82	18%	-1.010	3.895	-0.259	-8.735, 6.533	0.796	-	-	-	-	-
Severe	175	39%	2.590	3.071	0.843	-3.429, 8.609	0.400	-	-	-	-	-
Emotional neglect severity												
None	126	28%	-					-				
Low / Moderate	239	53%	-5.436	3.191	-1.704	-11.690, 0.818	0.090	-5.476	3.190	-1.717	-11.73, 0.776	0.088

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
Severe Physical neglect severity	85	19%	-12.96	4.013	-3.229	-20.825, -5.094	0.001	-13.34	4.040	-3.300	-21.25, -5.42	0.001
None	98	22%	-					-				
Low / Moderate	176	39%	1.350	3.852	0.350	-6.200, 8.900	0.727	-	-	-	-	-
Severe CTQ Maltreatment Severity Score (0-5)	176	39%	-1.378	3.864	-0.357	-8.951, 6.195	0.721	-	-	-	-	-
	3.23 (mean)	1.67 (sd)										
0 types	38	8%	0.120	0.830	0.145	-1.507, 1,747	0.885	-	-	-	-	-
1 type	50	11%										
2 types	70	15%										
3 types	77	17%										
4 types	69	15%										
5 types	162	35%										
Cultural factors												
How much family lived by traditional culture												
Never/Rarely	236	60%	-					-				
Often/Always	157	40%	7.962	2.545	3.130	2.974, 12.950	0.002	7.697	2.637	2.919	2.528, 12.865	0.004
Frequency traditional language was spoken at home												

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
Know how to speak traditional language	Never/Rarely	252 58%	-					-				
	Often/Always	184 42%	10.663	2.408	4.430	5.943, 15.383	<0.001	10.524	2.451	4.294	5.720, 15.328	<0.001
Frequency of living by traditional culture in past 6 months	No	246 55%	-					-				
	A little bit	155 35%	1.699	2.445	0.690	-3.093, 6.491	0.245	2.281	2.464	0.926	-2.548, 2.711	0.178
	Yes	43 10%	13.365	4.19	3.190	5.153, 21.577	0.001	13.059	4.187	3.119	4.852, 21.265	0.001
Participated in traditional ceremonies in past 6 months	Never/Rarely	252 58%	-					-				
	Often/Always	184 42%	7.148	2.758	2.590	1.742, 12.554	0.010	6.500	2.877	2.259	0.861, 12.139	0.025
	No	280 63%	-					-				
Yes	162 37%	3.435	2.044	1.680	-0.561, 7.451	0.095	2.679	2.081	1.288	-1.400, 6.758	0.199	
Other protective factors												
Accessed drug/alcohol treatment in past 6 months												

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
No	301	65%	-					-				
Yes	162	35%	3.478	2.217	1.570	-0.867, 7.823	0.118	4.843	2.292	2.114	0.351, 9.335	0.036
Accessed any counselling in past 6 months												
No	336	75%	-					-				
Yes	114	25%	3.858	2.377	1.620	-0.801, 8.517	0.105	4.214	2.384	1.768	-0.459, 8.887	0.079
Tried quitting drugs in past 6 months												
No	82	22%	-					-				
Yes	298	78%	4.719	2.789	1.692	-0.747, 10.185	0.092	4.978	2.846	1.749	-0.600, 10.556	0.075
Risk factors												
Slept on streets for >3 nights in past 6 months												
No	406	87%	-					-				
Yes	60	13%	-4.547	2.986	-1.520	-10.399, 1.305	0.130	-	-	-	-	-
Frequency of smoking crack in past 6 months												
Less than daily	329	73%	-					-				
Daily or more	122	27%	-5.949	2.564	-2.320	-10.974, -0.923	0.021	-5.419	2.672	-2.029	-10.66, -0.182	0.044
Injected drugs in past 6 months												
No	330	71%	-					-				

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
Sex work in past 6 months												
Yes	136	29%	-4.405	2.65	-1.660	-9.599, 0.789	0.098	-4.118	2.747	-1.499	-9.502, 1.266	0.136
No	390	84%	-									
Condom use with casual partners in past 6 months												
Yes	73	16%	-4.145	3.109	-1.330	-10.239, 1.949	0.185	-	-	-	-	-
Always	67	66%	-					-				
Not always	34	34%	-0.361	4.136	-0.087	-8.467, 7.745	0.936	-	-	-	-	-
Condom use with regular partners in past 6 months												
Always	71	29%	-					-				
Not always	172	71%	4.476	5.102	0.877	-5.524, 14.476	0.383	-	-	-	-	-
Sexually transmitted infection in past 6 months												
No	448	96%	-					-				
Yes	18	4%	-1.157	5.044	-0.230	-11.043, 8.729	0.818	-	-	-	-	-
Sexual assault in past 6 months												
No	428	97%	-					-				
Yes	11	3%	-14.608	6.955	-2.100	-28.240, -0.976	0.037	-14.42	6.971	-2.069	-28.09, -0.759	0.041

	Over-time observations		β	SE	<i>t</i> -value	95%CI	<i>p</i> -value	Adj. β	SE	<i>t</i> -value	95%CI	<i>p</i> -value
	N	%										
Blackouts from drinking in past 6 months												
No	194	66%	-				-					
Yes	102	34%	-5.753	2.650	-2.170	-10.974, -0.559	0.032	-6.187	2.773	-2.231	-11.62, -0.752	0.027
Binge drinking in past 6 months												
No	226	77%	-				-					
Yes	68	23%	-1.536	3.108	-0.490	-7.628, 4.556	0.625	-	-	-	-	-
HIV serostatus												
Negative	373	83%	-				-					
Positive	74	17%	-0.184	3.848	-0.050	-7.726, 7.358	0.960	-	-	-	-	-
HCV serostatus												
Negative	242	60%	-				-					
Positive	161	40%	0.319	3.053	0.100	-6.625, 6.343	0.920	-	-	-	-	-
Psychological distress												
Global Severity Index	0.912 (mean)	0.827 (SD)	-1.371	1.415	-0.970	-4.144, 1.402	0.333	-	-	-	-	-

8.4 Discussion

Indigenous scholars emphasize that resilience is inherent to Indigenous cultures and that the strength based in culture makes a vital contribution to the health of Indigenous people today (Lavallee & Clearsky, 2006). The tenacity and strength of Indigenous peoples has been demonstrated in the 500 years of resistance against ceaseless colonial onslaught on Indigenous culture and self-determination. As this study has demonstrated, young Indigenous people who use drugs face considerable challenges to their strength. This was evident in the large proportion of participants in this study who faced substantial adversities in their early lives – adversities that included having a parent who may have struggled with the effects of having been in residential school, being abused and/or neglected in childhood, and having been in the foster care system. The association between drug- and sex-related risk factors for HIV and HCV and decreased resilience are of great concern. At the same time, it is profoundly reassuring that participants who had access to the buffers of culture and language exhibited increased resilience, even though they were street-involved and used illicit drugs. In addition, the study found that quitting drugs and seeking help were positively associated with resilience. The findings as a whole therefore have critically important implications for public health programming that seeks to support the strengths of young Indigenous people in Canada who use drugs.

