THE CEDAR PROJECT:

UNDERSTANDING THE RELATIONSHIP BETWEEN CHILD APPREHENSION, CULTURAL CONNECTEDNESS, AND TRAUMA AMONG YOUNG INDIGENOUS MOTHERS WHO HAVE USED DRUGS IN TWO CANADIAN CITIES

by

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Abstract

Background: Indigenous leaders are deeply concerned about the overrepresentation of Indigenous children in Canada's child welfare system. However, few studies have addressed the relationship between family disruption, cultural connectedness, substance use and mental health among Indigenous families within the context of historical and intergenerational trauma.

Objective: First, a scoping review examined culturally safe services and interventions to support Indigenous families involved in substance use. Second, the incidence of child apprehension and association with suicide attempt was investigated among young Indigenous mothers who have used drugs.

Methods: A scoping review was conducted of the empirical literature examining interventions for Indigenous families involved in substance use in Canada, Australia, New Zealand and the United States. For longitudinal analysis, we utilized data collected every 6 months between 2008 and 2016 by the Cedar Project, a prospective cohort study involving young Indigenous people who use drugs in Vancouver and Prince George, British Columbia, Canada. A recurrent event Cox proportional hazards model was used to estimate the independent effect of child apprehension on suicide attempt among female participants. Unadjusted and adjusted hazard rations (HRs) were reported with 95% confidence intervals.

Results: There were few studies in the research literature evaluating culturally safe services and interventions for Indigenous families involved in substance use. We found an independent

association between child apprehension and suicidal behaviour: young Indigenous mothers who reported recent child apprehension were twice as likely to attempt suicide over the study period. We discovered other risk factors for suicidal behaviour, including having a parent attend residential school, sexual assault, violence, and overdose. Young Indigenous mothers who had a traditional language spoken in the home growing up were almost half as likely to attempt suicide.

Conclusion: Our results provide evidence to suggest the child welfare system perpetuates intergenerational trauma among Indigenous communities. Young Indigenous mothers in this study were more likely to attempt suicide after their children were apprehended, which was compounded by historical and lifetime trauma. However, cultural connectedness may protect against suicidal behaviour in this population. Indigenous jurisdictional control over child welfare and more culturally safe services are urgently needed to keep families together.

Lay Summary

Indigenous leaders are deeply concerned about the overrepresentation of Indigenous children in Canada's child welfare system. However, few studies have addressed the relationship between family disruption, cultural connectedness, substance use and mental health among Indigenous families within the context of historical and intergenerational trauma. First, a scoping review examined culturally safe interventions to support Indigenous families involved in substance use. Second, child apprehension and suicide attempt were investigated among young Indigenous mothers who have used drugs. Few studies were identified in the scoping review evaluating culturally safe services for Indigenous families involved in substance use. Young Indigenous mothers in the study were twice as likely to attempt suicide after their children were apprehended, which was compounded by historical and lifetime trauma. However, cultural connectedness may protect against suicidal behaviour in this population. Indigenous jurisdictional control over child welfare and more culturally safe services are urgently needed to keep families together.

Preface

This statement is to confirm that the work presented in this thesis was conceived, conducted, analyzed and written by Lisa Sherrill Ritland (L.S.R). With guidance and feedback from the Cedar Project Partnership and supervisory committee, (Co-Supervisors: Dr. Patricia M. Spittal and Dr. Martin Guhn, Committee Member: Dr. Chris G. Richardson), L.S.R. devised and conceptualized the research designs (Chapters 2-3), established the research objectives and hypotheses, conducted all analyses, and wrote each chapter. The Cedar Project Partnership is the Indigenous governance body providing oversight to all Cedar Project research, ethical and knowledge translation activities. Kate Jongbloed and April Mazzuca contributed to the methods and results sections for the scoping review presented in Chapter 2. As well, a librarian assisted L.S.R. perform the systematic search for the scoping review. The quantitative data presented in Chapters 3 was collected and entered by Cedar Project study staff located in Vancouver and Prince George, British Columbia. L.S.R. coded, cleaned, and analyzed the data in Chapter 3 with the assistance of Dr. David Zamar. Interpretation of the study results was guided by the expertise of Vicky Thomas (Wuikinuxv Nation), who has been involved as the Research Coordinator for the Cedar Project since the beginning of the study. This research was approved by the Cedar Project Partnership. In addition, it was given approval by the University of British Columbia Research Ethics Board (certificate number: H17-02201). Chapters 2 and 3 will be submitted for publication to peer reviewed journals.

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List of Abbreviations

AFN	Assembly of First Nations
BC	British Columbia
CI	Confidence Interval
CIS-98	Canadian Incidence Study of Reported Child Maltreatment
DTES	Downtown Eastside
EPFA	Enhanced Prevention Focused Approach
FNCFS	First Nations Child and Family Services
FNHA	First Nations Health Authority
FNIGC	First Nations Information Governance Centre
FNREES	First Nations Regional Early Childhood, Education and Employment Survey
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HR	Hazard Ratio
INAC	Indigenous and Norther Affairs Canada
MCFD	Ministry of Child and Family Development
PTSD	Post-Traumatic Stress Disorder
RCAP	Royal Commission on Aboriginal Peoples
TRC	Truth and Reconciliation Commission of Canada

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To My Family

Chapter 1: Introduction & literature review

1.1 Thesis overview

Indigenous children and youth are alarmingly overrepresented in Canada's child welfare system. The purpose of this thesis is to explore health related outcomes associated with having a child apprehended by the Ministry of Child and Family Development among young Indigenous[1] mothers who have used drugs in British Columbia (BC), Canada. Additionally, it examines culturally safe and strengths-based services and interventions for Indigenous families involved in substance use in Canada, Australia, New Zealand, and the United States.[2] This thesis situates the child welfare system[3] and associated health outcomes within the context of historical and intergenerational trauma.

This thesis consists of four parts. Chapter 1 provides on overview of the historical context of colonization and child welfare among Indigenous peoples in Canada. Further, it introduces the conceptual frameworks and constructs that underpin the study, including Indigenous perspectives on wellness, historical and intergenerational trauma, and resilience. Finally, this chapter provides a brief summary of the literature on risk factors and health related outcomes for Indigenous parents involved in the child welfare system.

Chapter 2 is a scoping review of the literature on services and interventions for Indigenous families involved in substance use in Canada, Australia, New Zealand, and the

[1] For the purpose of this study, Indigenous people are considered to be the descendants of the First Nation Peoples of North America, including Métis, First Nations, and Inuit, including both status and non-status Indians.
[2] For the purpose of this study, substance use is defined as illicit drug use and alcohol consumption. This definition also includes abuse of legal drugs, such as prescription opiates. This study also refers separately to "non-injection drug use" and "injection drug use." Injection drug use is defined as intravenous drug use via syringe.
[3] For the purpose of this study, children placed in out-of-home care in the child welfare system are refereed to interchangeably as children living in "foster care" or "care."

United States. The purpose of the scoping review to recommend and inform the development of culturally safe and strengths-based services to support Indigenous families who are involved in substance use. Chapter 3 examines the relationship between child apprehension, trauma and cultural connectedness with suicidal behaviour among young Indigenous mothers who have used drugs. Finally, chapter 4 synthesizes the findings and concludes with policy implications.

1.2 Introduction: Historical context of colonization and child welfare among Indigenous children and families in Canada

The disproportionate representation of Indigenous children in the contemporary child welfare system must be understood within the historical context of Canada's colonial relationship with Indigenous peoples (Fournier & Crey, 1997; Milloy, 1999). Over generations, successive government policies have endeavored to dismantle Indigenous families and communities (Fournier & Crey, 1997; Royal Commission on Aboriginal Peoples, 1996; Truth & Reconciliation Commission of Canada, 2015). Research suggests that cycles of family separation through the residential school and child welfare systems have contributed to historical and intergenerational trauma (Bombay, Matheson, & Anisman, 2011, 2014; Brave Heart, 1998, 2003; Brave Heart, Chase, Elkins, & Altschul, 2011; Evans-Campbell, 2008; Wesley-Esquimaux & Smolewski, 2004; Whitbeck, Adams, Hoyt, & Chen, 2004). Having at least one parent attend residential school was associated with attempting suicide in a cross-sectional analysis of young Indigenous people (n=605) who used drugs in British Columbia, Canada (Moniruzzaman et al., 2009). Another study found that First Nations adults who had a parent attend residential school (n=67) reported more depressive symptoms compared to those who did not (n=76) have a parent

attend residential schools (Bombay et al., 2011). However, there is limited research examining the health impacts of the child welfare system among Indigenous families.

According to a range of health indicators, the average health status of Indigenous children falls behind non-Indigenous Canadian children, including infant mortality, nutrition status, immunization rates, and chronic disease (UNICEF Canada, 2009). Complex and intersecting socio-economic factors such as poverty, substance use, and housing instability contribute to health inequities among Indigenous children and families (Reading & Wien, 2009; Janet Smylie & Adomako, 2009). The Canadian Centre for Policy Alternatives and Save the Children reported that 40% of Indigenous children lived in poverty using data from the 2006 census (MacDonald & Wilson, 2013). Among parents and caregivers who responded to the First Nations Regional Early Childhood, Education, and Employment Survey (FNREES), 39.2% had family incomes of less than $20,000 and roughly half (males: 55.6%, females: 47.5%) attained education less than high school (First Nations Information Governance Centre, 2016). Further, nearly half (46.8%) of First Nations children reported living in crowded households, defined as having more than one person per room in a house (First Nations Information Governance Centre, 2016). Understanding inequalities in health among Indigenous children and families requires considering the context of social determinants, rather than relying solely on biomedical explanations (Greenwood & de Leeuw, 2012).

This thesis draws attention to the intergenerational cycle of trauma that Canada's child welfare system perpetuates in Indigenous communities. It recommends culturally safe policies and services to dismantle structural injustices, as well as foster the strengths of Indigenous families. Further, it will examine the relationship between having a child apprehended by the Ministry of Child and Family Development and attempting suicide among young Indigenous

mothers who have used drugs in British Columbia, Canada. The following policies impacting Indigenous children, families and communities will be summarized in this chapter: Indian Residential Schools, the Sixties Scoop, Directive 20-1, and Jordan's Principle.

1.2.1 The residential school system

The *Indian Act* of 1876 formally established the residential school system in Canada. Residential schools were a system boarding schools for Indigenous children operated by the Department of Indian Affairs and Christian churches. The singular purpose of residential schools was to assimilate Indigenous children and communities within the dominant Euro-Canadian culture (Milloy, 1999; Truth & Reconciliation Commission of Canada, 2015). Between 1874 and 1996, more than 150,000 First Nation, Métis, and Inuit children in Canada were forcibly removed from their families to attend residential schools (Milloy, 1999). Cultural genocide and widespread abuse were institutionalized in the residential school system (Truth and Reconciliation of Canada, 2015). Children were disconnected from their families, punished for speaking their traditional language, and forbidden to practice their traditional spirituality and culture (Milloy, 1999; Royal Commission on Aboriginal Peoples, 1996; Truth & Reconciliation Commission of Canada, 2015). The residential school system was largely unregulated, underfunded and provided poor education and training to Indigenous children (Milloy, 1999). Children were treated by staff with harsh discipline, malnourished, forced to perform demanding physical labour, and exposed to disease including tuberculosis, pneumonia and influenza (Truth & Reconciliation Commission of Canada, 2015). Physical and sexual abuse, neglect and death were common in the residential schools (Fournier & Crey, 1997; Milloy, 1999; Royal

Commission on Aboriginal Peoples, 1996; Truth & Reconciliation Commission of Canada, 2015).

While Indigenous parents resisted their children being sent to residential schools, the number of Indigenous children in the schools steadily increased from the 1880s to 1940s (Truth and Reconciliation Commission of Canada, 2015). A 1920 amendment to the *Indian Act* of 1876 compelled all school age Indigenous children to attend residential school by law ("An Act to Amend the Indian Act," 1920, A10). During 1944 to 1945, there were 8,865 Indigenous children in residential schools, representing 31% of Indigenous school-aged children (Truth and Reconciliation Commission of Canada, 2015). Assimilative and paternalizing beliefs in the settler society at the time was used to justify the residential school system. Indigenous parents—particularly mothers—were perceived as neglectful and residential schools were believed to "save" Indigenous children from life on reserves (Kelm, 1998). In reality, the residential school system irreparably harmed Indigenous children, families and communities. The Truth and Reconciliation Commission of Canada (TRC) was formed as a result of the Indian Residential Schools Settlement Agreement to shed light on the injustices committed against students in residential schools. The TRC exposed chilling levels of child abuse and identified 3,201 child deaths that occurred in residential schools (Truth & Reconciliation Commission of Canada, 2015). However, the number of child deaths is still under investigation due to underreporting and document destruction. In 2015, the TRC published 94 calls to identify concrete steps towards reconciliation with Indigenous peoples in Canada.

1.2.2 The Sixties Scoop

During the twentieth century, state institutionalization of Indigenous children gradually shifted from the residential school to the contemporary child welfare system (Sinha & Kozlowski, 2013). In 1948, Indigenous children were no longer compelled to attend residential schools due to a change in legislation (Milloy, 1999). Soon after, an amendment to Section 88 of the *Indian Act* in 1951 established federal government funding for Indigenous child welfare services on reserves ("Indian Act," 1985, section 88). These legislative changes resulted in the wide-scale apprehension and adoption or placement of Indigenous children in foster care known as the "Sixties Scoop" (Johnston, 1983). Evidence suggest that over 11,000 Indigenous children were taken and placed in homes with non-Indigenous families between 1960 and 1990 (Royal Commission on Aboriginal Peoples, 1996). However, statistics likely underestimate the true number of Indigenous children taken during the Sixties Scoop, since information on Metis and non-status Indigenous children is unavailable (Bennett, Blackstock, & De La Ronde, 2005). A generation of Indigenous children were abducted from their communities and placed in the child welfare system, which often failed to protect them. Alarmingly, up to two-thirds of children were reported missing in some Indigenous communities. For example, 67% of children from the Splatsin Band in BC were taken and placed in care outside the community between 1951 and 1979 (Union of B.C. Indian Chiefs, 2002). While in foster care, many Indigenous children experienced emotional, physical and sexual abuse and neglect (Fournier & Crey, 1997; Milloy, 1999; Truth and Reconciliation Commission of Canada, 2015).

Indigenous peoples have expressed grave concern over the disproportionate number of Indigenous children in care and demanded changes to the child welfare system. In British Columbia, the Union of BC Indian Chiefs called on the provincial government to recognize the

jurisdiction of Indigenous people over their children and families in 1979 (Union of B.C. Indian Chiefs, 2002). However, the number of Indigenous children in the child welfare system has remained disproportionate since the Sixties Scoop. In the 1980s, status Indigenous children represented 2% of the general child population and 12% of the children in foster care (Johnston, 1983). By 2011, Indigenous children represented 7% of the child population and almost half (48%) of children in foster care (Statistics Canada, 2016). Indigenous leaders have characterized the current situation as a "Millennial Scoop," which repeats the mistakes committed during the residential schools era and Sixties Scoop (McKay, Fleming, Hamara, Powless, & Powless, 2018). In 2015, the TRC called on the federal, provincial, territorial, and Indigenous governments to reduce the number of Indigenous children in Canada's child welfare system (Truth and Reconciliation Commission of Canada, 2015, Call to Action #1).

1.2.3 Directive 20-1 and Jordan's Principle

Child welfare services for Indigenous children are funded through various federal funding mechanisms including Directive 20-1, the Enhanced Prevention Focused Approach (EPFA), the 1965 Agreement in Ontario, and related agreements with provinces and territories. Directive 20-1 is a federal policy established in 1991, which requires First Nations communities, urban based Indigenous communities, and Métis communities to follow a delegated service model to receive funding for child welfare. Delegated child welfare agencies incrementally receive more responsibilities that are bound to provincial or territorial laws (Sinha & Kozlowski, 2013). In British Columbia, child welfare services for Indigenous children are exclusively funded through Directive 20-1 and delivered through a delegated service model (Sinha & Kozlowski, 2013). The delegated service model does not recognize Indigenous jurisdictional control over

child welfare services, as well as the laws, customs and traditions of Indigenous peoples (Union of B.C. Indian Chiefs, 2002). In 1981, the Splatsin people in British Columbia were the first and only Indigenous community to pass a by-law establishing jurisdiction over their children (Spallumcheen Indian Band, 1980).

Jordan's Principle guarantees Indigenous children receive equal health and social welfare services compared to other Canadian children without bureaucratic delay. Jordan's Principle is named after Jordan River Anderson, a young boy from the Norway House Cree Nation with complex needs. Due to a funding dispute over his homecare between the federal and provincial government in Manitoba, Jordan died at age 5 in the hospital and was deprived of spending any of his life at home (Assembly of First Nations, 2015). In 2007, the First Nations Child and Family Caring Society and Assembly of First Nations (AFN) registered a complaint under the *Canadian Human Rights Act* citing evidence that the child welfare system discriminated against First Nations children and families. Seven years later, the Canadian Human Rights Tribunal ruled in *FNCFCSC et al. v. Attorney General of Canada* that Canada provided unequal child and family services to Indigenous children. The Tribunal found that Directive 20-1 inadequately funded basic operations, prevention services, and culturally appropriate programming for child welfare agencies on First Nations reserves ("FNCFCSC et al. v. Attorney General of Canada," 2016). Further, the Tribunal agreed with the complainants that by underfunding prevention and early intervention services, Directive 20-1 provided child welfare agencies with more financial incentive to take Indigenous children from the home ("FNCFCSC et al. v. Attorney General of Canada," 2016). The federal government was ordered to immediately close the gap in funding, fully implement an expanded definition of Jordan's Principle, and reform Indigenous child welfare services.

