Exploring Relationships Between Socioeconomic Position, Family Context, Culture and Suicidality among Métis peoples: Reflections From the 2006 Aboriginal Peoples Survey.

A Thesis Submitted to the College of Graduate Studies and Research
in Partial Fulfillment of the Requirements
for the Degree of
Master of Science
in the Department of Community Health and Epidemiology
University of Saskatchewan
Saskatoon

By
Briana N.M. Hagen

PERMISSION TO USE

In presenting this thesis/dissertation in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis/dissertation in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis/dissertation work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is understood that any copying or publication or use of this thesis/dissertation or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis/dissertation.

Requests for permission to copy or to make other uses of materials in this thesis/dissertation in whole or part should be addressed to:

> Head of the Department of Community Health and Epidemiology
> University of Saskatchewan
> 107 Wiggins Road
> Saskatoon, Saskatchewan, S7N 5E5
> Canada
>
> OR
>
> Dean
> College of Graduate Studies and Research
> University of Saskatchewan
> 107 Administration Place
> Saskatoon, Saskatchewan S7N 5A2
> Canada

ABSTRACT

According to a 2003 Health Canada report, suicide was the leading cause of death among Aboriginal individuals under the age of 45, accounting for 23% of all deaths in this at-risk population. While previous research has explored many potential risk factors for suicide among Aboriginal populations, none have considered the Métis population independent of other Aboriginal groups. Additionally, there have been no studies explicitly examining the relationship between family context and suicidality among either of these populations; this is the primary relationship of interest in this project.

Data used for this project was taken from the 2006 Aboriginal People's Survey (APS). The APS is a national cross-sectional survey of 61,041 First Nations, Inuit and Métis peoples. Within the APS, family context was constructed using several variables including parental divorce, childhood adoption, number of siblings, etc.

Analyses for this project included a multi-stage process consisting of bivariate and multivariable analyses. Multivariable logistic regression analysis was separated by gender and examined those aged 25-54.

Results showed that that for women, renting versus owning your home, the death of sibling under age 2, or being removed by a child welfare agency, the church, or government officials was significantly associated with suicidal ideation.

For men, unemployment, living in the community of origin, death of a sibling under age 2, and participating in traditional craftwork all significantly associated with suicidal ideation. Not graduating from high school and unemployment were significantly associated with suicide attempts for men or women when controlling for all other demographic, family context, and culture variables within the final model.

As has been the case in previous research surrounding culture, several of the results in the bivariate analysis of this project were counterintuitive (Wilson & Rosenberg, 2002). This shows that nuanced and contextual interpretations are critical, and a space is opened with this research to critically consider what exactly is being captured through the survey measures. I argue that the strength of the linkage between a measure and its conceptual basis becomes increasingly tenuous and problematic as the complexity of the circumstance the measure is attempting to capture increases.

ACKNOWLEDGEMENTS

DEDICATION

I wish to dedicate my thesis work to two of the most important men in my life.
To my brother, Kyle. I strive to have similar courage and work ethic that you bring to
every aspect of your life. Thank you for inspiring me to be the best version of myself
everyday.
To my husband and partner, Christopher. Your love, determination, dedication and
perseverance encourage me to do my best work, always.
Thank you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF TERMS

Aboriginal	Within this project, the term "Aboriginal" refers to all individuals who self-identify as First Nations, Métis, or Inuit.
Métis	"a person who self-identifies as Métis, is of historic Métis Nation Ancestry, is distinct from other Aboriginal Peoples and is accepted by the Métis National Council (from www.metisnation.ca)."
Non-status Aboriginal	A person who self-identifies as Aboriginal but is not registered under the Indian Act
APS	Aboriginal Peoples Survey
SAS	Statistical Analysis Software
SPSS	A statistical analysis software for Windows
STATA	Data analysis and statistical software
AFN	Assembly of First Nations
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders – Third Edition Revise
PUMF	Public use micro-data file

Chapter 1: Introduction

Suicide is a traumatic phenomenon affecting not only those who attempt and complete, but also friends, family, and the community left behind. The motivations behind a suicide attempt have been explored with both qualitative and quantitative research in the Canadian population overall. One population group that has been entirely unobserved within suicide research is the Métis. In the few studies that have been conducted on Métis health, they are generally included among all Aboriginal[1] peoples, rather than as an independent group. Although there are numerous similarities across Aboriginal peoples in Canada, there are also important differences, including historically, that may lead to differences in health outcomes between groups even at the broad level of distinction between First Nation, Métis, and Inuit. While aware of the existence of these differences, the literature to date regarding suicidality has only captured the Métis people among the larger "Aboriginal" group. This literature is discussed fully in the literature review chapter that follows this introduction.

In Canada, Aboriginal peoples have a much higher rate of completed suicide than the general population. It is important to note, however, that there is great variability in suicide rates between Aboriginal communities across Canada. For example, MacNeil's 2008 study in British Columbia discussed that some Aboriginal communities experience few to no suicides, while others had experienced rates 36 times the national average. Despite having this knowledge, the majority of research to date examines the general Canadian population and therefore a shift in focus is necessary to address the suicide epidemic within some Aboriginal populations.

In general population studies, several suicidality risk factors and protective factors have been identified and this knowledge has been utilized to inform prevention, intervention, and postvention strategies that are being implemented worldwide. Whether these risk/protective factors translate to the Canadian Aboriginal population, and more specifically, the Métis peoples in Canada, has yet to be determined. This knowledge gap needs to be addressed as part of moving forward in developing culturally appropriate intervention strategies for this population group. In addition, working from Métis health concepts and applying Aboriginal health frameworks are important aspects of understanding the issue of suicide in a culturally relevant manner.