Importantly, we found satisfactory internal reliability for the CD-RISC resilience factors. The CFA demonstrated that the Cedar Project data fit Connor & Davidson's (2003) hypothesized five-factor model of resilience specified by the CD-RISC authors. We are confident that the CD-RISC worked well in providing an overall measure of personal stress-coping abilities for the study sample. Although the CD-RISC is an instrument that conceptualizes resilience as the personal ability of an individual to cope with stress and does not capture the broader social and

cultural ecology of resilience, we found that the majority of items had salient loadings. It is important to note that the two factors comprising the latent construct of spiritual influences had the weakest loadings. From the perspective of traditional Indigenous knowledge keepers, spirituality is an essential component of an individual's resilience and must be considered along with the physical, emotional, and mental dimensions of health (Brave Heart, 2003; Henderson, 2008). It is difficult to measure the specific benefits that spiritual beliefs bring to resilience among Indigenous people because Indigenous cultures and spiritual traditions are heterogeneous, and because spirituality is often intrinsic to culture. (Fleming & Ledogar, 2008a). However, previous research involving Indigenous peoples has demonstrated that traditional spirituality has protective effects for individuals who struggle with substance use (Torres Stone et al., 2006). Future research on resilience should therefore be cognizant of the importance of spirituality as an indicator of resilience among young Indigenous people who use drugs and researchers must work with them to develop measures that more accurately represent the strength that can be gained from spiritual beliefs.

Unexpectedly, we found that the CTQ subscales of emotional abuse, physical abuse, and physical neglect were not significantly correlated with any of the resilience factors. Emotional neglect was the only CTQ subscale that was associated with all of the CD-RISC factors. This finding is similar to other studies that have suggested that the long term effects of childhood emotional neglect may be distinctively detrimental to resilience over the life course (Campbell-Sills, Cohan, & Stein, 2006; Campbell-Sills, Forde, & Stein, 2009; Simon et al., 2009). Another unexpected finding and was that childhood sexual abuse was significantly and positively correlated with spiritual influences, which may indicate that spirituality as measured by the CD-RISC was a positive, hopeful adaptation to the trauma of sexual abuse for Cedar Project

participants (Mariott, Hamilton-Giachritsis, & Harrop, 2013). In addition, there were significant negative correlations between the resilience factor of control and each of the SCL-90-R symptom dimensions, including the GSI. This finding suggests that for the young Indigenous people in this study, the comorbidity of substance use and psychological distress may have contributed significantly to a decreased sense of purpose, feeling of being in control of their lives, and to uncertainty about where to go for help. While all of these results warrant further scientific inquiry, they may also inform therapeutic responses that seek to facilitate healthy means of coping with stress among young Indigenous people who use drugs and struggle with psychological distress.

Comparing mean resilience scores with other studies

As previously discussed, resilience is highly influenced by many intersecting factors, including communities' ability to provide individuals with the resources necessary to attain positive health outcomes in the aftermath of adversity. Consequently, it is difficult to draw firm inferences from comparisons between the mean CD-RISC scores of the young urban Indigenous people in the Cedar Project study and other population samples. To our knowledge, only one other study has utilized the CD-RISC in a study involving an exclusively Indigenous population. Goins et al. (2012) assessed the association between physical activity and resilience among 189 elderly (>65 years old) American Indian people from a rural tribe in the south eastern United States, 35% of whom reported having had at least one traumatic experience in their lives. Substance use was not measured in the study. It is therefore not surprising that this study sample's CD-RISC score was much higher ($M=83.0$, $SD=13.4$) than the mean CD-RISC score among Cedar Project participants (Mean (M)= 62.0 , $SD=22.2$).

The baseline mean resilience score for Cedar Project participants was more similar to the mean CD-RISC scores determined by other studies involving participants who were young, street involved, used drugs, were involved in the child welfare system, or had experienced childhood trauma. For example, the mean resilience scores for male and female Cedar Project participants ($M=64.1$, $SD=22.4$, and $M=60.7$, $SD=23.6$, respectively) were similar to the mean resilience scores of 47 street-involved or homeless male and female youth in Hamilton, Ontario (9% of whom were of Aboriginal ethnicity) ($M=60.9$, $SD=18.9$, and $M=53.1$, $SD=19.0$, respectively) (Cleverly & Kidd, 2011). In addition, the overall mean resilience score for all Cedar Project participants was comparable to the mean resilience score for an ethnically diverse sample of 93 young people transitioning out of the child welfare system in a large urban centre in Ontario, Canada ($M=66.9$, $SD=16.1$) (Goldstein, Faulkner, & Wekerle, 2013). The mean resilience score of the young Indigenous women in the Cedar Project study ($M=60.7$, $SD=23.6$) was comparable to the mean resilience score of 16 American adult women who had experienced childhood trauma and subsequently been diagnosed with post-traumatic stress disorder ($M=61.1$, $SD=14.7$) (Anderson & Bang, 2012). The mean resilience score among women in the Cedar Project was also comparable to the mean reliance score for 64 chemically dependent women in an urban centre in south-central United States ($M=62.4$, $SD=10.7$) (Sutherland, Cook, Stetina, & Hernandez, 2009). The above comparisons suggest that the average baseline level of resilience among Cedar Project participants was similar to that of multiple different studies involving people who have experienced adversity including trauma, psychological distress symptoms or diagnoses, and substance dependence. Combined with the CFA results, the comparisons also support the use of the CD-RISC as a measure of individual resilience among young Indigenous people who use drugs.

Resilience among Cedar Project participants over time

We found no significant trend for the mean CD-RISC scores over the study period for the model including all participants and the stratified models. Nevertheless, the mean resilience score changed between time points for each model and there were marked decreases between all of the first and last time points. Resilience literature has asserted that resilience is not a fixed personal trait, but rather a complex process that changes over time as individuals or communities encounter new stressors or supports (Richardson, 2002). Consequently, there is a need for future research to assess resilience over longer time periods in order to better understand the relationship between health and resilience among young Indigenous people who use drugs. Life course methods in epidemiology may be especially useful in this endeavor, given that the social ecology of resilience is so complex (Ben-Shlomo & Kuh, 2002).

Childhood maltreatment and resilience

To our knowledge, this is the first study in Canada that has examined the longitudinal effects of different childhood maltreatment types on resilience among young Indigenous people who use drugs. As mentioned, the proportions of participants in this study who reported having experienced childhood maltreatment were high, particularly among women. For each type of maltreatment except sexual abuse, participants whose experiences had been severe had lower mean resilience scores than those whose experiences had been low/moderate or none. However, only emotional neglect was significantly associated with decreased mean resilience scores (which was consistent with the correlation analysis). This points to a need for research to focus specifically on childhood emotional neglect. Few studies have explored the specific harms caused exclusively by childhood emotional neglect because neglect often occurs concurrently

with other types of maltreatment and it difficult to isolate as a maltreatment. In the present study, only 7 (3.7%) participants reported experiencing only emotional neglect (data not shown).

Emotional neglect is characterized by acts of omission on the part of parents or caregivers who persistently deprive children of basic psychological and emotional nurturing, encouragement, and feelings of belonging (Bernstein & Fink, 1998; Hildyard & Wolfe, 2002). Available evidence has shown it has severe cognitive and emotional ramifications for children, including problems related to insecure and anxious attachment (Egeland & Vaughn, 1981); difficulty coping and regulating emotions (Pollak, Cicchetti, Hornung, & Reed, 2000); hopelessness (Crittenden, 1985), and; anger issues (Hildyard & Wolfe, 2002). Studies have found that the effects of emotional neglect can extend into adulthood and increase the likelihood that adults will experience diminished cognitive, social, and emotional functioning, and most notably, have difficulties with positive adaptation and stress-coping (Doyle, 2001; Dube et al., 2003; Hildyard & Wolfe, 2002).