1.3 Conceptual frameworks for understanding child welfare and health inequities among Indigenous children and families

1.3.1 Historical and intergenerational trauma

Indigenous scholars adopt a framework of historic and intergenerational trauma to understand the collective impact of colonization in Indigenous communities. Maria Yellow Horse Brave Heart first described historical trauma among the Lakota people in the United States as "cumulative emotional and psychological wounding" from events including massacre, displacement, removal of children to attend boarding schools, and laws forbidding cultural and spiritual practices (Brave Heart, 1998). Responses to historical trauma may include sexual abuse, family violence, depression, anxiety, suicide, anger, low self-esteem, and Post-Traumatic Stress Disorder (PTSD), as well as substance use to cope with pain (Bombay et al., 2014; Brave Heart, 2003; Evans-Campbell, 2008; Wesley-Esquimaux & Smolewski, 2004; Whitbeck et al., 2004). The public health implications of colonization and assimilation policies for Indigenous peoples' health is global in scale. In Canada, Indigenous scholars suggest that intergenerational trauma from residential schools contributes to elevated substance use among Indigenous peoples (Chansonneuve, 2007; Wesley-Esquimaux & Smolewski, 2004). Intergenerational trauma is similarly acknowledged to play a role in Aboriginal and Torres Strait Islander health and wellbeing within the Australian context (Calma, Dudgeon, & Bray, 2017). The Australian government apologized in 1997 for forcibly removing one third of the Indigenous child population from their families for adoption between 1910 and 1970 (*Bringing them home: Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from their Families*, 1997). In New Zealand, Indigenous scholars also believe historical

trauma from colonization influences the health and wellbeing of Mäori people (Pihama et al., 2014).

Maria Evans-Campbell (2008) developed a multi-level framework to suggest that historical trauma may be transmitted to individuals, families, and communities. At the interpersonal level, historical trauma is transmitted *directly* to children through storytelling about historical trauma events and *indirectly* through parental mental health and parenting practices (Evans-Campbell, 2008; Lafrance & Collins, 2003). At the community and family level, historical trauma events continue to directly and indirectly affect communities through parenting and substance use (Evans-Campbell, 2008). Residential school survivors were deprived of family attachments and parenting role models, which disrupted the intergenerational transmission of traditional childrearing within Indigenous communities (Lafrance & Collins, 2003). Unresolved grief from residential schools has also perpetuated a cycle of abuse, trauma, and elevated substance use among Indigenous peoples in Canada (Chansonneuve, 2007). Conceptualizing post-traumatic stress among Indigenous peoples as a collective trauma response is a less pathologizing framework for understanding health disparities among this population (Mitchell & Maracle, 2005). Wesley-Esquimaux and Smolewski (2004) adopt a historical trauma framework to explain the intergenerational transmission of complex PTSD among Indigenous peoples from residential schools and traumatic other events. Health services for Indigenous people must therefore address historical trauma and the impact of colonization within communities (Brave Heart et al., 2011). Further, these health services must be equity-oriented and include culturally safe, trauma- and violence-informed, and contextually tailored care (Browne et al., 2016).

1.3.2 Risk and resilience

Indigenous peoples have long argued that resilience has the potential to protect against the cumulative risks of historical and intergenerational trauma (Pearce et al., 2015). Health researchers have historically focused on risk factors to understand Indigenous peoples' health, rather than protective factors that promote Indigenous peoples' strengths (Fogarty, Lovell, Langenberg, & Heron, 2018). In recent decades, health researchers have developed resilience models to explain protective factors in the context of contemporary discrimination and historical trauma among Indigenous populations (Fleming & Ledogar, 2008). Developmental psychologists conceptualized resilience to describe children and adolescents who demonstrated positive development despite living in conditions of risk (Werner & Smith, 1982). Luthar, Cichetti and Becker (2000) define resilience as "positive adaptation by individuals despite experiences of significant adversity" (Luthar, Cicchetti, & Becker, 2000). Walters, Evans-Campbell, and Simoni (2002) propose an 'Indigenist' stress-coping model to conceptualize rates of substance use and related health outcomes among Indigenous people within the context of historical and contemporary trauma. Cultural resilience including identity, enculturation, spiritual coping and traditional healing practices are theorized to moderate the relationship between trauma, substance use, and other health outcomes (Walters, Simoni, & Evans-Campbell, 2002). Indigenous scholars also theorize that resilience extends to the community level. Resilience in Indigenous communities has been described as the process of healing from past traumas and loss of culture during colonization, with fostering cultural identity being central to this process (Tousignant & Sioui, 2009).

1.3.4 Mental wellness

Indigenous health leaders have identified mental wellness as a culturally and contextually appropriate framework to improve substance use and mental health outcomes among Indigenous populations (First Nations Health Authority, 2013; Health Canada, 2015). Indigenous peoples' perspective on mental wellness is holistic and interconnected with physical, mental, emotional, and spiritual wellbeing (First Nations Health Authority, 2013). Indigenous researchers and healthcare providers conceptualize mental health in terms of wellness to promote wellbeing, rather than focusing solely on deficits (van Uchelen, Davidson, Quressette, Brasfield, & Demerais, 1997). Mental wellness gives people purpose, hope, belonging and meaning in their daily lives (Health Canada, 2015). The process towards mental wellness is fostered and maintained by factors including connectedness to culture, language, family, Elders and spirituality (Health Canada, 2015). The crisis of suicide in Indigenous communities is interconnected with wellness and rooted in Canada's history of colonization. In 1995, the Royal Commission on Aboriginal Peoples (RCAP) concluded that many Indigenous youth and young adults "believe they have more reason to die than to live" in a special issue on suicide (Royal Commission on Aboriginal Peoples, 1995). Compared to the general population, the rate of suicide is two to three times higher among Indigenous adults and five to six times higher among Indigenous youth (Royal Commission on Aboriginal Peoples, 1995). Over twenty years ago, RCAP urgently recommended additional resources for crisis services, community development, and self-determination to respond to suicide in Indigenous communities (Royal Commission on Aboriginal Peoples, 1995).

1.4 Summary of the existing literature

Research indicates that children and youth raised in foster care have poorer health outcomes in adulthood compared to their counterparts in the general population (Gypen, Vanderfaeillie, De Maeyer, Belenger, & Van Holen, 2017). Among young Indigenous people who have used drugs, epidemiological research suggests being taken from biological parents is associated with increased risk for HIV and other adverse health outcomes (Clarkson et al., 2015). During 2011, approximately 4% of all Indigenous children under age fifteen were in care, compared with just 0.3% of all non-Indigenous Canadian children. Overall, there were 14,000 Indigenous children in the child welfare system, representing almost half (48%) of all children in care (Statistics Canada, 2016). The majority of Indigenous children (76%) in the child welfare system are located in Canada's western provinces (Statistics Canada, 2016). In British Columbia, Indigenous children represented 56% of all children in the child welfare system, but only 9% of the total child population during 2011 (Statistics Canada, 2016). According to the BC Ministry of Child and Family Development, there were 4,445 Indigenous children in care and 60% of all children in care were Indigenous during 2016 (John, 2016). Of these children, 73.9% were placed in care due to neglect, 8.5% due to physical harm, 4.1% due to emotional harm, 0.7% due to sexual abuse, 3.9% due to other abuse or neglect concerns, and 8.9% by agreement with parents (John, 2016). This review will summarize the existing literature on risk factors and health related outcomes for parents who have a child taken into care among the general and Indigenous populations.

1.4.1 Risk factors for child welfare involvement among Indigenous families

Previous research reveals that Indigenous children are more likely to be placed in foster care due to historical injustices such as poverty, substance use, and housing instability (Bennett et al., 2005; Fournier & Crey, 1997; Trocmé, Knoke, & Blackstock, 2004). The 1998 Canadian Incidence Study of Reported Child Maltreatment (CIS-98) was the first population study in Canada to collect information on child welfare among a large sample of Indigenous children (CIS, 1998). Using data from CIS-98, Cindy Blackstock and her colleagues found that Indigenous parents in the child welfare system were more likely to experience recent unstable housing, depend on social assistance, and use drugs and alcohol, as well as be younger and single (Trocmé et al., 2004). Child welfare authorities were also more likely to apprehend Indigenous children as a result of investigations for neglect and emotional maltreatment, but not physical abuse, sexual abuse, or domestic violence (Trocmé et al., 2004). Further, child welfare authorities were 4.2 times more likely to investigate Indigenous families compared to White families (Sinha, Trocmé, Fallon, & MacLaurin, 2013; Sinha et al., 2011). In the same study, the authors found the unadjusted odds of foster care placement for Indigenous children was 2.3 times the odds of foster care placement for White children. However, the excess risk of foster care placement for Indigenous children was explained by child maltreatment, socioeconomic factors, and family characteristics (Trocmé et al., 2004). Among the AISHA cohort in Vancouver, Duff et al. (2007) found that Indigenous sex workers had higher odds of having a child apprehended compared to non-Indigenous sex workers (OR = 1.66; 95% CI: 1.01–2.74) in multivariable analysis (Duff et al., 2014). The prevalence of ever having a child apprehended was 38% among the AISHA cohort and approximately one third of all participants were Indigenous. However, the

prevalence of child apprehension among Indigenous sex workers was not reported separately in the study.

1.4.2 Health related outcomes for parents involved in substance use and child welfare

Surprisingly little research has considered the health outcomes of having a child taken into care on parents and caregivers. Previous qualitative studies have explored the impact of having children apprehended along with intersecting forms of trauma and inequity among mothers who use drugs. Research indicates that the experience of having a child taken into care is traumatic, leading to re-initiation or increased substance use, feelings of stigma, social instability, symptoms of PTSD, and other mental health outcomes (Kenny, 2018; Kenny, Barrington, & Green, 2015; Raskin, 1992). Mothers who used drugs in Toronto (n=19) identified their cumulative trauma histories and ongoing suffering from child separation as making the pain of child custody loss unbearable (Kenny et al., 2015). The majority of mothers in the sample (n=18) lived on very limited income, almost half (n=8) were Black or Indigenous, and nearly half (n=8) described using crack cocaine in the past 6 months. Pregnant-involved Indigenous women who used drugs in Vancouver and Prince George (n=23) identified child separation as a key theme in their life histories, which was also linked to other traumatic experiences including abuse, neglect and domestic violence (Shahram et al., 2017). Women described coping with the loss of children taken into care through increased drug using and other harmful health behaviors (Shahram et al., 2017). On the other hand, the experience of raising children gave these Indigenous mothers strength to heal from trauma and recover from addictions (Shahram et al., 2017).

Recent quantitative studies have utilized administrative data in the province of Manitoba to examine health related outcomes among mothers involved in the child welfare system. Compared to mothers coping with the recent death of a child, mothers who recently had a child taken into care were at significantly higher risk of depression, anxiety and substance use (Wall-Wieler et al., 2017). Another study found that rates of suicide and suicide attempt were significantly higher among mothers who had a child apprehended, compared to their biological sisters and other mothers receiving child welfare services who never had a child apprehended (Wall-Wieler et al., 2018). An important limitation in these studies was that Indigenous identity was not reported, which is highly relevant data to examine in future studies. In Manitoba, Indigenous children comprise approximately 27% of Manitoba's child population and represent 85% of the total children in care (Statistics Canada, 2016). Notably, the impact of the child welfare system on fathers is largely absent from the research literature. Indigenous fathers may face specific barriers to caring for their children, including socioeconomic exclusion, the ongoing effects of colonization, and mother-centered child welfare policies and programs (Ball, 2009). Further research on fathering and the child welfare system is therefore needed in the general and Indigenous populations.

1.4.3 Health services for Indigenous parents and families involved in substance use

In Canada, there is a sizable gap in health services available to parents involved in substance use. Evidence from a recent national survey of available addictions services for women in Canada suggests approximately half of programs do not provide support for mothers and children (Niccols et al., 2010). Fewer health and social welfare services are available for Indigenous mothers who are using substances and often dealing with complex and multiple

traumas (Niccols, Dell, & Clarke, 2009). Research suggests that Indigenous women who use illicit drugs may not access health care services due to stigma and concern over having their children apprehended by child welfare agencies (Benoit, Carroll, & Chaudhry, 2003). Public health initiatives have focused on fetal alcohol spectrum disorder (FASD) prevention campaigns, but have not provided comprehensive support for high-risk mothers (Salmon, 2011). In British Columbia, the Fir Square Combined Care Unit at BC Women's Hospital is the only service offering harm reduction, withdrawal management and methadone treatment to pregnant women. These services have supported mothers who have used drugs during pregnancy to maintain custody of their children (Payne, 2007). Existing research suggests that Indigenous mothers who struggle with substance use require holistic and single-access treatment services that incorporate harm reduction, cultural safety, and support for both mothers and children (Nathoo et al., 2013). Researchers, service providers, and Indigenous health advocates also believe that the foundation of effective substance use systems of care for this population must include awareness building, stigma reduction, and ongoing support in the community (Nathoo et al., 2013; Poole, Chansonneuve, & Hache, 2013).

1.4.4 Conclusion

In conclusion, the separation of Indigenous children from their families, communities, and culture is widespread and systematic in Canada. Dismantling Indigenous families has been intimately tied to Canada's assimilation agenda, beginning with the residential schools and gradually shifting to the child welfare system. Intergenerational trauma resulting from colonization has profoundly influenced present health disparities among Indigenous peoples, yet Indigenous peoples are resilient and exercise control over their health and wellness. Recent legal

decisions have corroborated repeated calls by Indigenous leaders and child advocates that the residential school and the child welfare systems have disadvantaged Indigenous children. As a result of the Indian Residential Schools Settlement and Canadian Human Rights Tribunal decision, Canada has a binding legal obligation to reduce the number of Indigenous children in the child welfare system and to provide equal services to Indigenous families. However, there is a scarcity of empirical research exploring the experiences of Indigenous parents and caregiver who are trapped in the child welfare system. Further, there is limited research evaluating culturally safe services and interventions that support Indigenous families entrenched in substance use, poverty, and unstable housing.

1.5 Objectives

The study objectives and associated research hypotheses of this thesis are as follows:

Objective 1: To conduct a scoping review of services and interventions supporting Indigenous families involved in substance use in Canada, Australia, New Zealand and the United States.

Objective 2: To describe the incidence of child apprehension and examine the association between child apprehension and suicide attempt over time among young Indigenous women who have used drugs in Vancouver and Prince George, BC, Canada.

Hypothesis 2.1: Since this population faces increased complex and intersecting risk factors for having a child taken into the child welfare system, it is hypothesized that the

incidence of child apprehension among Indigenous mothers who have used drugs is higher than the general Indigenous and Canadian populations.

Hypothesis 2.2: Given the evidence that mothers experience severe psychological distress after a child is taken by the child welfare system, it is hypothesized that recent child apprehension is independently associated with attempting suicide among young Indigenous women who have used drugs.

Chapter 2: A scoping review of culturally safe services and interventions supporting Indigenous families involved in substance use

2.1 Introduction

Globally, Indigenous children, youth and families face health inequities that must be addressed from a social determinants of health perspective (Commission on Social Determinants of Health, 2008; Greenwood & de Leeuw, 2012). In Canada, the residential schools and child welfare systems have legislated systematic trauma and violence against Indigenous children, families and communities (Truth and Reconciliation Commission of Canada, 2015). Between 1874 and 1996, more than 150,000 Indigenous children in Canada were forcefully taken from their families to attend residential schools, where severe neglect and abuse was common (Milloy, 1999). The sole purpose of residential schools was to sever Indigenous children from their traditional culture, identity, spirituality and traditions (Fournier & Crey, 1997; Milloy, 1999; Truth and Reconciliation Commission of Canada, 2015). Educational institutions to assimilate Indigenous children within the dominant European culture were similarly established in the United States, Australia and New Zealand. These institutions and policies to assimilate Indigenous peoples amount to cultural genocide have collectively affected Indigenous communities (Truth and Reconciliation Commission of Canada, 2015). Within this context, colonial institutions and policies are distal determinants of health for Indigenous families and communities. The resulting historical and intergenerational trauma has contributed to the disruption of traditional parenting, attachment, elevated rates of substance use, family violence, and parenting stress (Ball, 2008; Brave Heart, 1998, 1999; Evans-Campbell, 2008; Heath, Bor, Thompson, & Cox, 2011; Pihama et al., 2014).

Indigenous children and youth are overrepresented in child welfare systems around the world (Thoburn, 2007; Tilbury, 2009). In Canada, the Truth and Reconciliation Commission (TRC) was assembled a result of the Indian Residential Schools Settlement to shed light on abuse, neglect and death experienced by Indigenous children. In 2015, the TRC published 94 calls to action as part of redressing the impact of residential schools among Indigenous communities in Canada. The first call to action outlined by the TRC was to reduce the number of Indigenous children in the child welfare system (Truth and Reconciliation Commission of Canada, 2015, Call to Action #1). Indigenous children in Canada aged 14 and under accounted for 48% of all children in foster care during 2011, yet they represented only 7% of the total child population (Statistics Canada, 2016). Research indicates that Indigenous children are more likely to be apprehended and placed in foster care because of broader underlying inequities such as poverty, inadequate housing, and substance use (Bennett et al., 2005; Sinha et al., 2013; Sinha et al., 2011; Trocmé et al., 2004). However, there is a lack of preventative and early intervention services and resources available to support Indigenous families ("FNCFCSC et al. v. Attorney General of Canada," 2016). The TRC called on the federal, provincial, territorial, and Indigenous governments to develop culturally safe parenting programs for Indigenous families (Truth and Reconciliation Commission of Canada, 2015, Call to Action #5).