The study's combined findings on childhood maltreatment and resilience help to explain the effect that childhood emotional neglect may have on the resilience of young Indigenous people who use drugs and its continuing effect as they move through the life course. It is also important to remember that Indigenous children were commonly subjected to physical and emotional neglect in residential schools (Chansonneuve, 2005). Residential school survivors have recalled feeling isolated, being deprived of love and nurturing, and being instilled with a sense of worthlessness. These experiences in turn significantly impacted survivors' parenting styles and capacities (Lafrance & Collins, 2003), and the consequent intergenerational trauma may be affecting young Indigenous today who turn to illicit drugs and alcohol in the absence of safe and effective coping mechanisms. Mental health services and public health interventions

serving young Indigenous people who use drugs must be cognizant of the effect of that historical trauma has on their emotional coping abilities and capacity to trust individuals in positions of power or authority. To support young Indigenous people's strength, it is essential to recognize and address the intergenerational impacts of emotional neglect and its specific effect on resilience; provide care that is culturally safe (Brascoupe & Waters, 2009) and build trust-based relationships (Hildyard & Wolfe, 2002).

Risk factors for decreased resilience

Although the baseline descriptive findings in this study were not significant in the longitudinal models, they demonstrated that participants who had been in foster care had significantly lower mean resilience scores than participants who had not been in foster care. Since the 1950s, the child welfare system in Canada has systemically created considerable adversity by permanently removing tens of thousands of Indigenous children from their families, communities, and cultures (Fournier & Crey, 1997). A disproportionately large number of Indigenous children continue to be relocated into foster care. In 2011, Indigenous children comprised just 7% of children under age 14 in Canada, but accounted for 48% of all children in foster care (Statistics Canada, 2013). Many Indigenous leaders and scholars therefore perceive the child welfare system in Canada to have supplanted the residential school system as a means to dismantle Indigenous families and ways of life (Christian, 2010; de Leeuw et al., 2010; Fournier & Crey, 1997).

Changes to child welfare policy in the 1990s expanded the number of First Nations child and family services agencies that have managed child protection for on-reserve families. As a result, community-directed models of child protection based on traditional Indigenous teachings and child-care customs have emerged and these have been shown to address familial issues while

meeting children's cultural needs (Simard, 2009). These models are limited because they are required to adhere to provincial child welfare laws, receive little to no funding for family healing or reunification services, and are rarely permitted to serve Indigenous families living off-reserve (Blackstock & Trocmé, 2004). Consequently, the underlying causes of the overrepresentation of Indigenous children in the child welfare system – poverty, substance use, and inadequate housing – continue to go largely unaddressed (Blackstock & Trocmé, 2004).

To our knowledge, this study is the first to demonstrate a statistical relationship between having been in foster care and resilience among young urban Indigenous people who use drugs. This finding merits attention, especially since Indigenous researchers emphasize that Indigenous individuals, families, and communities need an opportunity structure, adequate funding, and social capital in order to access long-term, culturally relevant resources that support healing and resilience (Blackstock & Trocmé, 2004; Frohlich, Ross, & Richmond, 2006; Tousignant & Sioui, 2009; Ungar, 2008). As Blackstock and Trocmé have explained (2004), such community-based approaches will provide the time and space required for Indigenous communities to recover the resilience that is innate to their cultures and ways of knowing, which will in turn reduce the number of Indigenous children being apprehended into the child welfare system. At the same time, future research endeavours must involve young urban Indigenous people who use drugs and have been through the child welfare system in order to identify how to better support healthy attachments to their families and cultures (Mitchell & Maracle, 2005).

Resilience was also negatively associated with substance use. In the adjusted models, smoking crack once a day or more and having blackouts from drinking alcohol were independently associated with decreased mean resilience scores. Although very few studies have explored the association between resilience and problematic substance use among marginalized

or vulnerable populations (Cleverly & Kidd, 2011; Wingo, Ressler, & Bradley, 2014), research has clearly demonstrated that smoking crack and excessive alcohol use are associated with poor health outcomes (Bungay, Johnson, Varcoe, & Boyd, 2010; Butters & Erickson, 2003; Haynes et al., 2005). Determining a temporal sequence between heavy substance use and decreased capacity for stress-coping is difficult, but recent studies have suggested that poor mental health – especially major depression and post-traumatic stress disorder – precedes heavy alcohol consumption and cocaine use (rather than vice versa) (Bell & Britton, 2014; Falck, Wang, Siegal, & Carlson, 2004). In light of the previously discussed correlation between the SCL-90-R psychological distress symptoms and the resilience factor of control, these findings may indicate that young Indigenous people use drugs to cope with stress because of a lack of alternative coping skills or access to effective community-based resources. This potentiality is deeply concerning given that HIV risk and infection has been linked with unsafe sex practices that often coincide with heavy alcohol consumption and smoking crack (Booth, Kwiatkowski, & Chitwood, 2000; Schneider et al., 2012). Further, these findings are consistent with Indigenous authors' descriptions of the pathways that connect the corrosive effects of colonization on culture, lifetime trauma, the use of substances to cope with stress, and heightened risk for HIV infection among Indigenous peoples (Barlow, 2003; Duran & Walters, 2004; Simoni et al., 2004; Walters et al., 2002).

In the adjusted model, sexual assault had the strongest negative effect on participants' mean resilience scores. Researchers who focus on resilience are particularly concerned that about half of those who have been sexually assaulted develop symptoms of post-traumatic stress disorder if they do not have access to timely and meaningful interventions that facilitate positive stress-coping and adaptation (Resnick, Guille, McCauley, & Kilpatrick, 2011). In turn, victims of

sexual assault who suffer from post-traumatic stress disorder are more likely to self-blame and engage in harmful coping strategies such as heavy alcohol and drug use, thereby increasing their vulnerability for HIV and HCV infection (Kilpatrick et al., 2003; Ullman, Filipas, Townsend, & Starzynski, 2006; Zierler, Witbeck, & Mayer, 1996). Further, many studies have highlighted the increased risk for sexual assault among women who were sexually abused as children (Classen et al., 2005; Filipas & Ullman, 2006; Muehlenhard, Highby, Lee, Bryan, & Dodrill, 1998). This was demonstrated in a previous longitudinal Cedar Project analysis that involved 259 female participants (Pearce et al., *In Press*). In the adjusted model, the odds for sexual assault were nearly ten times higher for the women who had histories of childhood sexual abuse compared to the women without sexual abuse histories. In the present study, considering that seven out of the nine reports of sexual assaults were among women with histories of childhood sexual abuse (data not shown), it is therefore possible that sexual assault was along the causal pathway between sexual abuse and their diminished resilience.

Indigenous scholars assert that prior to the European colonization and missionization of Canada, Indigenous cultural values, traditions, and practices effectively enforced moral codes and protocols that upheld the sacredness of sexuality and the equality of women and men as highly valued members of the community (Gunn Allen, 1986). Young people were taught boundaries of gender relations and sexuality that limited instances of sexual violence and addressed violations of those standards (Hylton, 2002). Colonization and ethnocide rapidly transformed traditional gender relations and introduced the subjugation of Indigenous women's individual freedom and devaluation of female identity (Anderson, 1991). As a result, Indigenous women in Canada are extremely overrepresented among sexual assault victims. In 2009, a nationally representative sample estimated that incidence of sexual assault in one year was 70 per

1000 Indigenous women compared to 23 per 1000 non-Indigenous women (Perreault, 2011). In the present study, female participants reported 9 of 11 incidents of sexual assault over the 1.5 year study period (data not shown). Urban Indigenous women in Canada are often singled out by sexual offenders (CBC, 2007; Native Women's Association of Canada, 2009; Vancouver Police Department & Women's Memorial March Committee, 2011), but provided with scant protection from law enforcement and subjected to an indifferent justice system as well as racism in the healthcare system (Amnesty International, 2004; Browne & Fiske, 2001). Non-governmental reports and scientific research therefore emphasize that the sexual violence inflicted upon Indigenous women in Canada is a critical human rights and public health issue rooted in colonialism, historical trauma, racism, discrimination, and gender inequality (Amnesty International, 2006; Evans-Campbell et al., 2006; Pearce et al., *In Press*). These stressors reflect the broad set of structural factors that exacerbate Indigenous women's risk and give them significant reasons to not report sexual assault and avoid seeking medical/therapeutic help. Consequently, sexual assault prevention and intervention strategies for young Indigenous people who use drugs must be client-driven and specifically tailored to establish trust-based relationships within culturally safe settings. When these conditions are met, young Indigenous people who use drugs may feel safe enough to seek help, which could diminish the likelihood of their experiencing the more harmful long-term mental health sequelae of sexual assault, including post-traumatic stress disorder.