Due to the complex intergenerational effects of colonization, promoting healing and reducing parental substance use are interconnected with strengthening parenting capacity among Indigenous families. Fundamentally, an Indigenous approach to reducing substance use is grounded in addressing mental health and wellness (First Nations Health Authority, 2013). Wellness begins with the individual taking control over their own health and balancing mental, emotional, spiritual and physical aspects of life (First Nations Health Authority, 2013; M.

Marshall, Marshall, & Bartlett, 2018). Indigenous families have historically faced a "deficits lens" that focused on families' weaknesses, rather than building on their strengths (Fogarty et al., 2018). While the Western biomedical model tends to focus on deficits, pathology, and needs—a holistic wellness perspective is more culturally relevant, focuses on individuals' strengths, and is empowering (van Uchelen et al., 1997). Cultural interventions and traditional healing methods offer promising approaches to treating problem substance use and addictions among Indigenous peoples (Brave Heart et al., 2011; Chansonneuve, 2007; Wesley-Esquimaux & Smolewski, 2004). Strengths-based, culturally safe, trauma- and violence-informed, and contextually appropriate interventions will improve outcomes for Indigenous children and families (Browne et al., 2016; O'Neill, Fraser, Kitchenham, & McDonald, 2016).

There are limited studies assessing the research literature on services and interventions for Indigenous parents and families involved in substance use, particularly in the Canadian context. Jiwa et. al (2008) reviewed the literature on culturally and community-based alcohol and substance use treatment programs for Indigenous peoples with an international scope. The authors concluded that substance use within Indigenous communities is a complex challenge requiring culturally relevant and multifaceted approaches, however further and increased evaluation of programs was needed in the field (Jiwa, Kelly, & Pierre-Hansen, 2008). Rowan et. al (2014) performed a scoping study of culturally based and community-based programs to inform the development of addictions treatment programs for Indigenous peoples in Canada and the United States. The authors concluded that there is evidence to suggest culturally based and community-based interventions are beneficial for reducing or eliminating substance use, but more well-designed studies are needed to evaluate studies within different community contexts. Among the programs reviewed in the scoping study, approximately half of the programs

included residential treatment and all programs integrated Western and culture-based treatment services (Rowan et al., 2014). The recent reviews by Jiwa and Rowan point to the importance of Indigenous leadership, community engagement, and culture in treatment for addictions among Indigenous peoples. However, their assessments did not consider parents or focus on treatment programs incorporating pregnancy, parenting, and child services.

Other studies have reviewed infant and early child health promotion programs supporting Indigenous populations. Smylie et. al (2015) systematically reviewed Indigenous prenatal and infant-toddler health promotion programs in Canada and investigated the role of Indigenous community participation in these programs. The authors found evidence that program success was associated with community investment, ownership and leadership. Further, the programs contributed to positive outcomes including improved access to pre- and post-natal care, breastfeeding, prenatal street drug use, birth outcomes, child development, infant nutrition, dental health, and engagement with Indigenous languages and culture. (J. Smylie et al., 2016) Similarly, Jongen et al. (2014) assessed programs and services in primary healthcare settings to support Aboriginal and Torres Strait maternal/child health and wellbeing in the Australian context. While the authors found promising evidence that most programs were community controlled and community-based, there were significant gaps in the documentation of program implementation and evaluation for most studies (Jongen, McCalman, Bainbridge, & Tsey, 2014).

Most recently, McCalman et. al (2017) systematically reviewed interventions in primary healthcare settings for Indigenous early childhood wellbeing in Canada, Australia, New Zealand and the United States. The authors found that the research field was still in the early stages, but the interventions included in the review reported a variety of positive outcomes for children and parents or caregivers. For example, 53% of the studies reported improvements in parenting or

caregiving outcomes and 40% reported reductions in parental or caregiver depression and/or substance misuse (McCalman et al., 2017). However, parental substance use was not the primary focus of studies identified for this review.

Finally, past literature reviews have explored considerations and potential treatment options for Indigenous parents who use substances. Allison, Niccols, Dell, and Clarke (2009) reviewed the literature on gender-specific issues in substance abuse, the impact of substance use on children and parenting, additional risks for Indigenous women and children, and integrated treatment programs for Indigenous women. They found that there were few addiction treatment programs available integrating pregnancy, parenting, and child services in Canada (Niccols et al., 2009). In another study, McLachlan et al. (2015) reviewed the international and national literature on promoting positive outcomes among Maori parents who use substances in New Zealand. The authors proposed that more culturally appropriate, comprehensive interventions are needed, and equally important, child welfare issues must be identified early for prevention and early intervention. Further, the authors emphasized that parental substance use and child welfare are interconnected issues of global concern requiring further research and training (McLachlan, Levy, McClintock, & Tauroa, 2015). These studies provide key background and context for future research on parental substance use impacting Indigenous communities.

In this chapter, we report the findings of a scoping review on services and interventions evaluated in the research literature for Indigenous families involved in substance use in Canada, Australia, New Zealand, and the United States. First, this study will summarize, integrate and interpret the findings from studies examining services and interventions supporting Indigenous families involved in substance use. Second, it will assess the quality of these studies according to their level of Indigenous focus and cultural safety. To our knowledge, this is the first review to

assess the full range of studies in the empirical literature evaluating interventions to support Indigenous families involved in substance use across diverse settings, locations, and contexts. While previous reviews have considered addictions treatment in the general Indigenous population and programs to support Indigenous parents and their children during early developmental stages, none have focused primarily on parental substance use.

2.1 Methods

2.1.1 Search Strategy

The scoping review is a method for synthesizing the primary research literature in a field of interest (Pham et al., 2014). Its purpose is to provide a descriptive summary of an existing literature, rather than evaluate evidence related to a specific research question (Arksey & O'Malley, 2005). In particular, scoping reviews are useful for mapping topics in the literature that are underdeveloped or inherently complex and varied (Mays, Roberts, & Popay, 2001).

For this review, in consultation with a research librarian (UE), a comprehensive search was conducted of the published literature on programs supporting Indigenous parents who use substances and their children. The following terms were searched in combination with related keywords and MESH terms: pregnant OR parenting AND substance use AND Indigenous peoples in Canada, Australia, New Zealand, and the United States (Table 1). Table 1 lists the full list of terms used in the search for the scoping review. First, a search was conducted on August 29, 2017 in MEDLINE, PsychINFO, EMBASE, Web of Science and CINAHL for records published to August 2017. Five relevant non-indexed journals *(First People's Child & Family Review, International Journal of Indigenous Health/Journal of Aboriginal Health, Pimatisiwin: Journal of Aboriginal and Indigenous Community Health*, *AlterNative: An International Journal*

of Indigenous Peoples, and *MIA Journal)* were manually searched for eligible articles. Next, additional articles were identified from the reference lists of eligible articles and relevant scoping reviews. We did not search grey literature for this scoping review.

Table 1 Scoping review search terms

"substance abuse" OR "drug abuse" OR "substance use" OR "drug use" OR "addiction" OR "alcoholism" AND
“Indigenous” OR “Aborigin*” OR “First Nation*” OR "Inuit" or "Native American*" OR "Indian*" or “Maori” or “Torres Strait Islander*” AND
"mothers" OR “fathers” OR "parents" OR "parenting" OR "pregnant" OR " prenatal" OR “maternal”

2.2.2 Inclusion/Exclusion Criteria

Table 2 lists the eligibility criteria for inclusion in the scoping review. Articles were excluded if they were not published in English, the program was exclusively a smoking cessation program, or results were not reported separately for Indigenous participants. Two authors (LR, KJ) independently screened the title and abstract of each article for inclusion in the review. After the initial screening, full-text articles were retrieved and evaluated further for inclusion in the review according to the inclusion/exclusion criteria. A third author (AM) reviewed all full-text articles considered for exclusion from the review. The authors met to discuss disagreement over the eligibility of an article and reach a consensus for inclusion or exclusion. All authors were consulted to approve the final list of included articles.

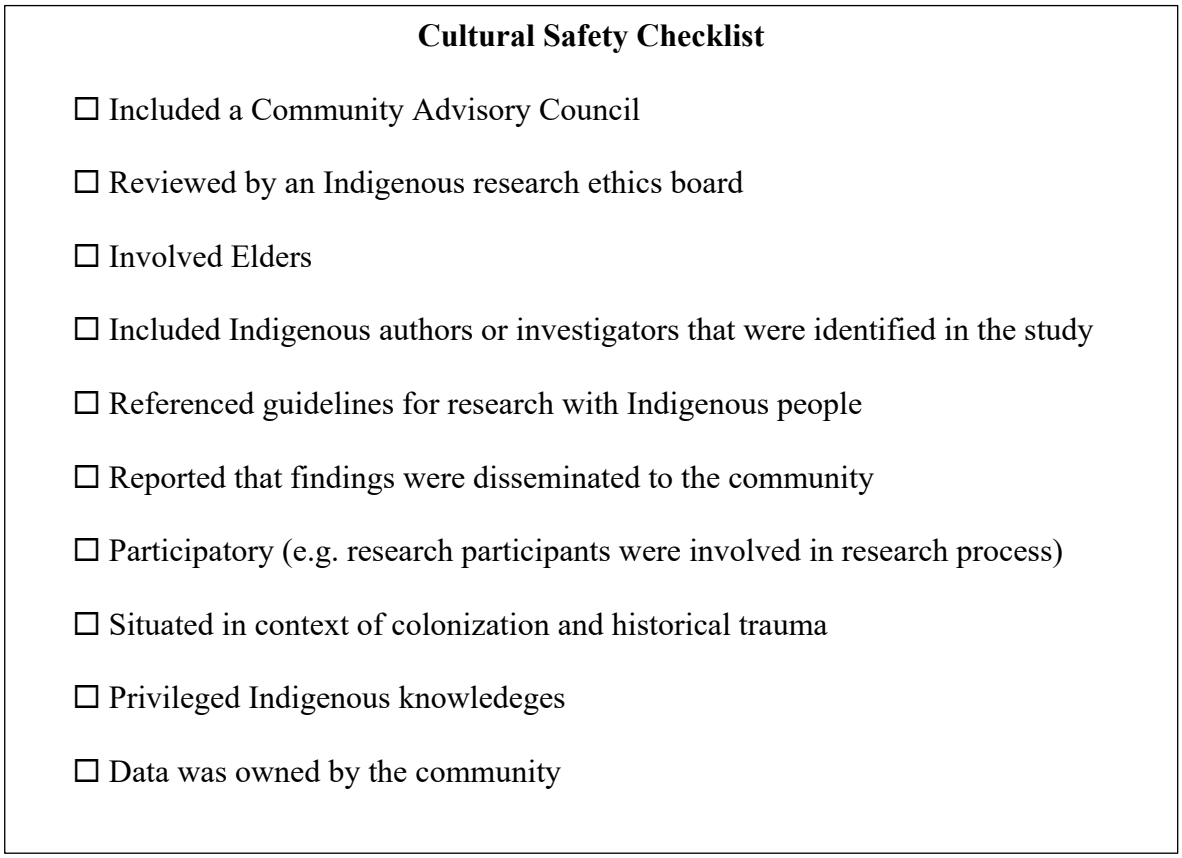
Table 2 Scoping review inclusion criteria

Study Component	Criteria
1. Design	• Empirical (descriptive or intervention) research examining services and programs supporting Indigenous families involved in substance use
2. Participants	• Must include pregnant or parenting Indigenous people in Canada, US, Australia or New Zealand in the program
3. Intervention	• Must include at least one parenting or child rearing component in the intervention (age 0-18)
4. Results	• Must report quantitative or qualitative findings related to at least one of the following: Parenting outcomes Health and wellness outcomes for parent or child Processes contributing to positive outcomes

2.2.3 Quality Assessment

The article quality for this review was assessed according to the overall level of Indigenous focus in the study and how cultural safety was incorporated into the study (Jongbloed et al., 2018). Indigenous focus was categorized as "high" if the study focused exclusively on Indigenous experiences and the sample was completely Indigenous. Indigenous focus was considered "medium" if the sample was mixed, but the study acknowledged differences between Indigenous and non-Indigenous peoples. Indigenous focus was categorized as "low" if Indigenous people were included in the sample and data was disaggregated, but Indigenous experiences were not the focus of the study. Cultural safety was evaluated utilizing a checklist (Figure 1) to assess whether research was conducted in a good way according to Indigenous research standards in Canada (Jongbloed et al., 2018).

Figure 1 Tool to assess cultural safety according to Indigenous research standards in Canada



2.2.4 Data Extraction

One author (LR) extracted the data from all of the articles selected for inclusion in the full text review. Two additional authors (KJ and AM) extracted data on 10% of the articles chosen for the full text review through random selection. Data on study characteristics including the objectives, population, intervention, comparison group, design, methods, and findings was extracted for the review. Study findings were categorized as: parenting outcomes, parent/and or child health and wellness outcomes, or processes contributing to positive outcomes (Sword et al., 2009). The authors simultaneously reviewed the full text articles and extracted the data to confirm the eligibility of final articles for inclusion in the review. The three authors (LR, KJ,

AM) met to review the results of the data extraction and reach agreement on the final articles to include in the scoping review.

2.3 Results

The initial database search yielded 2020 results (MEDLINE=322, EMBASE=609, CINAHL=350, PsychINFO=501 and Web of Science=238) (Figure 2). An additional 7 articles were identified through hand searching of reference lists and non-indexed peer review journals. After duplicates were removed, the abstracts of the remaining 1305 records were screened and 36 articles were selected for full-text review. Of the articles selected for full-text review, 19 were excluded based on the eligibility criteria for the following reasons: not an empirical study; study population did not include Indigenous peoples in Canada, Australia, New Zealand or the United States; did not evaluate or describe a program that supports parents, did not evaluate or describe a program for parents who use substances, and full text was not available in English. In total, 17 studies met the eligibility criteria for inclusion in the scoping review. Nine (53%) of the studies were conducted in the United States, four (24%) in Australia, three (18%) in Canada, and one (6%) in New Zealand (Table 3). Six studies (35%) were randomized controlled trials (RCTs), five (29%) studies were qualitative, three (18%) were program evaluations using descriptive quantitative and qualitative approaches, two (12%) were quantitative evaluations, and one (6%) was a chart review. The studies were published during the period of 1999 and 2017.

Included studies described and evaluated home-visiting pregnancy and early childhood programs (Allison Barlow et al., 2013; A. Barlow et al., 2015; Allison Barlow et al., 2006; Mullany et al., 2012; Walkup et al., 2009), group parenting skills programs (Brave Heart, 1999; Kratochwill, McDonald, Levin, Young Bear-Tibbetts, & Demaray, 2004; Penehira & Doherty,

2013), health and substance abuse services (S. K. Marshall, Charles, Hare, Ponzetti, & Stokl, 2005; Nebelkopf & Wright, 2011), empowerment programs (Mia et al., 2017; Tsey et al., 2010), and prenatal care services (Di Lallo, 2014; Homer et al., 2012; McCalman et al., 2015; Muhajarine, Ng, Bowen, Cushon, & Johnson, 2012). The study interventions served the following populations: pregnant and early parenting Indigenous women in general (Di Lallo, 2014; Homer et al., 2012; McCalman et al., 2015), pregnant and early parenting Indigenous teenagers age 12-22 (Allison Barlow et al., 2013; A. Barlow et al., 2015; Allison Barlow et al., 2006; Mullany et al., 2012; Walkup et al., 2009), pregnant and early parenting women who were "at risk" (Muhajarine et al., 2012), pregnant and early parenting women with a history of substance use (S. K. Marshall et al., 2005), tribally homogenous Indigenous parents (Brave Heart, 1999), Indigenous parent and children age five to nine attending reservation or public school (Kratochwill et al., 2004), Indigenous women and men who had abused substance and received treatment (Nebelkopf & Wright, 2011; Wright et al., 2011), Indigenous mothers and grandmothers from disadvantaged areas with children up to age 5 (Penehira & Doherty, 2013), and Indigenous families and communities (Mia et al., 2017; Tsey et al., 2010). Studies included in the review most commonly evaluated interventions targeting pregnant and parenting Indigenous women and teenagers.

Figure 2 Scoping review search flow diagram

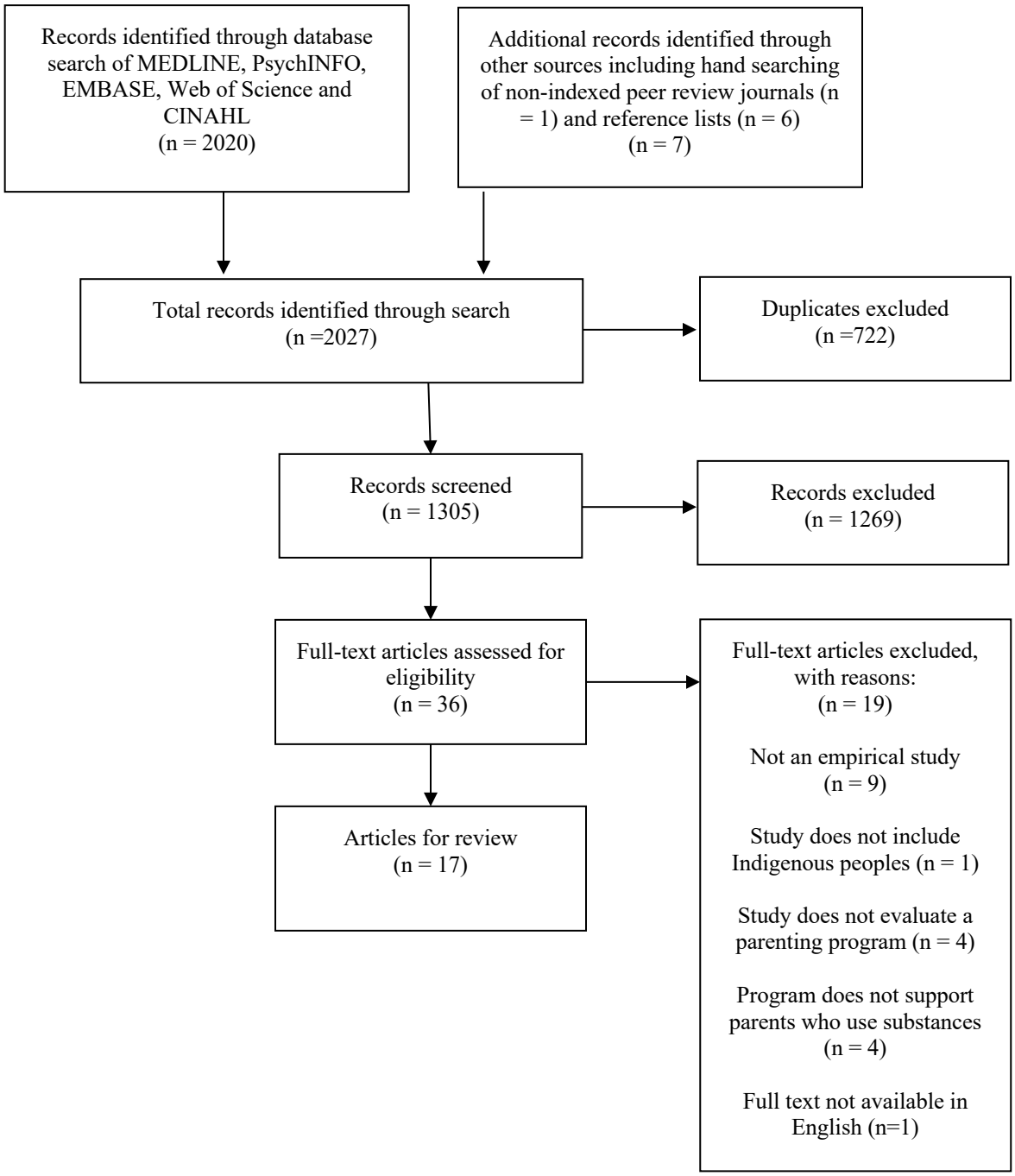


Table 3 Characteristics of studies in the scoping review

First Author (Year)	Study Objective(s)	Setting	Participants	Study Design
[1] Barlow (2006) US/rural	To assess the impact of the Family Spirit Intervention to promote child care knowledge, skills, and involvement	Paraprofessional-delivered home-visiting pregnancy and early childhood intervention	Expectant Navajo and Apache women (ages 12 - 19) from four communities in the southwestern US during 2001 - 2002 (n = 52)	RCT
[2] Barlow (2013) US/rural	To examine the effectiveness of the Family Spirit Intervention in improving parenting outcomes and mothers' and children's emotional and behavioral functioning 12 months postpartum	Paraprofessional-delivered home-visiting pregnancy and early childhood intervention	Expectant Native American women (ages 12 - 19) from four communities in the southwestern US during 2006 - 2008 (n = 322)	RCT
[3] Barlow (2015) US/rural	To report 36-month outcomes of the Family Spirit home-visiting intervention	Paraprofessional-delivered home-visiting pregnancy and early childhood intervention	Expectant American Indian women (ages 12 - 19) from four communities in the southwestern US during 2006 - 2008 (n = 322)	RCT
[4] Brave Heart (1999) US/rural	To evaluate the parental reaction to the Lakota Wakanheja Parenting Curriculum content and to learn more about the phenomenon of the historical trauma response	Parenting skills curriculum	Tribally homogenous group of parents from the Lakota Nation (n=10)	Qualitative study
[5] Di Lallo (2014) CA/rural	To describe the Aboriginal Prenatal Wellness Program (APWP) and discusses how increased participation in health care by historically marginalized populations can lead to better maternal and neonatal health outcomes	Prenatal care service	Pregnant women from four Maskwacis First Nations of Hobbema border Wetaskiwin and Ponoka Counties in Central Alberta (n=281)	Program evaluation using quantitative and qualitative approaches
[6] Homer (2012) AU/urban	To determine whether, and to what extent, the Malabar Community Midwifery Link Service was meeting the needs of the women accessing the service and the staff working within the service	Midwifery and child health service	Pregnant women from Aboriginal and Torres Strait Islander communities in suburban Sydney, Australia (n=353)	Program evaluation using quantitative and qualitative approaches

First Author (Year)	Study Objective(s)	Setting	Participants	Study Design
[7] Kratochwhill (2004) US/urban/rural	To (a) adapt the Families and Schools Together (FAST) Program to fit the cultural and ecological contexts of three American Indian nations; (b) increase academic competence among American Indian children; and (c) reduce problem behaviors	Parent-mediated multi-family group program	Parents and children ages 4 to 9 of American Indian descent attending reservation or public schools in northern Wisconsin (n=100 families)	RCT
[8] Marshall (2005) CA/urban	To assesses the concurrent health and social problems that Sheway clients report upon entry into the program, service utilization, and the impact of services on neonate and infant well-being	Single-access street-front service	Pregnant and parenting women (majority were Indigenous) with a history of alcohol and/or drug use living in Vancouver, British Columbia (n = 1,247)	Program evaluation using retrospective chart review
[9] McCalman (2015) AU/rural	To theorize the process of implementing the Cape York Baby Basket Program	Maternal and child health program	Pregnant or recently pregnant women from six of the eleven Cape York communities (age 21 – 34). Family members were aunts who accompanied the women to Cairns for birthing. (n = 28 total; 7 women, 3 family members, and 18 healthcare workers)	Qualitative study
[10] Mia (2017) AU/rural	To assess if, and how, the Cultural, Social and Emotional Wellbeing Program (CSEWP) contributed to strengthening the cultural, social, and emotional wellbeing of participants, their families and communities	Community empowerment education program	Indigenous and Torres Strait Islander people in Cherbourg and Kuranda, Queensland (n=153)	Qualitative study
[11] Muhajarine (2012) CA/urban/rural	To assess whether high exposure to the Canada Prenatal Nutrition Program (CPNP) improved (a) the personal health practices, such as smoking and breastfeeding, of participants and (b) birth outcomes, such as low birth weight and preterm birth	Prenatal nutrition program	Women "at risk" (23% were Indigenous) who entered the program prenatally in 2002-2006 and were socially, demographically and geographically diverse. (n=48,184 for total study sample)	Quantitative program evaluation

First Author (Year)	Study Objective(s)	Setting	Participants	Study Design
[12] Mullany (2012) US/rural	To describe the rationale, design, methods and baseline results of the Family Spirit Intervention trial	Paraprofessional-delivered home-visiting pregnancy and early childhood intervention	Expectant American Indian women (ages 12 - 19) from four communities in the southwestern US during 2006 - 2008 (n = 322)	RCT
[13] Nebelkopf (2011) US/urban	To document the effectiveness of the Holistic System of Care for Native Americans in an Urban Environment in the San Francisco Bay Area over a ten-year period	Prevention & outpatient mental health and substance abuse service	Native American and Alaska Native men and women (70% women and 30% males, average age 36.3 years) enrolled in recovery programs between September 2003 and April 2008 (n=490)	Program evaluation using qualitative and quantitative approaches
[14] Penehira (2013) NZ/urban	To evaluate the feasibility, acceptability and effectiveness of the Hoki ki te Rito (HKTR) / Mellow Parenting Program for Māori mothers in South Auckland, New Zealand	Intensive parenting program	Māori mothers and grandmothers from socially disadvantaged areas seeking support for significant parenting problems, with children aged 0 to 5 years (n = unspecified)	Qualitative study
[15] Tsey (2010) AU/rural/urban	To develop a deeper understanding of the contribution the Family Wellbeing Empowerment Program (FWB) to improving Aboriginal health	Community empowerment program	Indigenous families in Australia's Northern Territory and Queensland (n = 148 adults & 70 children)	Qualitative study
[16] Walkup (2009) US/rural	To evaluate the efficacy of the Family Spirit Intervention on parenting knowledge, involvement, and maternal and infant outcomes	Paraprofessional-delivered home-visiting pregnancy and early childhood intervention	Expectant Navajo and Apache women (ages 12 - 19) during 2002-2004 (n = 167)	RCT
[17] Wright (2011) US/urban	To describes the holistic system of care (HSOC) approach and provide preliminary findings from an outcome evaluation for Holistic System of Care for Native Americans in an Urban Environment	Prevention & outpatient mental health and substance abuse service	Native American and Alaska Native men and women (70% women and 30% males, average age 36.3 years) enrolled in recovery programs between September 2003 and April 2008 (n=490)	Pre-post quantitative evaluation

2.3.1 Intervention components

The intervention components are shown in Table 4. All seventeen studies (100%) evaluated programs or interventions that included parenting education, eight (47%) included child care and/or transportation, eleven (65%) included screening, assessment and referrals, six (35%) including primary or physical healthcare, and nine (53%) including mental health and social services. All seventeen studies (100%) evaluated programs or interventions that included substance use prevention & education services, nine (53%) included harm reduction services or strategies, three (18%) including screening, assessment and referrals, and three (18%) included treatment services and support.

Table 4 Intervention components of studies in the scoping review

	Parenting Support					Substance Use Prevention & Treatment			
Author (Year)	Parenting education	Child care support & transport	Screening, assessment & referrals	Primary/ physical healthcare	Mental health & social services	Prevention & education services	Screening, assessment & referrals	Treatment services & supports	Harm reduction strategies
Barlow (2006)	✓		✓			✓			
Barlow (2013)	✓		✓			✓			
Barlow (2015)	✓		✓			✓			
Brave Heart (1999)	✓					✓			✓
Di Lallo (2014)	✓	✓	✓	✓	✓	✓			✓
Homer (2012)	✓	✓	✓	✓		✓			✓
Kratochwhill (2004)	✓				✓	✓			
Marshall (2005)	✓	✓	✓	✓	✓	✓	✓	✓	✓
McCalman (2015)	✓	✓	✓	✓		✓			✓
Mia (2017)	✓					✓			✓
Muhajarine (2012)	✓	✓	✓			✓			✓
Mullany (2012)	✓		✓			✓			
Nebelkopf (2011)	✓	✓		✓	✓	✓	✓	✓	
Penehira (2013)	✓	✓	✓			✓			✓
Tsey (2010)	✓					✓			✓
Walkup (2009)	✓		✓			✓			
Wright (2011)	✓	✓		✓	✓	✓	✓	✓	

2.3.2 Cultural safety

The cultural safety assessment of the studies according to Indigenous research standards in Canada is shown in Table 5. Fifteen studies (88%) had a high level of Indigenous focus, which was defined as the study focusing exclusively on Indigenous experiences and the sample was completely Indigenous. Eight studies (47%) used a participatory research approach (involved participants in the research process) and nine studies (53%) reported that findings were disseminated to the community. Twelve studies (71%) reported to a Community Advisory Council to inform the intervention, 15 studies (88%) privileged Indigenous knowledeges and experiences, nine studies (53%) situated programs within the context of colonization and historical trauma, and 12 studies (71%) involved Elders in the intervention. Eight studies (47%) included Indigenous authors or investigators that were identified in the study and ten studies (58%) were reviewed by an Indigenous research ethics board or referenced guidelines for research with Indigenous people. None of the studies reported that study data was owned by the communities participating in the programs or interventions.

Table 5 Cultural safety of studies in the scoping review

Author (Year)	Advisory council	Indigenous research ethics board or guidelines	Indigenous authors	Situates historical trauma	Privileges Indigenous knowledges	Elders involved	Participants involved in research process	Disseminate findings to community	Level of Indigenous focus
Barlow (2006)	✓	✓			✓	✓	✓	✓	High
Barlow (2013)	✓	✓			✓	✓	✓	✓	High
Barlow (2015)	✓	✓			✓	✓	✓	✓	High
Brave Heart (1999)	✓		✓	✓	✓	✓	✓	✓	High
Di Lallo (2014)				✓	✓	✓			High
Homer (2012)	✓	✓	✓		✓	✓			High
Kratochwhill (2004)	✓		✓		✓	✓			High
Marshall (2005)			✓	✓					Medium
McCalman (2015)		✓		✓	✓			✓	High
Mia (2017)	✓	✓	✓	✓	✓		✓	✓	High
Muhajarine (2012)									Low
Mullany (2012)	✓	✓			✓	✓	✓	✓	High
Nebelkopf (2011)	✓			✓	✓	✓			High
Penehira (2013)		✓	✓	✓	✓				High
Tsey (2010)	✓	✓	✓	✓	✓	✓	✓	✓	High
Walkup (2009)	✓	✓			✓	✓	✓	✓	High
Wright (2011)	✓		✓	✓	✓	✓			High

2.3.3 Key themes

Self-determination of parents, families, and communities

The reviewed studies described parents, families, and communities taking greater control over factors influencing their health and wellness. Developed within the context of intergenerational trauma from the Stolen Generation experience, the Family Wellbeing Empowerment (FWB) Program aimed to improve health outcomes for Indigenous families in Australia's Northern Territory and Queensland. Participants reported a greater sense of cultural and spiritual identity, more respect for themselves and others, improved parenting, and greater ability to cope with substance abuse and violence (Tsey et al., 2010). Similarly, the Cultural, Social and Emotional Wellbeing (CSEWB) Program aimed to strengthen cultural, social, and emotional wellbeing through healing and empowerment among Indigenous communities in Queensland, Australia (Mia et al., 2017). Participants reported a renewed sense of hope, stronger

sense of cultural identity, and a heightened awareness of their health and wellbeing, which included mental health, family violence, and substance use (Mia et al., 2017). The Māori principle of *tino rangatiratanga*, or self-determination, was integral to the *Hoki ki te Rito* (HKTR)/Mellow Parenting program for Māori mothers and grandmothers in South Auckland, New Zealand. Participants described greater satisfaction and control over their wellbeing and parenting through the parenting skills training and continuous support in the program (Penehira & Doherty, 2013). In the Cape York Baby Basket Program, Indigenous health care workers provided culturally safe health education during home visits to pregnant Indigenous women in Queensland, Australia (McCalman et al., 2015). Empowering families was identified as a key implementation process to support Indigenous women and families make healthy choices and advocate for community change (McCalman et al., 2015).

Connection to culture and traditional values

The majority of the reviewed studies reported participants connecting to culture and traditional values through services and interventions. The Holistic System of Care for Native Americans in an Urban Environment (HSOC) integrated Western medical approaches with Indigenous culture and traditions through talking circles, smudging, sweat lodge, pow-wow, ceremony, and traditional healing (Nebelkopf & Wright, 2011). The program also incorporated Positive Indian Parenting (PIP), a culturally safe parenting curriculum created by the National Indian Child Welfare Association (Nebelkopf & Wright, 2011). In the HKTR/Mellow Parenting program, participants described teaching and learning from Māori facilitators and other Māori mothers as an invaluable experience (Penehira & Doherty, 2013). Program participants found the Māori facilitators and connection to other program participants in a group setting to be a

supportive environment that aligned with the Māori principle of Whānau (extended family) (Penehira & Doherty, 2013). Similarly, participants in the FWB Program found that sharing stories and learning from each other was supportive and appropriate within the Indigenous context (Tsey et al., 2010). Participants also related to the program's holistic emphasis on physical, emotional, mental and spiritual wellbeing, rather than focusing on a single domain of health. In particular, participants found the respect for traditional values and spiritual identity in the program empowering, since many believed colonization and contemporary assimilation policies had challenged Indigenous culture and identity (Tsey et al., 2010).

Healing from intergenerational, historical and lifetime trauma

Many studies described participants healing from historical and lifetime trauma as a central process to transform their parenting. For example, the Lakota Wakanheja Parenting Curriculum taught parents about how historical trauma influence their parenting, particularly the intergenerational impact of boarding schools (Brave Heart, 1999). Parents reported becoming more aware of intergenerational boarding school trauma and how abuse experienced by boarding school survivors has affected parenting skills and substance abuse in their community. As a result of the program, participating parents described changes in their understanding and attitudes towards parenting, the need to support self-healing to improve parenting, and the desire to help others heal in their community (Brave Heart, 1999). The CSEWB Program content included an emphasis on family and reviewed traditional kinship and family structures, the significance of Elders, and interpersonal conflict management (Mia et al., 2017). The program also aimed to increase awareness of the Stolen Generations, intergenerational trauma, and positive parenting from an Aboriginal and Torres Strait Islander context (Mia et al., 2017).