Protective factors for increased resilience

In the adjusted longitudinal models, all but one of the potentially protective cultural factors were significantly and independently associated with increased mean resilience scores. The two fixed cultural variables of having a family who often/always lived by traditional culture

and often/always spoke their traditional language at home pertained to the family environment participants grew up in. Both were very strong independent predictors of participants' current level of resilience. These findings certainly reflect intergenerational strength among Cedar Project participants and are evidence that familial cultural resources provided an ongoing buffering effect that enhanced participants' ability to cope with stress later in life – regardless of the confounding effects of childhood emotional neglect. These results are consistent with researchers who specialize in resilience and assert that individuals' ability to cope with adversity is dependent upon families' and communities' ability to provide them with “health resources and experiences in culturally meaningful ways” (Ungar, 2008, p. 225). Further, the two time-varying cultural variables that related to participants' lives in the previous 6 months – often/always living by traditional culture and knowing how to speak their traditional language – were both very strong predictors of higher mean resilience scores over the study period. These findings are consistent with previous research that measured the degree to which living by traditional culture provides a buffering effect on Indigenous peoples' mental and emotional health (Baldwin, Brown, Wayment, Nez, & Brelsford, 2011; Goodkind, LaNoue, et al., 2012; Whitbeck et al., 2002; Whitbeck et al., 2009). In addition, these findings reflect the fact that the young people in this study who were making active efforts to remain connected to their cultural identity were working to develop positive stress-coping mechanisms as they confronted the challenges of being street-involved and dependent on substances, as well as the everyday stresses of social exclusion and marginalization.

Participants' access to traditional languages in childhood and current knowledge of traditional languages had the strongest positive effects on mean resilience scores. In the baseline comparison of means, each level increase in knowing how to speak traditional language resulted

in a significant graded increase in participants' mean resilience score. This finding affirms Indigenous scholars' assertion that traditional languages are critical to the existence of Indigenous cultures (McIvor et al., 2009). Since culture is integral to the health of Indigenous peoples, it follows that traditional languages must be considered an essential determinant of Indigenous peoples' health. It is therefore likely that the participants in this study who knew how to speak their traditional language had strong cultural identities and therefore could connect to the values, concepts, and beliefs that are imbedded in the language.

To our knowledge, only one other study – by Chandler & Lalonde (1998) – has explored the relationship between traditional language and health among Indigenous people in Canada. The authors reported that First Nations communities in BC whose traditional languages were spoken frequently had significantly lower rates of suicide than other First Nations communities in the province, an effect that superseded other measures of 'cultural continuity'. The present study therefore presents an important finding that addresses the substantial gap in the literature regarding the health benefits of knowing traditional Indigenous languages, particularly for young, at-risk urban Indigenous people.

It is worth noting that although participating in traditional ceremonies in the past 6 months was not significant in the longitudinal model, the mean scores of participants who had done so were significantly higher than the mean scores of those who had not in the baseline descriptive analysis. This finding is consistent with other studies that have found that young Indigenous peoples' participation in traditional activities and ceremonies protects against adverse mental health outcomes, such as psychological distress, and negative ways of coping with stress, such as substance use (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; Whitbeck et al., 2002). Participating in traditional ceremonies in the past 6 months may have lacked significance in the

longitudinal analysis because young Indigenous people in cities do not have consistent access to traditional activities and because protocols require individuals to be abstinent in order to participate in sacred ceremonies (Dell, Lyons, & Cayer, 2010). Our study findings therefore support calls for innovative programming in Canadian cities to provide young Indigenous people who use drugs with access to traditional activities, languages, and teachings that develop mechanisms for coping with stress and promote positive emotional health outcomes (McIvor et al., 2009; Wilson & Rosenberg, 2002).

Lastly, this study demonstrated a strong significant association between having accessed alcohol or drug treatment and increased mean resilience scores in the adjusted models. In addition, we found marginal adjusted associations between having accessed counseling and increased mean resilience scores as well as having tried to quit using drugs, and increased mean resilience scores. These findings indicate that help-seeking and remission from illicit drug use are significantly associated with resilience among young Indigenous people who use drugs. In light of the cultural buffers that were found to facilitate increased resilience in this study and others, these results further support the incorporation of cultural teachings and traditional healing within primary health care settings and in therapeutic services. The efficacy of any such intervention or prevention program designed for urban Indigenous young people who use drugs will depend on the involvement them at each stage of decision-making and implementation in a meaningful way, as well as meet Indigenous ethical standards (Kirmayer et al., 2003).

There are several important limitations to this study. First, the Cedar Project study is based on self-reported behavioural data obtained from a non-probabilistic sample of young street-involved men and women. Therefore, selection bias may have been introduced if, for example, there were young Indigenous people who were not connected to any services in the downtown

areas of the study locations and were therefore unreachable to the study team. Although we cannot rule out selection bias and its impact, we are confident that our recruitment methods and rigorous eligibility criteria ensured that our sample is representative of Indigenous young people who use drugs in Vancouver, Prince George, and Chase. Nevertheless, there was potential for recall bias, socially desirable reporting, and the misclassification of exposures (except for HIV and HCV serostatus) as well as the outcome variable. Responses to historical questions may have been influenced by the participants' ability to recall event(s) and the effect of memory on these study variables is difficult to assess. Additionally, as this study analyzed data using repeated measures over 1.5 years, we cannot draw conclusions regarding the causality between the time-varying study variables (events that occurred in the previous 6 months) and resilience. We also must acknowledge that the CD-RISC is a measure of resilience based on Eurocentric concepts and as such, is likely unable to capture some of the deeper sociocultural and ecological issues that contribute to significant adversity for young Indigenous people who use drugs in Canada (Clauss-Ehlers, 2008). However, we were encouraged by CD-RISC's responsiveness to the variables that measured access to culture and language in participants' childhoods and their present-day lives. Despite these limitations, we believe that this study provides new and important epidemiological evidence about the health outcomes associated with resilience among young Indigenous people who use drugs.

In conclusion, the results of this study have demonstrated what many Indigenous scholars and Elders have known for generations: that cultural teachings, values, and languages are the foundations of resilience among Indigenous peoples (Baldwin et al., 2011; Brant Castellano, 2008; Brass, 2009; Kirmayer, Brass, & Tait, 2000). In the aftermath of colonization, these foundations continue to function as "cultural buffers" (Walters & Simoni, 2002, p. 521) that

protect Indigenous peoples from severe health outcomes, including HIV infection. The young Indigenous people in this study are already survivors, as they have adapted to and lived through multiple and intersecting adversities, some of which were life-threatening. This study has demonstrated that those young people who had access to culture and languages have been buffered psychologically and emotionally. Conversely, participants who had experienced sexual violence and those who were using alcohol and drugs very heavily, had their strength diminished.

Supporting the reconstruction of cultural identities among young Indigenous people living in urban centres who are either disconnected from their cultures or have never experienced their cultures will be challenging (Fleming & Ledogar, 2008b; Tousignant & Sioui, 2009). A key area for future research will be to conduct an environmental scan in order to identify the culturally-specific strengths of well-resourced urban communities in Canada that are knowledgeable about how to support the cultural identity of young Indigenous people who use drugs. Once again, young Indigenous people who use drugs must be involved in the design, implementation, and evaluation of any programs or resources that intend to support cultural identity, cultural pride, and resilience.

Chapter 9: Recommendations and conclusion

9.1 Summary of study findings

Since Europeans colonized North America, the collective experience of Indigenous peoples – especially related to the legacy of the residential schools – has been one of enduring and complex trauma. Indigenous authors have explained that this collective trauma has manifested as a ‘soul wound’ (Duran et al., 1998). The Aboriginal Healing Foundation has suggested that acknowledgement of this collective historical experience is the foundation for healing from lifetime trauma and addictions (Chansonneuve, 2007). For young Indigenous people who use illicit drugs in Canada, understanding this collective experience must also include recognition of the intergenerational transmission of trauma within Indigenous families, which has contributed to the disproportionately high rates of childhood maltreatment and associated psychological and emotional sequelae among Indigenous young people. This perspective helps to identify not only origins of illicit drug use and HIV and HCV vulnerability, but also the ways in which public health may support healing and resilience among young Indigenous people who use drugs. Using a mixed methods approach, this dissertation has explored the effects of childhood trauma on HIV and HCV vulnerability, mental health, and resilience among young Indigenous people who use illicit drugs in three locations in BC. Taken together, the evidence from this study supports the development of comprehensive, Indigenous-directed healing strategies for HIV and HCV prevention that are tailored for young Indigenous people who use drugs to specifically address concurrent trauma and mental health, as well as supporting connections to Indigenous cultural identity.

The qualitative exploration of childhood maltreatment narratives in Chapter 4 revealed that nearly all participants had complex and harrowing experiences of childhood abuse and

neglect that had severe emotional and psychological impacts on their self-conceptions and capacity to cope with stress. Participants described how alcohol and drug use, the child welfare system, long-term or permanent displacement from their families, and family breakdown manifested in all dimensions of their lives. Further, they explained how these aggregated experiences contributed to their vulnerability to HIV and HCV infection. In addition, this analysis validated hypotheses about the impact that intergenerational trauma has had on HIV and HCV risk among the current generation of young Indigenous people who use drugs. Over half of the participants had at least one parent who had been in residential school, and many described the effect of their parents' unresolved trauma in their families that had contributed to vulnerability later in life. We identified three key messages from these narratives including: 1) the effect of betrayal on help-seeking and healing; 2) the continuing effect of childhood trauma on HIV vulnerability, and; 3) the critical role of participants' understanding of the context of historical trauma in their healing. These findings are well-supported by previous research that has addressed the long-term emotional and psychological effects of childhood maltreatment on stress-coping and HIV and HCV vulnerability (Arriola, Loudon, Doldren, & Fortenberry, 2005b; Clum et al., 2009; Steel et al., 2004). In addition, this study supports the theoretical and empirical work of Indigenous authors and scholars that have addressed the intergenerational effects of historical trauma on HIV and HCV risk among Indigenous people (Duran & Walters, 2004; Walters & Simoni, 1999).

The qualitative approach in Chapter 5 addressed the ongoing effects of childhood trauma on participants' HIV and HCV vulnerability. The life histories told by the participants in the study revealed that they, like the generations before them, had suffered from a 'soul wound'. In the narratives the participants explained what they had understood to be a 'cycle' of trauma

passed down through generations. One of the study's most striking findings was the interconnection between the foster care system and intergenerational trauma. The participants were aware that their own children's involvement in the child welfare system perpetuated cycles of adversity and family disconnection that they themselves were still struggling to overcome. These findings support recent research that has underscored the intergenerational effects and structural shortcomings of the current child welfare system among Indigenous families in Canada (Blackstock, 2008; Denison et al., 2014; Duff et al., 2014). Nevertheless, the themes that emerged in this study also highlighted participants' determination to overcome the emotional and psychological pain of trauma, resist structural and systemic challenges, and re-connect with Indigenous cultural identity. Furthermore, participants' exemplified their capacity to adapt to and resist adversity, which had enabled them approach the idea of change and visualize a new and different path. The participants' voices and perspectives are therefore critical to public health, social services, and therapeutic service providers who seek to support the health of young urban Indigenous people who use drugs as well as decrease the structural and institutional barriers that impede their attainment of well-being.

Chapter 6 provided much needed epidemiological evidence of the prevalence of childhood maltreatment and the longitudinal effect of specific types of childhood maltreatment on HIV and HCV risk among young Indigenous people who use drugs. The study also confirmed that the Childhood Trauma Questionnaire (CTQ) was acceptable for use among Cedar Project participants, and therefore we can be confident in its use for further analysis of childhood maltreatment. We found that, overall, the prevalence of each maltreatment type among Cedar Project participants was very high. In addition, we found that the young women appeared to have been more severely impacted by childhood traumas than the young men, and that most

participants' experiences of maltreatment were extreme and frequent. It is deeply concerning that 91.7% of the participants in this study experienced at least one form of childhood abuse or neglect, which emphasized the reality that most childhood experiences of abuse were multiple and therefore complex. The effects of intergenerational trauma were evident as we found that significantly greater proportions of participants with severe sexual abuse and physical neglect had at least one parent who had attended residential school. When we estimated the HIV and HCV vulnerabilities associated with specific types of childhood trauma experiences, this study demonstrated that participants who had been abused and/or neglected faced multiple significant drug and sex-related risks. Notably, when the maltreatment summary score was used to estimate the 'dose' effect of multiple experiences of different types of trauma, we found strongly significant graded relationships between the number of maltreatment types and HIV and HCV risk factors. Consistent with previous studies (Dube et al., 2003), each level of the maltreatment summary score among Cedar Project participants was associated with increased odds for sharing rigs among men and binge injection among women. Further, the fact that the probability for HCV infection was 3.5-fold higher among study participants who had experienced low/moderate levels of sexual abuse and 7-fold higher among participants with severe sexual abuse underscored the particularly devastating impact of childhood sexual abuse. These results are consistent with previous research that has estimated the effect of childhood maltreatment on HIV and HCV vulnerability and risk among studies involving people who use drugs (Braitstein et al., 2003; Whetten et al., 2006; Wyatt et al., 2002; Zierler et al., 1991) and studies involving young Indigenous people who use drugs (Cedar Project et al., 2008; Craib, Spittal, Patel, Christian, Moniruzzaman, Pearce, Demerais, Sherlock, & For The Cedar Project Partnership, 2009; Duncan et al., 2011; Miller, Strathdee, Spittal, et al., 2006; Spittal et al., 2012). Prior to European

colonization, family violence and childhood maltreatment was rare (Hylton, 2002). This study highlighted the urgent need to develop public health and human rights responses that reduce HIV and HCV risks while recognizing the profound grief and multiple traumas that impact the lives of young Indigenous people who use drugs.