Participants in the HKRT/Mellow Parenting program described learning to identify abuse and how it has affected their parenting, and the desire to share their experiences to heal from abuse (Penehira & Doherty, 2013). Mothers reported that the experience of telling their life story allowed them to understand how the way they were parented influenced their own parenting (Penehira & Doherty, 2013).

Building trust through cultural safety

Furthermore, studies described building trust and relationships between program participants and staff through cultural safety. Indigenous health care workers in the Cape York Baby Basket Program delivered baskets of pregnancy, birth and baby goods to engage with Indigenous mothers and their families. Creating a culturally safe space involved Indigenous health care workers "yarning" (gathering informally to share Indigenous experiences and knowledge) during home visits to discuss their health and wellbeing (McCalman et al., 2015). This allowed health care workers to discuss more sensitive topics with women and their families such as alcohol and drug use (McCalman et al., 2015). Mothers in the (HKTR)/Mellow Parenting program described that being surrounded by other Māori mothers who shared common experiences established a culturally safe and non-judgmental environment (Penehira & Doherty, 2013). Health care providers with the Aboriginal Prenatal Wellness Program (APWP) in Wetaskiwin, Alberta, Canada were trained to understand Indigenous women's traditional practices and barriers that may exclude women from accessing prenatal care. Indigenous women reported they accessed prenatal care earlier through the program and felt the service was more effective and supportive than mainstream health care (Di Lallo, 2014). Similarly, fostering trust

through non-judgmental, professional and informal relationships was an important theme for midwives working for the Malabar Community Midwifery Link Service (Homer et al., 2012).

Pregnancy as a critical period for substance use prevention and treatment

Pregnancy is a critical window to offer holistic substance use treatment to Indigenous women who are involved in substance use. Studies found that reducing barriers to access and connecting pregnant Indigenous women to a comprehensive range of services were important for program success. Sheway is a comprehensive street-front program that provides holistic health and social services to pregnant and early parenting Indigenous and non-Indigenous women who have used drugs in the DTES of Vancouver, British Columbia, Canada (S. K. Marshall et al., 2005). Following a harm reduction approach, women contacted Sheway for services and decide their needs with a staff member upon admission to the program. One of the primary aims of the Cape York Baby Basket Program was encouraging women to access antenatal care earlier (McCalman et al., 2015). Through engaging with participants initially during home visits, health workers were able to link new mothers to primary health care services. Furthermore, Indigenous health workers reported that the home visits reduced stress and offered a more comfortable environment for new mothers, particularly because of transportation and cultural safety considerations (McCalman et al., 2015). The Malabar Community Midwifery Link Service offered transportation to women wishing to access the clinic and also engaged with a local community health centre on a weekly basis (Homer et al., 2012). Furthermore, the Malabar clinic offered a range of other supports and services for easy access (Homer et al., 2012).

2.3.4 Outcomes

Table 6 presents the outcomes of the studies in the scoping review. Fifteen (88%) studies reported parental health, wellness, or parenting outcomes. Fifteen studies (88%) reported parental mental health and substance use outcomes, including depressive symptoms [1, 2, 3, 12, 13, 16, 17], behavior problems [1, 2, 3, 12, 16], parental substance use [1, 2, 3, 5, 6, 10, 11, 12, 13, 16, 17], self-esteem [10, 14], social and emotional wellbeing [10, 14], confidence in cultural identity [10, 14], and control over health and wellbeing [4, 9, 14, 15]. Nine studies (53%) reported parenting outcomes, including parenting knowledge [1, 2, 3, 12, 14, 16], parenting attitudes and behaviour [4, 14, 15], parental self-efficacy [1, 2, 3, 12, 14, 16], parenting home safety attitudes [1, 2, 3, 12, 16], dealing with stress, anger, and challenges [1, 2, 3, 12, 14, 15, 16], and relationships with children, family, and community members [4, 10]. Three studies (18%) reported outcomes related to employment, enrollment in school or training programs, and criminality [10, 13, 17].

Eleven (65%) studies reported children's health and wellness outcomes. Four studies (24%) reported birth and neonatal outcomes, including preterm birth [6, 8, 11], low birth weight [6, 8, 11], infant mortality [6, 8], poor neonatal health [8, 11], breastfeeding [5, 6, 11], prenatal vitamins/supplements [11], and child apprehension [8]. Nine studies (53%) reported children's social and emotional outcomes, including behavior problems [1, 2, 3, 7, 12, 14, 16], social skills [7, 14], and academic competence [7].

Six (35%) of the reviewed studies reported on processes contributing to positive outcomes. Studies described privileging Indigenous knowledge and experiences [9, 14, 15], connection to traditional culture and values [4, 9, 14, 15], developing trusting and culturally safe

relationships with program staff [6, 9], creating a culturally safe environment [5, 9, 14], linking clinical services [6, 9], and overall program satisfaction [5, 7,14].

Table 6 Outcomes of studies in the scoping review

First Author (Year)	Type of Outcomes			Main Findings
	Parent	Child	Process	
[1] Barlow (2006)	✓	✓		• **Parent:** at 2 and 6 months postpartum, mothers in the intervention had higher parenting knowledge and to some extent maternal involvement • **Parent:** mothers in the intervention had fewer depressive symptoms at both 2 and 6 months postpartum, but the difference was not statistically significant • **Child:** no differences were observed in child care skills, family conflict, family cohesion, social support, self-esteem, locus of control, and substance use
[2] Barlow (2013)	✓	✓		• **Parent:** at 12 months postpartum, mothers in the intervention group had greater parenting knowledge, parenting self-efficacy, home safety attitudes and fewer externalizing behaviors • **Child:** children of mothers in the intervention had fewer externalizing problems • **Child:** in a subsample of mothers with lifetime substance use at baseline (N=285; 88.5%), children in the intervention group had fewer externalizing and dysregulation problems and scored in the clinically "at risk" range for internalizing and externalizing behaviours
[3] Barlow (2015)	✓	✓		• **Parent:** at 36 months postpartum, mothers in the intervention had greater parenting knowledge, greater parental locus of control, fewer depressive symptoms, fewer externalizing behaviours, and lower marijuana and illicit drugs use • **Parent:** no differences were observed in mother's internalizing behaviours or alcohol use • **Child:** children of mothers in the intervention had fewer externalizing problems, internalizing problems, and dysregulation

First Author (Year)	Type of Outcomes			Main Findings
•	Parent	Child	Process	
[4] Brave Heart (1999)	✓		✓	• **Parent/Process**: participants reported becoming more aware of historical trauma and how it affected their parenting • **Parent/Process**: participants reported changes in their awareness level and parenting behavior and attitudes, need to focus on self-healing in order to become better parents, re-connection to traditional Lakota values, and a sense of empowerment and stronger communal relationships.
[5] Di Lallo (2014)	✓	✓	✓	• **Process**: most participants reported the program met their needs and they would return again • **Parent/Child**: participants reported accessing prenatal care earlier, quitting alcohol and drugs due to pregnancy, and wanting to breastfeed
[6] Homer (2012)	✓	✓	✓	• **Parent/Child**: majority of participants had first antenatal visit before 20 weeks of pregnancy and intended to breastfeed • **Parent**: reduced the number of participants smoking cigarettes during pregnancy, but did not reduce alcohol or illicit drug use • **Process**: participants reported the service provided ease of access, continuity of care and caregiver, trust and trusting relationships, and being part of a special service
[7] Kratochwhill (2004)		✓	✓	• **Child**: on the immediate posttest, FAST participation was associated with greater improvements in children's aggressive behavior and withdrawn status • **Child**: on the 1-year follow-up assessment, FAST participation was associated with improvements in status and academic competence • **Process**: parents reported general satisfaction with the program
[8] Marshall (2005)		✓		• **Child**: longer prenatal care at Sheway was associated with higher infant birth weight • **Child**: use of Sheway's services was not associated with number of infant removals • **Child**: younger mothers and Indigenous mothers were less likely to have their children removed
[9] McCalman (2015)	✓		✓	• **Process**: program implementation involved empowering families through a process of engaging and relating to the Murri way • **Process**: connecting through practical support, creating a culturally safe practice, becoming informed and informing others, and linking at the clinic were key influencing conditions of the social environment • **Parent**: women and families made healthy choices, became empowered health consumers, and advocated for community changes

First Author (Year) •	Type of Outcomes			Main Findings
	Parent	Child	Process	
[9] McCalman (2015)	✓		✓	• **Process**: program implementation involved empowering families through a process of engaging and relating to the Murri way • **Process**: connecting through practical support, creating a culturally safe practice, becoming informed and informing others, and linking at the clinic were key influencing conditions of the social environment • **Parent**: women and families made healthy choices, became empowered health consumers, and advocated for community changes
[10] Mia (2017)	✓			• **Parent:** participants reported the program helped them identify healthier lifestyle practices, including diet, exercise, and alcohol and substance use • **Parent:** Participants reported increased awareness and resolve to develop more positive relationships with children, partners, family members, and community
[11] Muhajarine (2012)	✓	✓		• **Parent/Child**: Indigenous participants with high CPNP exposure were more likely to cease drinking, breastfeed, breastfeed for longer, and increase use of vitamin/mineral supplements from never to daily • **Child**: Indigenous participants with high CPNP exposure were less likely to give birth to an infant that was preterm, low birth weight, or had poor neonatal health • **Parent/Child**: Indigenous participants with high CPNP exposure were more likely to have maternal weight gain (more than recommended) and give birth to a large-for-gestational-age infant
[12] Mullany (2012)	✓			• **Parent**: at baseline the mothers had high rates of substance use (>84%), depressive symptoms (>32%), dropping out of school (>57%), and residential instability (51%)
[13] Nebelkopf (2011)	✓			• **Parent**: significant reductions in substance use and stress related to experiences of substance in the last 30 days • **Parent**: significant increase in employment and enrollment in school or training program • **Parent**: significant reductions in arrest or the commitment of a crime, depression, anxiety or tension, hallucinations, trouble understanding or concentrating, trouble controlling violent behavior, and suicide attempts

First Author (Year) •	Type of Outcomes			Main Findings
	Parent	Child	Process	
[14] Penehira (2013)	✓	✓	✓	• **Parent**: Increase in participants' wellbeing, ability to cope with parenting role/children's behaviours, feelings of self-esteem and adequacy, and confidence in cultural identity • **Child**: reduction in unwanted problematic behaviours from children and an increase in children's social skills • **Process**: positive responses to program resources, content, and process • **Process**: feedback from numerous participants for program to allow fathers to attend
[15] Tsey (2010)	✓	✓		• **Parent & Child**: participants demonstrated enhanced capacity to exert greater control over factors shaping their health and wellbeing. • **Parent**: heightened sense of Indigenous and spiritual identity, respect for self and others, enhanced parenting and capacity to deal with substance abuse and violence
[16] Walkup (2009)	✓	✓		• **Parent**: at 6 and 12 months postpartum, participants in the intervention had greater parenting knowledge gains • **Child**: at 12 months postpartum, children of mothers in the intervention had significantly fewer externalizing behaviours and less separation distress in the internalizing domain • **Parent**: no differences were observed in maternal involvement, home environment, or mothers' stress, social support, depression, or substance use
[17] Wright (2011)	✓			• **Parent**: Significant reduction in substance use and experiences of stress, emotion, or activities resulting from substance use 6 months later • **Parent**: significant increase in employment and enrollment in school or training programs 6 months later • **Parent**: significant reductions in arrest or commitment of a crime, depression, anxiety or tension, hallucinations, trouble understanding or concentrating, trouble controlling violent behavior, and suicide attempts 6 months later • **Parent**: Residential treatment was more effective than outpatient services

2.4 Discussion

The purpose of this study was to review the findings from the empirical literature on interventions supporting Indigenous families involved in substances use in Canada, Australia, New Zealand and the United States. We aimed to summarize, integrate and interpret intervention outcomes and implementation processes related to positive change, as well as assess the quality of the research according to criteria for cultural safety and Indigenous focus. Overarching mechanisms for positive change identified in the interventions were 1) *Self-determination of parents, families, and communities*, 2) *Connection to culture and traditional values,* 3) *Healing from intergenerational, historical and lifetime trauma,* 4) *Building trust through cultural safety,* and 5) *Pregnancy as a critical period to offer substance use treatment.* Studies reported a wide range of outcomes related to parenting, parental mental health and substance use, birth and neonatal outcomes, and children's social & emotional wellbeing.

The quality of study designs in the review varied. Six studies (35%) utilized a randomized control trial design to assess the efficacy of interventions. Five of these studies evaluated a single intervention—the paraprofessional-delivered Family Spirit home-visiting intervention for Indigenous teenage mothers and their children (Allison Barlow et al., 2013; A. Barlow et al., 2015; Allison Barlow et al., 2006; Mullany et al., 2012; Walkup et al., 2009). The majority of studies employed a combination of quantitative and qualitative evaluation methods to describe and assess interventions of interest. Many studies had small sample sizes that posed limitations to demonstrating statistical significance and generalizability beyond the sample population. Further, almost all studies assessed short-term outcomes; longer-term studies are needed to demonstrate improvements attributed to an intervention are sustained and ongoing. However, experimental studies may not be acceptable or feasible among the Indigenous

populations served in these studies. Given the lack of services and barriers to access, excluding a group of participants to meet the requirements of a controlled design may be unethical. These methodologies may also not be culturally safe or relevant within the context of Indigenous populations. The Indigenous-led CSEWP program in Queensland, Australia conducted a post-program evaluation using the Stories of Most Significant Change (SMSC) technique to identify program benefits (Mia et al., 2017). Using participatory and storytelling techniques, evaluators developed SMSC as a culturally appropriate qualitative evaluation methodology to reflect Indigenous values and engage program participants (Mia et al., 2017).

Promisingly, the majority of studies in the review incorporated elements of cultural safety and a high level of Indigenous focus in the research process. Studies in the review included community advisory boards, involved Elders, were authored by Indigenous authors or investigators, situated studies in context of colonization and historical trauma, were reviewed by an Indigenous research ethics board, referenced guidelines for research with Indigenous people and privileged Indigenous knowledge. Roughly half of the studies utilized a participatory research approach that involves participants in the research process and disseminated the findings to the community. However, none of the studies reported that data was owned by the communities participating in the studies. The First Nations principle of Ownership, Control, Access and Possession (OCAP®) is the ethical standard for engaging in research with Indigenous peoples in Canada (First Nations Information Governance Centre, 2014). First Nations govern the entire research process within this framework, including data collection and how data will be used in research (First Nations Information Governance Centre, 2014). This finding suggests that greater community control of research through data governance is warranted.

A wide range of interventions to support Indigenous parents who have used drugs and alcohol were identified in the review. While the diversity of settings and locations makes comparing processes and outcomes difficult, there were noteworthy patterns in the literature. Over two thirds (64%) of the studies described or evaluated interventions targeting pregnant and early parenting women. The medical and public health literature has historically approached substance use during pregnancy as a health behaviour problem and focused on the potential harms to the unborn child (Salmon, 2011). However, research indicates that social determinants of health including demographics factors, trauma, gender, social environments, colonialism, culture, and employment are most related to Indigenous women's substance use (Shahram, 2016). Pregnancy is a critical window to offer holistic treatment to Indigenous women who use substances because of the risk of Fetal Alcohol Spectrum Disorder and other drug and alcohol-related disorders (Nathoo et al., 2013; Poole et al., 2013). Scholar have also pointed to pregnancy a significant intervention point for Indigenous women to break the intergenerational transmission of trauma (Roy, 2015). Yet, very little research has focused on the actual experiences of Indigenous women who use drugs and alcohol during pregnancy (Shahram et al., 2017). Many studies in this review described implementing culturally safe and non-judgmental programs to connect pregnant Indigenous women with health care and social services to improve maternal and child outcomes.

Few studies (35%) targeted study populations of Indigenous parents with older children and adolescents. Additionally, the majority of studies described or evaluates services that included only brief intervention and prevention components to address parental substance use. Just three studies (18%) evaluated interventions offering comprehensive substance use and addictions treatment services. The findings of this review and other studies confirm that reducing

the harms associated with substance use are effective approaches for recovery, rather than abstinence-based approaches (Greaves & Poole, 2007). Research also indicates holistic and single-access program models are most effective, particularly for supporting pregnant and early parenting women (Nathoo et al., 2013; Sword et al., 2009). However, more studies are needed to evaluate comprehensive interventions for Indigenous parents and families struggling with substance use beyond pregnancy. Indigenous mothers in the DTES of Vancouver, Canada have expressed concern that there is no "safe space" or services, such as parenting education and training, for them to access after their infants age out of pregnancy programs (Benoit et al., 2003). As an example, the Native American Health Center in the San Francisco Bay Area of California, USA offers a culturally safe and holistic system of care (HSC) integrating treatment, prevention, and recovery (Wright et al., 2011). Family services and positive parenting training are included as part of treatment and prevention for parents, in addition to culturally appropriate prevention, outpatient mental health, and substance abuse services (Nebelkopf & Wright, 2011).