In Chapter 7, we addressed the longitudinal effects of childhood maltreatment and HIV and HCV vulnerabilities and infection on psychological distress among Cedar Project participants. In addition, this chapter explored the potential protective effects of Indigenous culture and language on the mental health of participants. We were encouraged by the validity of the Symptom Checklist 90-Revised questionnaire for measuring psychiatric symptoms and distress among Cedar Project participants. In addition, each childhood maltreatment subscale (except emotional neglect), and each incremental increase in the maltreatment summary score, was strongly associated with psychological distress over time. These findings are consistent with other cohort studies that have examined the devastating effects of childhood maltreatment on the mental health of men and women over the life course (Dhaliwal, 1996; Edwards et al., 2003; Schilling et al., 2007; Silverman et al., 1996). Risk factors for psychological distress among participants included sex work involvement, sexual assault, heavy alcohol use, and injection drug use. Taken together, the results of this study confirm that young Indigenous people who use drugs BC are suffering with the symptoms of the ‘soul wound’ – including psychological distress, addiction, and interpersonal violence. In addition, this study suggested that the concurrency of high-risk drug and/or alcohol use and psychological distress may be putting young Indigenous people at high risk for HIV and HCV infection. Nevertheless, in multivariate analysis we also found that participants who had lived by traditional culture in the previous six months experienced significantly less psychological distress compared to participants who had

not. This finding indicated that the participants in the Cedar Project Study who were able to access the inherent strength of their traditional cultural teachings achieved more balanced mental health, despite being street-involved, using illicit drugs, and being disconnected from family and community. This finding is also supported by the works of Indigenous scholars who have argued that mental health promotion programs that seek to support young Indigenous people must connect to a strong sense of cultural identity (Brant Castellano, 2008). Furthermore, for the young women in this study, having tried to quit drugs in the previous six months was significantly associated with decreased psychological distress. Though this finding was not significant for the young men, 80% of the male participants had tried to quit using drugs over the study period. This study therefore confirmed what Indigenous Elders have always known: that traditional culture buffers young Indigenous peoples psychologically and emotionally.

Chapter 8 explored resilience among Cedar Project participants and specifically addressed the effects of childhood trauma, HIV and HCV vulnerabilities, and cultural factors on resilience over time. We were satisfied with the internal reliability of the Connor-Davidson Resilience Scale (CD-RISC) for measuring stress-coping abilities (resilience) among Cedar Project participants. However, we did note that spiritual factors of resilience as a source of strength among young Indigenous people must be further explored in future research. The mean resilience scores of Cedar Project participants were similar to other studies involving participants who were young, street involved, used drugs, were involved in the child welfare system, or had experienced childhood trauma (Cleverly & Kidd, 2011; Goldstein et al., 2013; Sutherland et al., 2009). When we correlated the CD-RISC scale with the CTQ subscales of childhood maltreatment, participants' resilience was found to be significantly negatively correlated with emotional neglect. This negative effect of emotional neglect on resilience remained in the

longitudinal analyses of factors associated with participants' mean CD-RISC scores over the study period and is consistent with previous research (Doyle, 2001; Dube et al., 2003; Hildyard & Wolfe, 2002). Importantly, we found that having ever been in the foster care system, and high intensity crack and alcohol use were significantly associated with diminished resilience among participants. It is highly distressing that sexual assault had the strongest negative effect on participants' resilience in this study. Nevertheless, in this study we demonstrated that all but one of the potentially protective cultural factors were significantly and independently associated with increased mean resilience scores. The fixed variables including having a family who often/always lived by traditional culture and often/always spoke their traditional language at home were very strong independent predictors of participants' current level of resilience. Further, the two time-varying cultural variables that related to participants' lives in the previous 6 months – often/always living by traditional culture and knowing how to speak their traditional language – were both very strong predictors of higher mean resilience scores over the study period. These findings certainly reflect intergenerational strength among Cedar Project participants and are evidence that familial cultural resources provided an ongoing buffering effect that enhanced participants' ability to cope with stress later in life – regardless of the confounding effects of childhood emotional neglect. The results of this study have again demonstrated what many Indigenous scholars and Elders have known for generations: that cultural teachings, values, and languages are the foundations of resilience among young Indigenous peoples (Baldwin et al., 2011; Brant Castellano, 2008; Brass, 2009; Kirmayer, Brass, & Tait, 2000).

9.2 Strengths and unique contributions

The research presented in this dissertation was made possible by the multidisciplinary methods and ethical standards used by the Cedar Project study since its inception in 2003. The governance and oversight provided by the Cedar Project Partnership, a coalition of Indigenous leaders, health and social services experts, HIV/AIDS service providers, and Elders, has ensured that we have prioritized Indigenous knowledges and voice in all of our research activities. Further, the Partnership has ensured that the investigators and trainees have adhered to OCAP principles (Ownership, Control, Access, Possession). The mentorship that the candidate received from Indigenous Elders and experts throughout her research training has provided a richness of insight and interpretation that has ensured that the results are relevant to the Indigenous communities most impacted by the findings. Finally, the Cedar Project study has benefitted greatly from having excellent Indigenous and non-Indigenous research staff who are thoroughly trained and work tirelessly to create a culturally-safe study environment for the participants. Both the study staff and data entry person were stringent in their assurance of data quality and consistency.

To our knowledge, this research is unique in that it is the first to address childhood maltreatment, psychological distress, and resilience among young Indigenous people who use drugs in Canada. Each study objective that was addressed in this research has also been unique in both its theoretical and methodological approaches. Though previous studies have qualitatively addressed trauma, addiction, and HIV infection among Indigenous peoples (Farley et al., 2005; McCall, Browne, & Reimer-Kirkham, 2009), Chapters 4 and 5 of this dissertation were novel in their thorough exploration of the effects of childhood maltreatment using an in-depth approach. These studies were also unique because they: 1) explored the specific ways in which childhood

trauma has affected emotional and psychological responses and subsequent pathways to HIV and HCV vulnerability; 2) gained an understanding of the participants' awareness of the effects of familial residential school experience and intergenerational trauma in their lives; 3) addressed the complex interactions of structural and institutional adversities with childhood trauma. Moreover, participants in the qualitative study expressed surprise when they were asked about their sources of strength and hope to survive – it was clear to the researcher that they had never been asked those questions before. The participants' hopeful insights are critical for the development of meaningful interventions and prevention strategies that seek to support healing, and yet no research has previously qualitatively addressed resilience among young Indigenous people who use drugs.

There has been a paucity of research addressing childhood trauma among young Indigenous people in Canada. Chapter 6 was the first study to provide epidemiological evidence of the effects of different types and multiple types of childhood maltreatment on HIV and HCV vulnerability among young Indigenous people who use drugs. This evidence base is critical for ongoing advocacy efforts that support the development of early interventions among Indigenous families to stop cycles of trauma and keep families united. The study presented in Chapter 7 provides newly reported and important epidemiological evidence about the health outcomes associated with psychological distress among young Indigenous people who use drugs. Further, it is the first to address the effect of childhood maltreatment on psychological distress, and the first to estimate the protective factors of culture on mental health among young Indigenous people who use drugs. Considering the grave effects of concurrent addiction and mental health on HIV and HCV vulnerability, this information is essential for further understanding the magnitude of risk among young Indigenous people who use drugs. Finally, Chapter 8 is highly

unique in its exploration of resilience among young Indigenous people who use drugs. Previous research by Indigenous scholars has advocated that public health must do more to understand how to better support the strength of young, at-risk Indigenous people living in urban centres who may be disconnected from their communities and cultures. The research presented in Chapter 8 makes a strong contribution to this new area of health research and fundamentally confirms previous calls by Indigenous leaders and researchers to use culture as intervention.

9.3 Relevance to the community

The following section outlines four broad recommendations that may be of most relevance to communities that are seeking to support young Indigenous people who use drugs and have experienced childhood maltreatment. These recommendations are based on the findings of this dissertation, and were developed through numerous consultations with Indigenous Elders, leaders, experts, and scholars who are part of the Cedar Project Partnership and have mentored the candidate. The wisdom, experience, and expertise of Earl Henderson (Métis and Cree Heritage), Violet Bozoki (Lheildli T'enneh Nation), and Kukpi7 Wayne Christian (Splantsin te Secwepemc) have directed the development of these recommendations. Each aims to be holistic, as they must consider the mental, emotional, physical, and spiritual aspects to wellness, and because they must address the root causes of HIV and HCV vulnerability and risk among young Indigenous people who use drugs. The four recommendations include: 1) supporting a community-based response that provides safety and facilitates family connections for young Indigenous people who use drugs; 2) designing an Indigenous-directed family intervention strategy that addresses severe childhood maltreatment within Indigenous families; 3) integrating culturally-safe, trauma-informed care into the current harm reduction and addiction treatment

practices, and; 4) supporting urban Indigenous communities to provide programs that use culture as intervention to foster resilience among young, street-involved Indigenous people.

A community-facilitated, family-oriented response to establish safety and family connections among young Indigenous people who use drugs

The majority of participants in this study who had experienced complex childhood maltreatment had also been taken into the child welfare system and experienced extended periods of separation from their families. In the qualitative study of 30 participants (Chapters 4 and 5), 83% had ever been in foster care, and in the quantitative study including 266 participants, 67% had ever been in foster care (Chapter 6). For many, this was a long, frustrating, and lonely period of going in and out of foster homes and/or group homes and being subject to the political and organizational dynamics of social workers and family courts. Very few participants spoke about having access to Indigenous culture or therapeutic support for trauma while in the child welfare system. In addition, many participants remembered feeling like it was pointless to make emotional connections with foster parents/siblings, either because they had nothing in common or because they knew it was only a matter of time before they were sent away to another home. As one participant recalled: “not one (foster home) really that mattered much...I didn’t really want to get too comfortable staying somewhere ‘cause I had already moved around a lot.” The participants who shared these experiences were describing one of the most important shortcomings of the child welfare system – though removing children from their homes may stop experiences of family violence, it fosters detachment from family, community, and cultural identity. In Chapter 8 of this dissertation, we demonstrated that participants who had ever been in foster care had significantly diminished resilience compared to participants who had never been in foster care.

This confirms the works of Indigenous scholars and Elders who have pointed out that childhood trauma among Indigenous young people is exacerbated by their loss of connections to family, community, and cultural identity (Henderson, 2014). Consequently, associated emotional and psychological harms including fear of betrayal and difficulty with trust and attachment with adults or persons in authority often stay with young Indigenous people who have been in the child welfare system. The qualitative and quantitative studies in this dissertation revealed that betrayal and lack of trust understandably affects their willingness to seek any form of addictions or mental health programming. This destructive pattern has disturbing parallels with the impact of the residential school system (Blackstock, 2008). And, as this study has demonstrated, the impact of the foster care system is intergenerational as all of the participants' children had also been in the child welfare system. Though promising changes have been made through the work of delegated First Nations child welfare agencies, the number of Indigenous children being apprehended is still vastly disproportionate. In 2011, Indigenous children comprised just 7% of children under age 14 in Canada, but accounted for 48% of all children in foster care (Statistics Canada, 2013).

Three participants in the qualitative study (Chapters 4 and 5) recalled periods of time when they had felt safe in a foster home – in each case it was because the foster parents had been Indigenous and had gone to great lengths to make them feel comfortable and welcome. Those participants spoke about how those foster families made them feel accepted and loved for the first time since their involvement in the child welfare system. None of those participants had maintained contact with those positive foster families since they had aged out of the child welfare system. Indigenous scholars and Elders have recommended that building trust and fostering connection to Indigenous identity among young Indigenous people who use drugs and

have aged out of the child welfare system will require **communities to organize a family-oriented response that builds trust and fosters attachment to Indigenous families that have strong cultural foundations**. From a traditional perspective, this community-facilitated, family-oriented response to young Indigenous people who use drugs must not just be another program or service that operates only during business hours. Rather, it must provide young Indigenous people who are disconnected from their families and identities with 24-hour access to Indigenous families who are willing to provide them with unconditional feelings of belonging and being a valued member of the community. It is within a traditional family environment that these young people may experience models of respectful, non-judgmental and loving relationships. In addition, a family-oriented response would provide young and at-risk Indigenous people who may have missed out on developing a strong cultural identity with access to traditions, ceremonies, languages, spirituality, and teachings. In turn these will help them connect to the community, bridge conversations about the effects of intergenerational trauma, and learn healthy ways of stress-coping. Importantly, after taking time to build trust, a community-facilitated family response may also safely address histories of childhood maltreatment to ensure that young Indigenous people who use drugs gently begin their healing journey. This Indigenous family-oriented response can be established through a collaborative partnership of like-minded Indigenous community members, leaders, experts, and young people who are committed to building a network of healing and to the long-term goal of building a community that supports proud and resilient Indigenous children, youth, and adults (Tousignant & Sioui, 2009). Public health must also support this community based response through the provision of culturally-safe and trauma-informed health care and establishing collaborative, respectful partnerships throughout the process of its development.

First Nations directed and facilitated Child Advocacy Centres

It is widely accepted that prior to European colonization of North America, instances of child maltreatment and family violence within Indigenous communities were relatively rare (Fournier & Crey, 1997; Gunn Allen, 1986; Hylton, 2002; LaRocque, 1994). Further, any cases of family violence were met with tribal justice and community responses which promoted healing psychological and emotional wounds while supporting healthy stress-coping for the whole family (Abadian, 2006; Manuel & Posluns, 1974). The research findings in each chapter of this dissertation have provided evidence that childhood maltreatment is associated with pathways to addiction, HIV and HCV vulnerabilities, psychological distress, and diminished resilience among young Indigenous people in urban BC. In 2012, the Northern First Nations Child and Family Services Council (NFNCFSC) was established to address the reality and magnitude of sexual abuse within Indigenous communities. The NFNCFSC is comprised of First Nations leadership, Elders, researchers, leaders, service providers and policy experts in the fields of health, justice, law enforcement and child services. The NFNCFSC aims to lead the development of a comprehensive, sustainable, evidenced-based intervention for community-based healing that is culturally safe and sensitive to the legacies of the residential school and child welfare systems on Indigenous communities, families, and individuals. We believe this **healing will be best achieved through the development of a First Nations designed, and directed Child Advocacy Centre (CAC)**. CACs adopt seamless, coordinated and multidisciplinary responses to addressing the needs of child and youth victims of crime that minimize system-induced trauma by providing a child-friendly setting for a young victim or witness and his or her family (McDonald, Scrim, & Rooney, 2013). The CAC model has been widely adopted in the United States, and there are a small number of Native American tribes who have CACs in their

communities that have incorporated Indigenous culture, traditions, and healing strategies into the model (The University of Oklahoma Health Sciences Center, 2000). Community engagement processes are now underway to identify communities that will partner with the NFNCFSC and work toward establishing a CAC as a means to address severe child abuse in Northern BC. A Northern BC First Nations approach to the CAC model will incorporate holistic models of healing based on Indigenous traditions and medicines, such as those based on the medicine wheel, and provide children and families with care that addresses both historical trauma, and the emotional, mental, physical, and spiritual wounds caused by childhood trauma. The study findings in this dissertation have been used as part of the evidence base for the NFNCFSC to lobby for a Northern First Nations CAC. In April 2014, 56 First Nations leaders who are part of the NFNCFSC Task Force unanimously passed a resolution to support this initiative and community consultations are now underway. Consultations with community members are focusing on the planning and design of the Northern First Nations CAC with a mandate to specifically address the needs of children in the North, with emphasis on the Principles and Directives of the First Nations Health Authority that build upon community wellness and reconciliation. The Northern First Nations CAC is the third Indigenous CAC in the feasibility/assessment phase of development in Canada. Support for this initiative must come from Indigenous and non-Indigenous governments, Indigenous communities, and public/private corporations. Public health must also support this Indigenous family initiative by collaborating with the NFNCFSC and providing Indigenous children and families with culturally-safe, trauma-informed health services within the CAC framework.