In our review, only six articles (35%) evaluated interventions that included Indigenous fathers in the study population. There is a significant gap in the research literature evaluating services and interventions involving Indigenous fathers. In their review of family-centered programs within primary care settings, McCalman et al. also located few studies that included Indigenous fathers (McCalman et al., 2017). Within the context of the substance use literature, Indigenous women face specific barriers to accessing health services and may require gender-specific substance use treatment that address experiences of trauma and violence (Niccols et al., 2009). Parenting research has historically focused on women due to their traditional role as primary caregivers. However, Indigenous fathers also warrant further attention in the literature. Government policies including the residential school and child welfare systems have similarly

disrupted the intergenerational transmission of parenting among fathers (Ball & George, 2006). As a result of racism, incarceration and other social-historical inequities, Indigenous fathers are often excluded from contemporary family policies and community services for Indigenous families (Ball, 2010; Ball & George, 2006; Dennison, Smallbone, Stewart, Freiberg, & Teague, 2014). Research suggests that supporting Indigenous fathers foster resiliency within Indigenous families and play a protective role in children's wellbeing (Ball, 2010).

Overall, the small number of studies located for this review suggests that additional work is needed in this field. The relationship between historical trauma, mental health and addictions has been under recognized in substance use research with Indigenous peoples. Contemporary government policies have perpetuate a cycle of trauma, separation and loss in Indigenous families and communities (de Leeuw, Greenwood, & Cameron, 2009). Indigenous scholars suggest that some Indigenous communities may have elevated levels of substance use to cope with unresolved grief from intergenerational, historical and lifetime trauma (Brave Heart, 2003; Duran & Duran, 1995). Further, these experiences of violence, racism, and discrimination have contributed to complex trauma, PTSD and disrupted attachment among Indigenous families (O'Neill et al., 2016). Given the intergenerational effects of colonialism, greater acknowledgement of the role of trauma in parental substance use is needed to inform services and interventions for Indigenous families. Indigenous mothers in Canada disproportionately have their child taken away for using drugs or alcohol, but do not receive support to address the root cause of their substance use or regain custody of their children (Baskin, Strike, & McPherson, 2015). Additional studies are needed to evaluate the implementation and efficacy of culturally safe programs to support Indigenous parents struggling with substance use and their families.

Services and interventions for Indigenous parents and families who have struggled with substance use must be culturally safe, violence- and trauma-informed.

2.5 Conclusion

Overall, the results of this review provide evidence for the importance of culturally safe services and interventions to promote positive outcomes among Indigenous families involved in substance use. Culturally based and harm reduction approaches to treatment that focus on holistic health and wellness have the potential to break cycles of intergenerational trauma within Indigenous families. However, the limited number of studies identified in the review indicates that additional research on this topic is urgently required. This research should employ rigorous study designs to evaluate the long-term efficacy of interventions and explore the implementation of services across diverse contexts. We also urge researchers to consider strengths-based measures and measures incorporating Indigenous knowledge to evaluate these interventions (Fogarty et al., 2018; M. Marshall et al., 2018). The health and wellness of Indigenous families must be understood within the political and historical context of colonialism. Greater acknowledgement of intergenerational, historical and lifetime trauma within the health and social care systems is necessary to support and strengthen Indigenous families.

Chapter 3: Child apprehension and suicide attempt among young Indigenous mothers who have used drugs in two Canadian cities

3.1 Introduction

Indigenous leaders are deeply concerned by the overrepresentation of Indigenous children in Canada's child welfare system. In 2015, the Truth and Reconciliation Commission of Canada called upon the federal, provincial, territorial, and Indigenous governments to reduce the number of Indigenous children in care (Truth and Reconciliation Commission of Canada, 2015). Research indicates that children and youth who grow up in foster care have poorer outcomes overall compared to those in the general population, including in health, education, employment, income, housing, criminal justice involvement, and substance use (Gypen et al., 2017). Epidemiological research suggests that involvement in the child welfare system is associated with increased risk of HIV and other negative health outcomes among Indigenous young people who use drugs (Clarkson et al., 2015). There is also emerging evidence to suggests that having a child taken into foster care adversely impacts mothers' health outcomes. Mothers who have used drugs can experience deteriorating mental health, symptoms of post-traumatic stress, and increased drugs and alcohol use to cope with losing child custody (Duff et al., 2014; Kenny et al., 2015; Raskin, 1992; Shahram et al., 2017). These symptoms are compounded by histories of complex trauma and the pain of ongoing separation from children (Kenny et al., 2015).

Indigenous leaders and child welfare advocates have long argued that the contemporary child welfare system continues a colonial legacy of separating Indigenous children and families (Fournier & Crey, 1997; Union of B.C. Indian Chiefs, 2002). Between 1874 and 1996, government and church authorities forcefully removed more than 150,000 First Nation, Métis,

and Inuit children from their families and communities to attend residential schools (Milloy, 1999). The primary intent of residential schools was to assimilate and sever Indigenous children from their communities, culture, and identity (Royal Commission on Aboriginal Peoples, 1996; Milloy, 1999; Truth and Reconciliation Commission of Canada, 2015). Indigenous children experienced widespread physical, emotional, and sexual abuse and neglect while attending residential schools (Milloy, 1999; Truth and Reconciliation Commission of Canada, 2015). From the 1960s to 1980s, a further 20,000 Indigenous children were apprehended and placed in the child welfare system (Fournier & Crey, 1997). Known as the "Sixties Scoop," this systematic, nation-wide policy placed Indigenous children in foster care or adoption arrangements with White families outside their communities. Indigenous children continued to experience widespread abuse and neglect within the child welfare system (Fournier & Crey, 1997; Truth and Reconciliation Commission of Canada, 2015). In 2016, Indigenous children and youth represented 60% of the total children and youth in British Columbia's child welfare system (John, 2016). Compared to their non-Indigenous peers, Indigenous children and youth were 15 times more likely to be placed in care (John, 2016). Indigenous mothers often face barriers and must "jump through hoops" to regain custody of their children (Bennett, 2008).

The overrepresentation of Indigenous children in care must be understood from a social determinants of health perspective (Greenwood & de Leeuw, 2012). Indigenous peoples carry a disproportionate burden of poor health and disease in Canada, which is rooted in social, political, economic and cultural inequalities (Adelson, 2005). The vast majority of Indigenous families become involved in the child welfare system as a result of substance use, poverty, and inadequate housing (Sinha et al., 2013; Sinha et al., 2011; Trocmé et al., 2004). In 2016, the Canadian Human Rights Tribunal ruled that Indigenous and Norther Affairs Canada (INAC)

discriminated against Indigenous children and families through the First Nations Child and Family Services (FNCFS) program and Jordan's Principle ("FNCFCSC et al. v. Attorney General of Canada," 2016). According to the Tribunal, narrow application of Jordan's Principle and the funding formula Directive 20-1 prevented Indigenous child welfare agencies from providing comparable child and family services on reserves ("FNCFCSC et al. v. Attorney General of Canada," 2016). On average, Indigenous children and youth on reserves received 22% less funding per capita through Directive 20-1 compared to other Canadian children ("FNCFCSC et al. v. Attorney General of Canada," 2016). Furthermore, Directive 20-1 incentivized placing Indigenous children in foster care by underfunding prevention and early intervention services for Indigenous families living on reserves ("FNCFCSC et al. v. Attorney General of Canada," 2016). Canada was ordered to immediately close the gap in funding, fully implement an expanded definition of Jordan's Principle, and reform the FNCFS program ("FNCFCSC et al. v. Attorney General of Canada," 2016).

Indigenous scholars describe historical and intergenerational trauma among Indigenous peoples as the experience of compounding traumatic events due to colonization over generations and the lifespan (Brave Heart, 2003). These traumatic events include forced displacement from traditional lands, epidemics and diseases introduced by European settlement, suppression of traditional culture and language, and the dismantling of Indigenous families through the residential school and child welfare systems (Royal Commission on Aboriginal Peoples, 1996; Truth and Reconciliation Commission of Canada, 2015). Teresa Evans-Campbell suggests that effects from historically traumatic events are transmitted to the next generation at the individual, family, and community level (Evans-Campbell, 2008). At the individual level, previous research from the Cedar Project indicates that Indigenous young people with unresolved grief from

historical and lifetime trauma are more likely to use drugs (Pearce et al., 2008), experience homelessness (Jongbloed et al., 2015) and sexual assault (Pearce et al., 2015), engage in high risk sex (Chavoshi et al., 2012) and survival sex work (Mehrabadi et al., 2007), attempt suicide (Moniruzzaman et al., 2009), and die prematurely (Jongbloed et al., 2017). At the family level, the residential school system disrupted traditional child-rearing and may have introduced negative parenting practices. At the community level, trauma responses to the loss of children over successive generations may include social disorder, emotional distress, elevated suicide rates, and loss of language, culture, and human capital (Evans-Campbell, 2008). Symptoms of intergenerational trauma are passed on to successive generations through biological, cultural, social and psychological pathways (Wesley-Esquimaux & Smolewski, 2004).

Indigenous scholars suggest that Indigenous peoples are taking their own lives as a community response to collective grief from historical and contemporary traumas (Duran & Duran, 1995). The rate of suicide among Indigenous youth is five to six times higher than the general population (Royal Commission on Aboriginal Peoples, 1995). Complex trauma, substance use, and mental health contributes to elevated suicide risk among Indigenous peoples (Kirmayer, 2007). Previous research indicates that historical and contemporary lifetime trauma is associated with suicide and suicidal behaviour among Indigenous peoples (Bombay et al., 2011; Evans-Campbell, Walters, Pearson, & Campbell, 2012; Moniruzzaman et al., 2009). In British Columbia, the BC Coroners Service and First Nations Health Authority reviewed unexpected death of 95 First Nations youth and young adults (age 15 to 24 years) between 2010-2015 and found that 32% (n=30) died by suicide. More than one quarter (27%, n=8) of the First Nations youth and young adults who died by suicide had previously attempted suicide. Further, more

than one-fifth (23%, n=22) were parents of young children and among those who died by suicide, more than one-quarter (27%, n=8) were parents (Egilson & McDonald, 2017).

Resilience is a strengths-based and culturally safe construct for understanding the impact of historical and intergenerational trauma within Indigenous communities (Fogarty et al., 2018; Stout & Kipling, 2003; van Uchelen et al., 1997). The concept of resilience is broadly defined within the tradition of psychology as positive adaptation in spite of adversity (Luthar et al., 2000). Resilience is the product of a person within a specific context that is culturally- and contextually-specific (Ungar, 2004, 2010). Recently, there has been growing interest in the study of resilience in the health literature among Indigenous populations (Fleming & Ledogar, 2008). At the community level, Indigenous scholars have conceptualized resilience as a process of healing from historical trauma and loss of culture through communication about the impact trauma and the promotion of cultural identity (Tousignant & Sioui, 2009). Research from the Cedar Project has affirmed quantitatively what Indigenous Elders have known since time immemorial: that traditional ways of knowing, language and culture foster resilience among young Indigenous people (Pearce et al., 2015). Rates of youth suicide are lower among First Nations communities in British Columbia with greater self-determination, ability to protect language and culture, control over land and resources, and education and health services (Chandler & Lalonde, 1998). Cultural loss is theorized as a mechanism for elevated rates of suicide among young Indigenous people, while cultural continuity may buffer against the risk of suicide.

3.1.1 The Present Study

The Cedar Project is an ongoing prospective cohort study involving 793 young Indigenous people who have used drugs in Vancouver and Prince George, BC, Canada (Pearce et al., 2015). Started in 2003, the study sims to understand historical and lifetime trauma experiences associated with HIV, HCV and other health outcomes among Indigenous young people. The Cedar Project is governed by a partnership comprised of Indigenous leaders and ultimately aims to produce scientific evidence in order to advocate for harm reduction and prevention services for Indigenous young people. Vancouver is the largest urban centre in BC and is located on the unceded traditional territory of the Coast Salish Peoples. According to the 2016 Census, 2.2 percent (n=13,905) of the population in Vancouver and 15.4 percent (n=11, 155) of the population in Prince George identified as First Nation, Metis, Inuk, or other Aboriginal identity (Statistics Canada, 2017). Prince George is a medium-sized urban centre located in the region of northern British Columbia on the unceded traditional territory of Lheidli T'enneh First Nation. During the 1980s, the DTES of Vancouver was the centre of an HIV epidemic in Canada. Despite advances in the treatment and prevention of HIV, Indigenous people remain over-represented in the HIV epidemic primarily through exposure to injection drug use (Public Health Agency of Canada, 2010). Concerned Indigenous leaders residing in Vancouver and Prince George invited the Cedar Project to address HIV and HCV infection among Indigenous people who used drugs.

Previous research from the Cedar Project indicates that having a parent attend residential school, child welfare involvement, and childhood sexual abuse is associated with long-term negative health outcomes (Clarkson et al., 2015; Pearce et al., 2015). However, no previous studies have considered the impact of having a child apprehended on young Indigenous mothers

challenged by substance use and histories of multiple traumas. To our knowledge, no previous epidemiological studies have longitudinally explored the association between child apprehension, cultural strengths, and suicidal behaviour among young Indigenous women. This study aimed to describe the incidence of child apprehension and examine the relationship with suicide attempt among young Indigenous women who have used drugs in Vancouver and Prince George, BC, Canada. In addition, a range of protective and risk factors for suicide attempt were examined including historical and lifetime trauma, cultural connectedness, and drug- and sexual-related vulnerabilities.

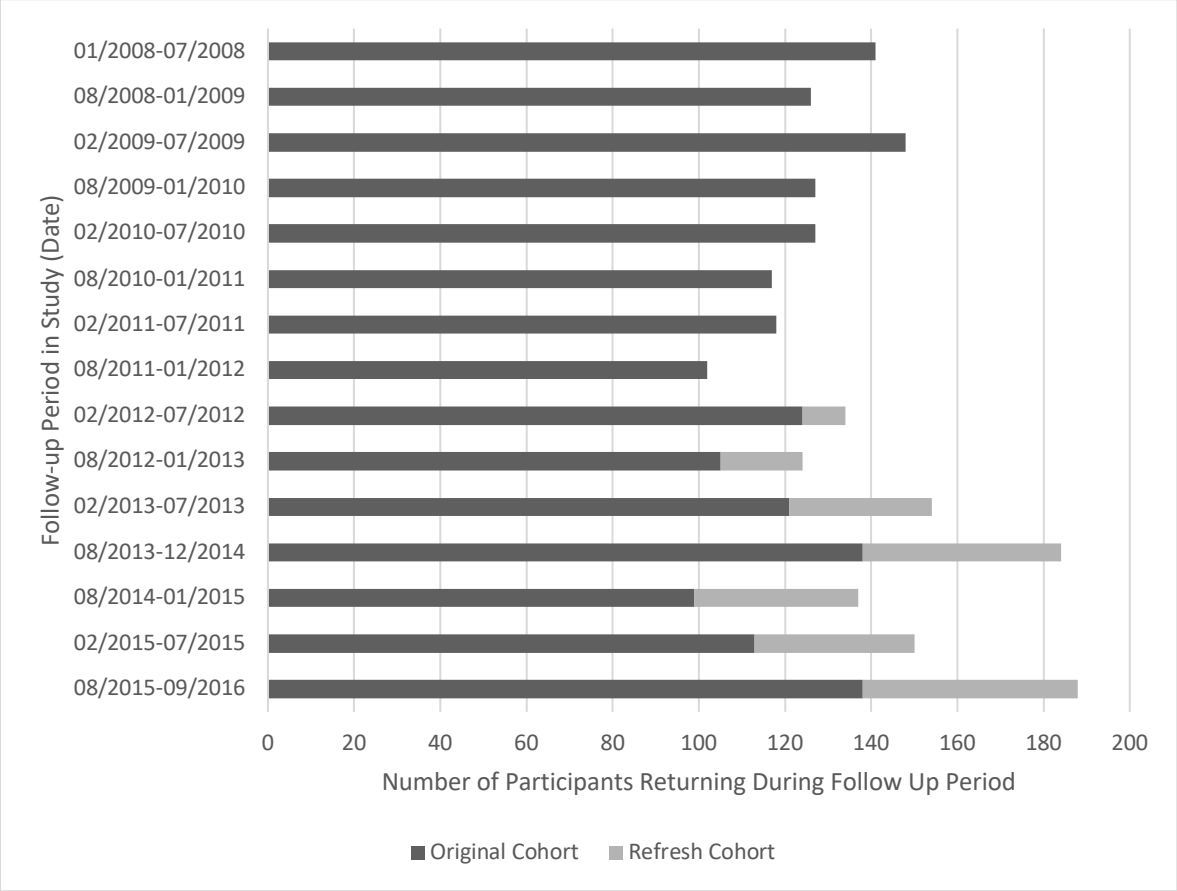
3.2 Methods

3.2.1 Sample

Study eligibility criteria stipulated that participants must self-identify as Indigenous, be between the ages of 14 and 30, and have smoked or injected illicit drugs including methamphetamine, crack, heroin, cocaine or other drugs in the month prior to enrolment. Saliva Screens (Oral-screen, Avatar Onsite Diagnostics) were administered to confirm drug use. Indigenous identity for this study was defined as descending from First Nations Peoples of North America and included Métis, Aboriginal, First Nations, Inuit and Status and non-Status Indians. Participants were recruited through referral by health care workers, community outreach, and word of mouth. The present study was restricted to female participants who returned for follow-up visits from January 2008 to October 2016, since the Cedar Project did not collect longitudinal information on child apprehension prior to 2008. Among the 405 female participants enrolled in the study, 37% of were excluded because they did not return for at least two follow-up visits between January 2008 and October 2016. Compared to eligible participants who returned for at

least two follow up visits during the study period, there were no significant differences in the mean age (p=0.472), history of either parent attending residential schools (p=0.336), history of injection drug use (p=0.436) or number of suicide attempts (p=0.105) among participants lost to follow-up at the 5% level.

Figure 3 Distribution of Female Participants Returning During Follow-up Periods, January 2008 – October 2016



Data Collection Procedures

Baseline data was collected between 2003 and 2005 in Vancouver and Prince George, and then again in 2011. At enrolment, all participants met with an Indigenous study coordinator

who described the study, confirmed eligibility, and requested informed consented after explaining the potential benefits and harms associated with participation (Spittal et al., 2007). The study coordinator made clear that participants had the option to be interviewed by an Indigenous person if preferred or by a trusted confidant to protect confidentiality in small communities. Eligible participants completed interviewer-administered questionnaires measuring sociodemographic characteristics, injection and non-injection drug use, sexual risk behaviors, service utilization, and mental and social issues. Venous blood samples were drawn and tested for HIV and Hepatitis C infections. Participants also completed pre/post-test counselling with a trained nurse who could refer them to HIV and hepatitis C care. Study interviewers and nurses carried out follow-up questionnaires, blood testing, and pre/post-test counselling every six months. While participants were strongly encouraged to return for their test results, this was not a requirement for continued participation in the study. Participants received an honorarium after each study visit.

3.2.2 Measures

Study variables were selected for this analysis based on previous methodological or empirical considerations. All variables were derived from the Cedar Project baseline and follow-up questionnaires. Time-varying variables were collected during follow-up visits every six months ('recent') unless otherwise specified.

Child apprehension. The primary predictor variable of interest in this study was recent child apprehension. We defined recent child apprehension in this study as having a child apprehended by the Ministry of Child and Family Development since last study visit. Cedar

Project nurses asked participants during a pre-test counselling interview at each study visit, "Since your last visit, have any of your children been apprehended by the Ministry of Child and Family Development?" Response options were yes, no, unsure, and refused.

Suicidal behaviour. The primary outcome variable of interest was recent suicidal behaviour. We defined recent suicidal behaviour as attempting suicide in the past 6 months. Cedar Project nurses asked participants during a pre-test counselling interview during each study visit, "Have you attempted suicide in the last 6 months?" Response options were yes, no, unsure, and refused. Cedar project staff receive suicide intervention training to determine the immediacy of suicidal thoughts and/or behaviour. Participants who were actively suicidal were hospitalized for psychiatric care. Participants who were not actively suicidal agreed to a verbal contract not to hurt themselves and were referred to additional services if requested by the participant.

Cultural connectedness. We defined cultural connectedness in this study as having a traditional language spoken in the home growing up. Interviewers asked participants at each study visit, "When you were growing up, how often was your traditional language spoken in your house?" Response options were always, often, rarely, never, unsure, and refused. Culture variables in Cedar Project questionnaires were conceptualized by two Indigenous Elders who are traditional knowledge keepers and members of the Cedar Project Partnership (Pearce et al., 2015). We created a time-invariant variable to preserve the number of cases for the analysis. First, participants who ever answered "always" or "often" to the question were coded as always/often. Second, the remaining participants who ever answered "never" or rarely" to the question were coded as rarely/never.

Historical trauma. As in previous Cedar Project studies, we defined historical trauma as having at least one parent who attended residential school or the participant ever being taken from biological parents (Pearce, 2008). Interviewers asked participants at baseline, "Do you know if your biological parents attended residential school?" and "Were you ever taken from your biological parents?"

Other study variables. Time-invariant variables included: education (less than high school vs. high school or higher), sexual identity (LGBTQ2S vs. heterosexual), interview location (Vancouver/Prince George), age when first taken from biological parents (years), ever forced to have sex (yes/no), age of first sexual abuse (years), and age of first non-injection drug use (years). Childhood sexual abuse was defined as any type of sexual activity that was forced or coerced (including, molestation, rape and sexual assault). Time-invariant indicators of mental health included ever thought about suicide (yes/no), ever attempted suicide (yes/no), and ever self-harmed (yes/no).

Time-varying variables included: age (years), relationship status (single vs. in a relationship), initiation of injection drug use (yes vs. no), age of first injection drug use (years), frequency of drug use (less than daily vs. daily or more), binge drinking (yes vs. no), overdose (yes vs. no), homelessness (yes vs. no), jail/incarceration (yes vs. no), recent sexual assault (yes vs. no), recent violence (yes vs. no), sex work (yes vs.no), and receiving alcohol or drug treatment (yes vs. no). Binge drinking was defined as drinking alcohol more than usual. Homelessness was defined as having spent at least three nights on the street or not having anywhere to go for three days in a row or longer. Jail/incarceration was defined as having been in

detention, jail, or prison overnight or longer. Recent sexual assault was defined as being touched where you're not supposed to be without your consent or forced to have sex against your will. Violence was defined being attacked, assaulted, or experiencing any kind of violence without your consent. Sex work (yes/no) was considered an indicator of a sexual vulnerability. Sex work was defined as receiving money, goods, drugs, shelter or anything else in exchange for sex.

3.2.3 Statistical Analysis

Incidence of child apprehensions and suicide attempts were calculated using person-time methods. Since the Cedar Project questionnaires evaluate suicide attempt within the past six months, the exact date of each suicide attempt is unknown and estimated as the mid-point of the follow-up period.

To study the independent effect of child apprehension on suicide attempt, a Cox proportional-hazards regression model (Cox, 1972) was used to model the relationship between the predictor and the outcome of interest. The Cox proportional-hazards regression stipulates that covariates have a proportional effect on the hazard function for an individual over the study period. Since suicide attempt occurred more than once for some participants over the study period, an extended Cox proportional-hazards regression model for recurrent events (Andersen & Gill, 1982) was chosen to incorporate all available information on the event of interest and provide a more accurate effect estimate of the predictor of interest. The extended Cox model for recurrent events uses a time-transformed Poisson process to count time until the recurrent event. Time-dependent covariates are incorporated by including each follow up for an individual as a separate record in the dataset. With recurrent event survival analysis, recurrent events are treated as independent and participants are censored at the last follow up (i.e. loss to follow up or study

end date). Robust estimation was used to adjust the variance for estimated coefficients of correlated data from the same individual. In this model, we defined time to recurrent event as time zero to first suicide attempt, time from first suicide attempt to second suicide attempt, and continued until time of censoring.

Variable selection followed an *a priori* approach using forward and backward selection. Unadjusted hazard ratio estimates were obtained for each predictor of interest on time to suicide attempt. All variables with bivariate models significant at the $p < 0.10$ level were included in a multivariate model. Having a traditional language spoken in the house growing up was not significant at the 10% level ($p=0.217$), but was included in the multivariate model to account for the established protective effect of language and culture on suicide attempt among this population (Chandler & Lalonde, 1998; Hallett, Chandler, & Lalonde, 2007; McIvor, Napoleon, & Dickie, 2009). Recent alcohol binging ($p=0.150$) was also considered in the multivariable model based on previous evidence indicating heavy alcohol use is a risk factor for suicide attempt among people who use illicit drugs (Kennedy et al., 2015). Only variables selected through forward and backward selection in the multivariate model were reported in the final model. Model diagnostics were performed on all covariates in the multivariable model to confirm the fitted Cox model for recurrent events adequately described that data. Proportional hazards were confirmed by examining plots of the scaled Schoenfeld residuals against transformed time for each covariate (Grambsch & Therneau, 1994).

3.2.4 Ethical Considerations

The Cedar Project Partnership, a group of Indigenous collaborators and investigators, govern the entire research process for the Cedar Project. The partnership assures ethical standards are met, informs the Cedar Project research design and paradigm, identifies analyses and interprets results, controls communication and media strategies, and develops recommendations for programming. This study followed the principles of Ownership, Control, Access, and Possession (OCAP®) and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans with emphasis on Chapter 9, which provides ethical guidelines for research involving Indigenous peoples. The University of British Columbia Human Ethics Board approved the study (certificate number H17-02201) on February 23, 2018.

3.3 Results

Among the 293 eligible participants, 212 (74%) reported ever being pregnant and 206 (70%) were mothers at the first study visit (Table 7). Among mothers, 107 (52%) reported ever having a child apprehended by the Ministry of Child and Family Development and only 23 (11%) had all of their children living with them. At first study visit, 37 (18%) of mothers were caring for at least one of their children, 54 (26%) had at least on child in foster care, 52 (25%) had at least one child living with the mother's family, 30 (15%) had at least one child who was adopted, 21 (10%) had at least on child living with the father, and 28 (14%) had children with other living arrangements.

At the first study visit, the median age of participants was 27 years old (IQR: 24 – 30). Among these participants, 163 (56%) resided in Prince George and 129 (44%) resided in Vancouver (Table 8). There were 137 (47%) participants who had at least one parent attend

residential school and 209 (72%) who previously came into contact with the child welfare system when they were taken from their biological parents. The median age that participants were first separated from their biological parents was 5 years old (IQR: 2 – 8). A total of 193 participants (66%) experienced sexual abuse. The median age of first sexual abuse was 6.5 years old (IQR: 5 – 10). Half (51%) of participants had ever thought about suicide and just less than half (44%) had attempted suicide prior to the study period. Many participants also experienced homelessness (66%), incarceration (50%), and sex work involvement (68%). At first visit during the present study period, 243 (88%) of participants had used non-injections drugs recently. The median age of first non-injection drug use was 16 years old (IQR: 13 – 18) and 168 (58%) had ever injected drugs. Additionally, 98 participants (34%) had overdosed on drugs before the study period. Almost three quarters (73%) of participants had ever received alcohol or drug treatment and half (52%) reported having a traditional language spoken in the house growing up.

Table 7 Child apprehension and child living arrangements among female Cedar project participants (n=293) at first study visit, 2008-2016

Characteristics	**n (%)**
Ever been pregnant	
Yes	212 (72)
No	59 (20)
Unsure/Refused/Missing	22 (8)
Ever had a child apprehended by the Ministry of Child & Family Development	
Yes	107 (37)
No, but has children	99 (34)
No children	51 (17)
Unsure/Refused/Missing	36 (12)
Where children are living at first study visit*	
With mother	37 (18)
With father	21 (10)
With mother's family	52 (25)
With father's family	35 (17)
Foster care	54 (26)
Adopted	30 (15)
Other	28 (14)

**Note:* Categories are not mutually exclusive (e.g. participants can be included in more than one category if they may have more than one child).

Table 8 Comparison of baseline characteristics among female Cedar Project participants who reported suicide attempt (n=61) and those who did not (n=226) during the study period, 2008-2016

Characteristic	Suicide Attempt n (%)	No Suicide Attempt n (%)	Total n (%)
Demographic			
Interview location			
Prince George	45 (74)	116 (51)	163 (56)
Vancouver	16 (26)	110 (49)	129 (44)
Age (Median, IQR)	27 (23, 29)	27 (24, 30)	27 (24, 30)
Education			
Less than high school	49 (84)	186 (84)	239 (84)
High school or more	9 (16)	36 (16)	45 (16)
Sexual orientation			
Heterosexual	46 (75)	195 (86)	145 (84)
LGBTQ2S	15 (25)	32 (14)	48 (16)
Relationship status			
Single	28 (46)	106 (48)	138 (48)
In a relationship	33 (54)	116 (52)	150 (52)
Trauma			
Either parent attended residential school			
No	12 (20)	72 (32)	85 (29)
Yes	37 (60)	99 (44)	137 (47)
Unsure	12 (20)	54 (24)	69 (24)
Ever removed from biological parents			
No	13 (34)	68 (30)	83 (28)
Yes	48 (79)	158 (70)	209 (72)
Age removed from biological parents (Median, IQR)	5 (1, 7)	5 (2, 9)	5 (2, 8)
Ever forced to have sex			
No	14 (23)	81 (36)	96 (34)
Yes	46 (77)	143 (64)	193 (66)
Age of first sexual abuse (Median, IQR)	7 (5, 11.5)	6 (4, 10)	6.5 (5, 10)
Ever thought about suicide			
No	17 (30)	106 (50)	125 (46)
Yes	40 (70)	105 (50)	148 (54)
Ever attempted suicide			
No	21 (37)	134 (64)	162 (56)
Yes	36 (63)	77 (36)	129 (44)

Characteristic	Suicide Attempt n (%)	No Suicide Attempt n (%)	Total n (%)
Ever self-harmed			
No	23 (40)	127 (60)	154 (57)
Yes	34 (60)	83 (40)	118 (43)
Ever slept on the street for >3 nights			
No	18 (30)	77 (34)	98 (34)
Yes	42 (70)	148 (66)	192 (66)
Ever in prison overnight			
No	32 (53)	109 (48)	145 (50)
Yes	29 (48)	117 (52)	147 (50)
Substance use			
Age at first non-injection drug use (Median, IQR)	14 (13, 17)	16 (13, 18)	16 (13, 18)
Ever injected drugs			
No	29 (48)	93 (41)	124 (42)
Yes	32 (52)	133 (59)	168 (58)
Age at first injection drug use (Median, IQR)	17 (15, 20)	17 (15, 21)	17 (15, 20)
Ever overdosed			
No	30 (49)	156 (70)	186 (65)
Yes	31 (51)	66 (30)	98 (35)
Sexual vulnerability			
Ever involved in sex work			
No	17 (28)	73 (32)	92 (32)
Yes	44 (72)	152 (67)	199 (68)
Protective factors			
Traditional language spoken in house growing up			
Never/rarely	23 (40)	93 (45)	118 (44)
Always/often	34 (60)	114 (55)	151 (56)
Ever had alcohol or drug treatment			
No	12 (20)	61 (27)	76 (26)
Yes	47 (80)	164 (73)	213 (74)

Longitudinal data demonstrated that, over the 8-year study period comprised of 1174 person-years, 78 (27%) participants who returned for at least two follow up visits reported a combined total of 136 child apprehensions. The incidence rate[4] was 6.64 (95% CI: 5.25, 8.29) child apprehensions per 100 person-years. 47 participants (16%) who returned for at least two follow up visits reported a combined total of 75 suicide attempts. The corresponding incidence rate[5] was 4.00 (95% CI: 2.94, 5.33) suicide attempts per 100 person-years. Table 9 shows factors associated with time to suicide attempt in bivariate cox regression analyses.

In the multivariable cox regression analysis (Table 10), participants who reported recent child apprehension were twice as likely to attempt suicide (HR: 2.0, 95% CI: 1.0, 4.1) even after accounting for potential confounders. Participants who had a parent attend residential school were more than four times more likely to attempt suicide (HR: 4.2, 95% CI: 2.0, 9.0). Furthermore, participants who experienced recent sexual assault (HR: 3.9, 95% CI: 2.0, 7.9), violence (HR: 2.6, 95% CI: 1.5, 4.4), and overdose (HR: 4.3, 95% CI: 2.1, 8.1) were approximately two and half to four times more likely to attempt suicide. Participants residing in Prince George were also over two time more likely to attempt suicide than participants residing in Vancouver (HR: 2.4, 95% CI: 1.1, 5.2). Participants who were older (HR: 0.9, CI: 0.8, 1.0) and who had a traditional language spoken in their house growing up (HR: 0.6, 95% CI: 0.3, 0.9) were less likely to attempt suicide.

[4] Rate of first event of child apprehension.
[5] Rate of first event of attempted suicide.