Integrating culturally-safe, trauma-informed care into the current harm reduction and addiction treatment practices

For many of the young Indigenous people who use drugs in this study, lifetime experiences of trauma and betrayal have caused deep emotional and psychological wounds that have become barriers to help seeking and healing. In the qualitative interviews and in the longitudinal analyses, it was evident that **addictions services, therapeutic practice, and clinical mental health treatment must provide trauma-informed care**. In Chapter 6, we demonstrated that histories of childhood emotional, physical, and sexual abuse, and physical neglect were each independently associated with binge injection drug use over the study period. In qualitative analysis, participants explained how the urgent need to “numb” their trauma-related thoughts and feelings, was associated with their risk of HIV and HCV infection (Chapter 4). This need created a quandary for the participants: receiving therapeutic help for trauma often required them to abstain from drug use, but the distressing thoughts and feelings that surfaced in therapy would exacerbate their need to self-medicate. Further, in Chapter 7 we demonstrated that each type of childhood maltreatment was significantly associated with elevated psychological distress. These findings affirm that trauma and psychological distress often exists concurrently with addiction (Kessler et al., 1995). However, few mental health services or drug treatment options in BC offer low-threshold supports that address the presence of childhood trauma and consequently, many Indigenous young people who use drugs may be hesitant to seek help. These findings are also corroborated by Indigenous Elders and mental health experts who have explained that because the health care system offers only short-term access to therapeutic services, many counselors address experiences of complex trauma too quickly and superficially (Henderson, 2014). They

may therefore inadvertently cause more harm, or even re-victimize young Indigenous people who use drugs and are seeking help for childhood trauma experiences.

There is growing consensus that an integrated approaches to addictions, and mental health treatment that concurrently address trauma are more appropriate and efficacious, and as such, urgently needed. Trauma-informed approaches aim to provide addictions and mental health services that neither exacerbate nor avoid addressing trauma. As such, trauma-informed services prioritize the establishment of physical and emotional safety by taking time to build trust with clients (Brown, Harris, & Fallot, 2013). ‘Trauma-informed’ care is essentially a Western term for the traditional style of health care that has always been provided by Indigenous knowledge keepers (Henderson, 2014; Henderson, 2008). Researchers in the field of trauma-informed care have outlined the principles of providing such services, which include: an understanding of trauma and its impact; supporting the control and choice of the person who is seeking help; enhancing collaboration between service providers and those seeking help; empowerment, and; cultural competence (Brown et al., 2013). Indigenous Elders, knowledge keepers, scholars, and experts would add that addictions and mental health services that provide trauma-informed care for young Indigenous people must acknowledge historical trauma; take time to know them on a personal level; learn as much as possible about the person’s cultural background; and remain humble and respectful at all times of the persons’ cultural values and beliefs (Aboriginal Healing Foundation, 2008; Henderson, 2008). Moreover, trauma-informed services that are culturally safe must not push young Indigenous people to go back and relive all of their painful experiences but rather support conversations about emotional responses to the events and how they have been affected spiritually (Henderson, 2014).

Trauma-informed approaches have been found to have long-term positive results for young people (Cohen et al., 2003) and people who use illicit drugs (Amaro et al., 2007). Further, with integration of culture and understandings of historical trauma, trauma-informed interventions have been successful for Indigenous youth and families who have struggled with family violence and are at high risk for addiction and mental health issues (Goodkind, LaNoue, et al., 2012). Most of the harm reduction services in BC that aspire to address such barriers – especially those in the north of the province– subsist on limited budgets and do not usually provide integrated substance use and trauma programming. Nevertheless, incorporating models of trauma-informed care into addictions and mental health services has been found to be inexpensive, highly beneficial for clients, and increases the longevity of front-line staff (Brown et al., 2013).

Supporting urban Indigenous communities to provide culture as intervention to foster resilience among young, street-involved Indigenous people.

There is a small but growing body of mental health research in Canada and the United States that has moved beyond individualistic, linear, and Western notions of resilience to identify the ways in which culture, language, and spirituality buffer adversity among Indigenous peoples and create “cultural resilience” (Fleming & Ledogar, 2008b, p. 3). Fleming & Ledogar (2008b) identified an important gap in resilience research involving Indigenous people in Canada: a lack of understanding about how to support the health of young Indigenous people who are living in cities and may be disconnected from their home communities, languages, cultures, and spirituality. In the qualitative analysis presented in Chapter 5, the participants who were making positive changes and safer choices exhibited tremendous resilience in the face of complex intergenerational traumas and adversities, and were resisting and questioning the systems that

have posed barriers to their health and healing. In Chapter 7, we demonstrated that participants who were frequently trying to live by traditional culture and attempting to quit using drugs had lower levels of psychological distress. In Chapter 8, participants who had access to the buffers of culture and language exhibited increased resilience, regardless of childhood maltreatment experiences. Given that the majority of the young people in this study were disconnected from their families and communities, acknowledging the types of support they identified – particularly Indigenous culture, values, spirituality, and ceremonies – is of utmost importance.

The results of this study have demonstrated what many Indigenous scholars and Elders have known for generations: that cultural teachings, values, and languages are the foundations of resilience among Indigenous peoples (Baldwin et al., 2011; Brant Castellano, 2008; Brass, 2009; Kirmayer, Brass, & Tait, 2000). In the aftermath of colonization, these foundations continue to function as “cultural buffers” (Walters & Simoni, 2002, p. 521) that protect Indigenous peoples from severe health outcomes, including HIV infection. Accessing cultural sources of resilience within urban centres while being involved with street life and illicit drug use is challenging for young Indigenous people. Nevertheless, as researchers who specialize in resilience have explained, an individual’s ability to cope with adversity is dependent upon families’ and communities’ ability to provide “health resources and experiences in culturally meaningful ways” (Ungar, 2008, p. 225). Consistent access to cultural supports and traditional healing practices should therefore be funded in order to become a fundamental component of the health and social services models that are delivered within urban Indigenous communities. Finally, any public health services or programs that aim to foster resilience among young Indigenous people who use drugs must involve them at each stage of their design and implementation to ensure that they are efficacious and meaningful.

9.4 Limitations

There are several important limitations to this research that are outlined in the Discussion sections of Chapters 4-8. Briefly, the Cedar Project study is based on self-reported behavioural data obtained from a non-probabilistic sample of young street-involved men and women. Although we cannot rule out selection bias and its impact, we are confident that our recruitment methods and rigorous eligibility criteria ensured that our sample is representative of Indigenous young people who use drugs in Vancouver, Prince George, and Chase. Nevertheless, there was potential for recall bias, socially desirable reporting, and the misclassification of exposures as well as the outcome variables (except for HIV and HCV serostatus). Responses to historical questions may have been influenced by the participants' ability to recall event(s) and the effect of memory on these study variables is difficult to assess. Additionally, as the studies presented in Chapters 7 and 8 analyzed data using repeated measures over 1.5 years, we cannot draw conclusions regarding the causality between the time-varying study variables (events that occurred in the previous 6 months) and the study outcomes.

9.5 Conclusion

In conclusion, it is important to reiterate that healing the 'soul wound' caused by intergenerational and lifetime trauma will take a considerable amount of time and that public health must not continue to require young Indigenous people who use drugs to face their pain and vulnerability to HIV and HCV infection alone (Duran & Walters, 2004). For healing to be meaningful and transformative, it must be supported at the individual, family, and community levels (Evans-Campbell, 2008) and the research presented in this dissertation has demonstrated that public health plays a critical role at each level. Healing the soul wound will also require visionary, collaborative leadership from Indigenous and non-Indigenous governmental and non-

governmental organizations (Tousignant & Sioui, 2009). Public health must support these efforts by funding innovative, trauma-informed, and community based interventions that promote young Indigenous people's wellness holistically.

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