Table 9 Unadjusted hazard ratios of suicide attempt during the study period for selected variables among female Cedar Project participants, 2008-2016

Characteristic	Hazard Ratio (95% CI)	*p* Value
Demographic		
Age (Median, IQR)	0.9 (0.8, 1.0)	0.003
Interview location, Prince George	2.6 (1.3, 6.0)	0.012
Education, Less than high school	0.8 (0.1, 1.9)	0.540
Sexual orientation, LGBTQ2S	2.3 (1.3, 4.1)	0.006
Relationship status, Single	1.1 (0.6, 1.9)	0.763
Trauma		
Either parent attended residential school		
Unsure	1.0 (0.4, 2.5)	0.979
Yes	2.0 (0.9, 4.3)	0.093
Ever removed from biological parents	1.9 (0.9, 4.2)	0.095
Age removed from biological parents (< cohort median)	0.8 (0.4, 1.6)	0.486
Ever sexually abused	1.5 (1.0, 2.1)	0.042
Age of first sexual abuse (< cohort median)	1.0 (0.5, 2.2)	0.988
Child apprehended since last visit	2.0 (1.1, 3.8)	0.036
Experienced violence (recent)	3.6 (2.2, 6.0)	<0.001
Sexual assault (recent)	5.3 (2.8, 9.8)	<0.001
Homelessness (recent)	2.0 (1.2, 3.5)	0.010
Incarceration (recent)	1.7 (0.9, 3.0)	0.088
Substance use		
Age at first non-injection drug use (< cohort median)	0.9 (0.8, 1.0)	0.185
Ever injected drugs	0.7 (0.4, 1.2)	0.194
Injection drug use (recent)	1.4 (0.8, 2.4)	0.260
Age at first injection drug use (< cohort median)	0.8 (0.3, 1.8)	0.532
≥Daily non-injection crack (recent)	0.8 (0.4, 1.5)	0.472
≥Daily non-injection crystal methamphetamine (recent)	2.2 (1.1, 4.6)	0.028
≥Daily injection cocaine (recent)	1.2 (0.4, 5.1)	0.046
≥Daily injection crystal methamphetamine (recent)	2.3 (1.0, 4.7)	0.063
≥Daily injection opiates (recent)	0.9 (0.5, 1.6)	0.720
≥Daily injection heroin (recent)	0.9 (0.5, 1.7)	0.706
Overdose (recent)	6.7 (4.1, 11.0)	<0.001
Binge alcohol (recent)	1.6 (0.8, 3.0)	0.150
Sexual vulnerability		
Involved in sex work (recent)	2.1 (1.2, 3.6)	0.006
Protective Factors		
Traditional language spoken in house growing up, always/often	0.7 (0.4, 1.3)	0.217
Alcohol or drug treatment (recent)	1.1 (0.7, 1.9)	0.679

Table 10 Multivariable stepwise analysis of variables associated with suicide attempt during the study period among female Cedar Project participants, 2008-2016

Variable	Hazard Ratio (95% CI)	*p* Value
Age	0.9 (0.8, 1.0)	0.001
Interview location, Prince George	2.4 (1.1, 5.2)	0.028
Sexual orientation, LGBTQ2S	1.7 (0.9, 3.1)	0.099
Either parent attended residential school	4.2 (2.0, 9.0)	<0.001
Child apprehended since last visit	2.0 (1.0, 4.1)	0.048
Violence (recent)	2.6 (1.5, 4.4)	<0.001
Sexual assault (recent)	3.9 (2.0, 7.9)	<0.001
Overdosed (recent)	4.3 (2.1, 8.1)	<0.001
Traditional language spoken in house growing up	0.6 (0.3, 0.9)	0.029

3.4 Discussion

This study demonstrated that young Indigenous mothers who use drugs in BC are having their children apprehended by the Ministry of Child and Family Development at a shocking rate. We discovered an incidence rate[6] of 6.64 child apprehensions per 100 person-years. The Cedar Project prioritizes understanding historical and lifetime trauma experiences associated with health outcomes among Indigenous young people. In this study, Indigenous women who recently had a child apprehended are twice as likely to attempt suicide, even after controlling for demographics, past and recent traumas, substance use, and sexual vulnerabilities. Previous research from the Cedar Project provides evidence to suggest that child welfare involvement is associated with long-term negative health outcomes (Clarkson et al., 2015; Pearce et al., 2015). However, no previous studies have examined the impact of having a child apprehended on young Indigenous mothers entrenched in substance use and complex trauma. This study provides evidence to suggest that separating mothers from their children adversely impacts the health and wellbeing of mothers. These findings are highly relevant in light of the nation-wide

[6] Rate of first event of child apprehension.

overrepresentation of Indigenous children in child welfare in Canada. More trauma-focused and culturally appropriate health and social welfare services are urgently needed to support young Indigenous mothers and their children.

Indigenous young people are rejecting life as an expression of loss, grief and anger, which is rooted in their deep-seated discontent and disadvantage within Canadian society (Adelson, 2005; Chandler & Lalonde, 1998; Harder, Rash, Holyk, Jovel, & Harder, 2012; Kirmayer, 2007; Royal Commission on Aboriginal Peoples, 1995). The raw incidence rate of suicide attempt for young Indigenous women in the study is 4.0 cases per 100 person-years. Study participants who had a parent attend residential school were 4.2 times more likely to attempt suicide than those who did not have a parent attend residential school. As well, participants who recently experienced sexual assault were 3.9 times more likely to attempt suicide, while those who recently experienced physical violence were 2.6 times more likely. Previous research has suggested that young Indigenous women are more likely to attempt suicide, while Indigenous young men are more likely to commit suicide compared to young people in the general population (Kirmayer, 2007). However, research from the Cedar Project indicates that young Indigenous women who have used drugs are both more likely to attempt suicide (Moniruzzaman et al., 2009) and take their own lives (Jongbloed et al., 2017) compared to their male counterparts. If they have ever attempted suicide, young Indigenous women who have used drugs are also nearly twice as likely to die from avoidable causes compared to young Indigenous men (Jongbloed et al., 2017). These findings speak to the intersection of gender in the complex role of historical and lifetime trauma in suicide risk among Indigenous young people. Suicide prevention efforts targeting Indigenous young people must actively engage women in developing trauma-informed, violence-informed and culturally safe services.

In this study, suicide attempt among Indigenous young women was also correlated with recent overdose. Young Indigenous women who reported overdosing in the past 6 months are 4.3 times more likely to attempt suicide. Previous research from the Cedar Project has found that overdose was the method of as many as 35% of suicide attempts (Moniruzzaman et al., 2009). These finding suggests that Indigenous young people may be overdosing as a method to kill themselves (Jongbloed et al., 2017; Moniruzzaman et al., 2009). In addition, young Indigenous women in this study who resided in Prince George were 2.4 times as likely to attempt suicide compared to women who resided in Vancouver after controlling for other confounders. The Cedar Project has previously observed elevated risk of suicidal behaviour in Prince George (Moniruzzaman et al., 2009). However, there have not been any observed difference in mortality due to suicide among Indigenous young people residing in these two Canadian cities (Egilson & McDonald, 2017). These findings indicate that additional mental wellness resources are urgently needed for Indigenous women living in rural and northern communities in BC.

Importantly, our findings suggest that tradition and culture have the potential to protect against suicidal behaviour among young Indigenous women who have used drugs. Participants who reported a traditional language was spoken in the home growing up were almost half as likely to attempt suicide during the study period. Indigenous leaders and scholars have long argued that cultural identity is the foundation of mental wellness and suicide prevention for Indigenous young peoples (Harder et al., 2012). Indigenous health researchers have conceptualized culture as a resource for resilience in the individual or community to respond positively despite adversity and colonization (Fleming & Ledogar, 2008). Walters, Simoni and Evans-Campbell (2002) incorporate cultural resilience in an ‘Indigenist’ stress-coping model for understanding the impact of historical and contemporary discrimination in relation to Indigenous

women's health and mental health outcomes. The effect of life stressors (e.g. historical and lifetime trauma) on Indigenous women's health are moderated by protective factors such as family and community, spirituality, traditional healing practices and Indigenous identity (Simoni, Sehgal, & Walters, 2004; Walters et al., 2002). In one study, BC First Nations communities with greater control over traditional lands, self-government, cultural facilities, and education, emergency and health services had lower rates of youth suicide in British Columbia (Chandler & Lalonde, 1998). In another study, BC First Nations communities with higher levels of traditional language knowledge (fluent speaking abilities) had lower rates of youth suicide (Hallett et al., 2007).

Indigenous leaders have called for jurisdictional control over child welfare services as a human right to protect their children and families (Union of B.C. Indian Chiefs, 2002). The Splatsin people of the Secwepemc Nation in British Columbia were the first and only Indigenous government to create child welfare legislation through a band by-law in 1980. The Splatsin people were alarmed by the high proportion of their children being apprehended and placed in homes outside of their community. The legislation recognized the exclusive Splatsin jurisdiction over Indigenous child custody proceedings according to Splatsin laws, traditions and customs (Spallumcheen Indian Band, 1980). Since 2016, INAC has moved slowly to implement the reforms outlined in the Canadian Human Rights Tribunal ruling and received three non-compliance orders (Marsh & Karabit, 2018). Repealing Directive 20-1 and fully implementing Jordan's Principle will guarantee all Indigenous children receive equitable health and social services (Assembly of First Nations, 2015). In January 2018, the federal government hosted an emergency meeting regarding Indigenous Child and Family Services in Ottawa, Ontario, Canada for Indigenous leaders and child advocates. Key areas of reform and recommendations identified

included 1) increased, flexible, directed funding; 2) effective collaboration through partnerships, transference of jurisdictional control and legislative reform; and 3) culturally appropriate, prevention-focused, needs based service delivery (McKay et al., 2018).

3.4.1 Limitations

There are various important limitations to this study. First, the findings are based on data from a non-random sample. Random sampling was not feasible due to the hard to reach nature of this population. Further, the Cedar Project is unable to determine how many eligible participants would choose not to participate in the study. While these limitations may potentially increase selection bias and decrease the external validity of the results, the sample is likely representative of the population (Spittal et al., 2007). Members of the Cedar Project team are highly qualified and well-connected with the community, making every effort to reach as many Indigenous young people who use drugs. Similar findings from other studies exploring suicide risk and protective factors among Indigenous young people suggest the results are likely generalizable to other contexts in British Columbia (Chandler & Lalonde, 1998; Tourand, Smith, Poon, Stewart, & Society, 2016). Second, the findings are based on self-reported data, therefore recall bias, social desirability bias, and misclassification bias are possible.

Third, males were not included in the present analysis. Future research examining the child welfare system among Indigenous families should collect information from fathers and report gender-stratified findings. Fourth, the analysis was unable to control for some important factors associated with suicidal behaviour in this population. Additional information on social support, attachment, and maternal mental health indicators including PTSD and depressive symptoms were not available or collected for the duration of the study period. Finally, while our

study adjusted for potential confounders, as in most studies, confounding could explain some of the association between recent child apprehension and suicide attempt in this study. To our knowledge, this is the first empirical study to find that traditional language enculturation may protect against suicidal behaviour among young Indigenous women entrenched in substance use. However, there is a possibility that this finding could be due to other unmeasured factors related to cultural connectedness directly or indirectly associated with the outcome. Our results should therefore be interpreted with care.

3.5 Conclusion

The overrepresentation of Indigenous children in Canada's child welfare system is a public health and human rights issue. The rate of child apprehensions among Indigenous mothers who have used drugs reported in this study is disquieting and must be viewed as a colonial act. This study emphasizes that young Indigenous mothers who have used drugs continue to be affected by historical and present-day injustices and face barriers to maintaining custody of their children. Child apprehension is harmful to the health of these mothers, who are more likely to attempt taking their own lives after recent separation from their children. Child welfare involvement must therefore be understood as a social determinant of Indigenous peoples' health. Despite these challenges, Indigenous spirituality, language, tradition and culture have endured and serve as the foundation of resilience and resistance among young Indigenous women who have used drugs (First Nations Health Authority, 2013; Health Canada, 2015; King, Gracey, & Smith, 2009; Walters et al., 2002). Indigenous self-determination over child welfare is critical to the future health of Indigenous children, families and communities.

Chapter 4: Conclusion

The purpose of this thesis was to explore health related outcomes associated with having a child apprehended in the child welfare system among young Indigenous mothers who use drugs in British Columbia, Canada. This thesis situated the child welfare system and associated health outcomes within the context of historical and intergenerational trauma. Additionally, it examined interventions and programs in Canada, Australia, New Zealand, and the United States to support Indigenous families involved in substance use.

This thesis had two aims. First, a scoping review was conducted of the research literature on services and interventions supporting Indigenous families involved in substance use in Canada, Australia, New Zealand and the United States. Second, the incidence of child apprehension was described and the association between child apprehension and suicidal behaviour was estimated among 293 young Indigenous women who have used drugs in Vancouver and Prince George, BC, Canada. It was hypothesized that the incidence of child apprehension among young Indigenous mothers who have used drugs would be higher than Indigenous and Canadian mothers generally, since this population faces complex and intersecting risk factors for having a child apprehended and placed in care. As well, it was hypothesized that recent child apprehension would be independently associated with suicidal behaviour, given increasing evidence that mothers experience severe phycological distress after losing child custody.

4.1 Summary of results

In summary, there was evidence supporting the need for culturally safe services and interventions to promote positive outcomes among Indigenous families involved in substance

use. Culturally safe and harm reduction approaches to recovery that focus on wellness have the potential to break cycles of intergenerational trauma within Indigenous families. However, the limited number of studies identified in the review indicate that further research is urgently needed in this field.

At the beginning of this study, 52% of Indigenous mothers reported ever having a child apprehended by the Ministry of Child and Family Development in Vancouver and Prince George, BC, Canada. Longitudinal data demonstrated that 27% of Indigenous women in the study reported a combined total of 136 child apprehensions over the 8-year study period. The incidence rate was 6.64 (95% CI: 5.25, 8.29) child apprehensions per 100 person-years.

Young Indigenous mothers who recently had a child apprehended in this study were almost twice as likely to attempt suicide (HR: 2.0, 95% CI: 1.0, 4.1). Having at least on parent attend residential school (HR: 4.2, 95% CI: 2.0, 9.0), experiencing recent sexual assault (HR: 3.9, 95% CI: 2.0, 7.9), and experiencing violence (HR: 2.6, 95% CI: 1.5, 4.4) were also associated with increased hazard of suicide attempt. However, young Indigenous women in the study who were connected to their traditional language growing up were almost half as likely to attempt suicide (HR: 0.6, 95% CI: 0.3, 0.9).

4.2 Synthesis of findings

The health and wellness of Indigenous families in Canada and around the world must be understood within the political and historical context of colonialism. The Truth and Reconciliation Commission of Canada has called upon the federal, provincial, territorial and Indigenous governments to reduce the number of Indigenous children in the child welfare system. Keeping families together and preventing child removal whenever possible is critical for

the wellbeing of children, families and communities. The findings of this thesis provide further evidence illustrating the extent to which the child welfare system has harmed Indigenous families in Canada. This research is situated within a contextual framework that emphasizes the multi-generational impact of family separation on the current health status of Indigenous families. The overwhelming majority of young Indigenous mothers in this study have had their children taken by child welfare authorities at one point during their lives. Most of these mothers had at least one parent attend residential school and were taken into foster care themselves as children or youth. The highly elevated rate of child apprehensions among Indigenous mothers in this study provides added evidence that the contemporary child welfare system is a colonial institution, which perpetuates a cycle of intergenerational trauma within Indigenous families and communities. Indigenous jurisdictional control over child welfare is therefore a key social determinant of the future health of Indigenous children, families and communities.

The Canadian Human Rights Tribunal ruled in *FNCFCSC et al. v. Attorney General of Canada* that the federal government often fails to provide equal child and family services to Indigenous children and families. It is well documented that Indigenous families are disproportionately involved in the child welfare system as a result of conditions caused by socio-historical inequity, including poverty, substance use and poor housing. As a result of the federal policy Directive 20-1, more financial resources are allocated to remove Indigenous children from the home. Instead, the least disruptive prevention and early intervention services that support Indigenous parents care for their children must be prioritized. Culturally safe interventions and services have the potential to improve outcomes for Indigenous families who struggle with substance use, but additional research is necessary to inform and eliminate this service gap. Mental health, recovery and reunification services are urgently required to support Indigenous

parents who are already involved in the child welfare system and experiencing severe emotional distress due to separation from their children. Greater acknowledgement of intergenerational, historical and lifetime trauma within the health and social care systems is required to safely support Indigenous families.

4.3 Strengths and limitations

This thesis addresses an important gap in the literature on trauma, substance use and the health related impacts of the child welfare system among Indigenous families in Canada. A socio-historical contextual framework was employed to understand the multi-generational impact of child welfare on the health of Indigenous families. A recurrent cox-proportional hazards model was used to estimate the adjusted relative hazard of child apprehension on suicide attempt, which considers temporal sequence and reduces the possibility of bias due to reverse causation. The greatest strength of this work is that it draws on the Cedar Project, the only longitudinal cohort in North America comprised entirely of Indigenous young people who have used drugs. Research with this population is limited due to it's hard to reach nature, but critically needed to address health inequities and injustices. The Cedar Project is governed by Indigenous leaders and health experts who ensure that this research is relevant, useful and culturally safe to Indigenous communities.

There were a number of limitations in this thesis that must be addressed. First, the Cedar Project was originally designed to study HIV/HCV and therefore only collected some self-reported longitudinal measures of mental health for the duration of the study period. The analysis was unable to account for some risk and protective factors that may be causally associated with both child apprehension and suicidal behaviour, such as maternal mental health, emotional and

physical attachment, and social support. This illustrates the complexity of this challenge and the need for holistic interventions. Analysis was limited to women only, thus future research on this topic should include fathers and report gender-stratified findings. Future research should also validate the findings of this study in other Indigenous populations. Finally, confounding could explain some of the association between recent child apprehension and suicide attempt in this study. Our results should therefore be interpreted cautiously.

4.4 Implications for future research

This thesis adds to the limited body of research addressing trauma, substance use and the health related impacts of the child welfare system among Indigenous families in Canada. The results of this thesis point to many directions for future research:

- In-depth qualitative research will allow for greater understanding of the experiences of young Indigenous mothers and fathers who have used drugs and are involved in the child welfare system.

- Additional empirical research is needed to rigorously evaluate culturally safe services and interventions that support Indigenous families struggling with substance use. In particular, further research should evaluate holistic interventions for Indigenous families that include fathers.

- Further analyses are warranted to identify factors related to cultural connectedness that may foster resilience among Indigenous families affected by complex trauma. Factors related to cultural connectedness include indicators of traditions, spirituality, language and culture.

4.5 Implications for policy

Based on the findings of this thesis, the following policy recommendations must be implemented immediately:

1. Fully implement Jordan's Principle, repeal Directive 20-1, and recognize Indigenous jurisdictional control over child welfare services in Canada.

2. Develop and fund additional culturally safe health and social services for Indigenous families involved substance use, which prioritize prevention and early intervention to keep Indigenous children in the home.

3. Fund traditional language education programs as a public health approach to youth and young adult suicide prevention among Indigenous communities in British Columbia.

4.5 Concluding remarks

Statistics alone cannot describe the grief and loss experienced by Indigenous young people who have used drugs, as well as their families (Christian & Spittal, 2008). Indigenous families who have struggled with substance use to cope with pain must have the resources and support to provide equal opportunities to their children. Children are the future and fostering their health, wellness, and resilience is essential.

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