---

[1] Within this project, the term "Aboriginal" refers to all individuals who self-identify as First Nations, Métis, or Inuit.

Purpose and Research Questions

The purpose of this thesis project was to examine the relationship between socioeconomic position, family context, culture and suicidality among Métis people living in Canada in 2006 using data from the Aboriginal Peoples Survey (APS). There were two objectives for this research. The first, addressed by research questions one and two below, were descriptive, focused on determining the prevalence of suicidality among Metis people. The second objective, addressed through research question three below, was analytic, exploring the factors associated with suicidality. The aim of this project is to better understand the complex population health issue of suicidality among adult Métis peoples. Specific research questions that were considered in this study are detailed below.

Among Métis peoples over the age of 15:

1) What proportion report lifetime suicide ideation?
    i) Does the proportion reporting lifetime suicide ideation vary by gender and age?
2) What proportion report having attempted suicide: a) during their lifetime; and b) in the past year?
    i) Does the proportion reporting having attempted suicide during their lifetime or in the past year vary by gender and age

Among Métis peoples aged 25-54:

3) Are socioeconomic position, family context, and/or indicators of culture associated with lifetime suicidal ideation and/or suicide attempts?
    i) Does the nature of the relationship between socioeconomic position, family context, culture and suicidal ideation/attempts vary by gender?

Methods and Results

Data used for this project was taken from the 2006 Aboriginal People's Survey (APS). The APS is a national cross-sectional survey of 61,041 First Nations, Inuit and Métis peoples.

Analyses for this project included a multi-stage process consisting of bivariate and multivariable logistic regression analyses using SPSS 17.0 and STATA 11 for Windows.

Multivariable logistic regression analysis was separated by gender and examined those aged 25-54.

Results of the multivariable logistic regression analyses indicated the following characteristics as being associated with an increased odds of suicide ideation for women: renting one's home (compared to owning), the death of a sibling under age 2, and/or being removed from one's home by a child welfare agency, the church, or government officials. For men, an increased odds of suicide ideation was associated with unemployment, living in one's community of origin, the death of a sibling under age 2, and participating in traditional craftwork.

Regarding suicide attempts, the results of the multivariable analyses revealed fewer statistically significant associations. For men, being unemployed and not graduating from high school were associated with an increased odds of suicide attempts, whereas for women the odds of attempting suicide were not associated with any of the socioeconomic position, family context, or culture variables.

Significance of the Study

According to a Health Canada report in 2003, suicide was the leading cause of death among Aboriginal individuals under 45. Suicide was responsible for 23% of all deaths in this at-risk population, making suicide a serious public health concern. Moreover, suicidality is generally underreported in the literature, and does not usually account for suicide attempts, which are known risk-factors for subsequent suicidality (Borges et al., 2008).

Suicidality among Métis Canadians has yet to be examined. While many studies include Métis individuals among the larger Aboriginal population, this may not be appropriate due to the many differences between these populations. This study determined the prevalence of suicidality among Métis individuals as a distinct group, which is essential in building knowledge of Métis health in Canada.

Research has explored many potential risk factors for suicide among Aboriginal populations, such as socioeconomic position and mental health, however family context, has yet to be explored. There have been a limited number of studies that assess the psychological and sociological aspects of parenting and the effect this has on suicidality in other populations, but none examine the most at-risk population of Aboriginal peoples. This makes family context and

suicidality a public health concern and building a cohesive understanding of suicidality is of utmost importance.

This is the first project that examined the relationship between family context and suicidality among Métis peoples in Canada. Therefore, this study fills a gap in the literature and can inform ongoing research in the area of Métis health. The statistical findings points to areas of focus for future work and for consideration in the development of suicide prevention policy and program strategies targeted specifically at reducing suicidality among Métis peoples in Canada.

Several of the results in the bivariate analysis of this project were counterintuitive. It is important to remember the fact that these bivariate results are not controlling for any confounding factors and are a more crude measure principally used to guide the statistical model building process. The bivariate and multivariable results show that nuanced and contextual interpretations are critical, and a space is opened with this research to critically consider what exactly is being captured through the survey measures. I argue that the strength of the linkage between a measure and its conceptual basis becomes increasingly tenuous and problematic as the complexity of the circumstance the measure is attempting to capture increases.

Organization of Thesis

This thesis is divided into five chapters. Chapter one introduces the topic of interest and the relevance of this project, including the research objectives. Chapter two examines the surrounding literature and provides the necessary background knowledge to understand the significance of the research questions. It also introduces the Aboriginal health framework that guides this project. Chapter three describes the methodology adapted for this project. This includes a discussion of the dataset used, the 2006 Aboriginal Peoples Survey, and describes the analysis plan executed. Chapters four and five present the results of the analysis and a detailed discussion of the findings. Chapter five also provides a discussion around the strengths and limitations of this project, and concludes with suggestions for future research directions.

Chapter 2: Literature Review

This chapter outlines the problem of suicidality within Aboriginal populations in Canada highlighting the lack of health research specific to the Métis peoples. This is followed by the definition of Métis peoples and a brief history of their colonization experience and current health status. As no Métis health framework had been published at the time of this analysis (see discussion for details), a First Nations framework is introduced that guides this study. Lastly, an overview of determinants of suicidality is outlined in accordance with the First Nations framework.

Suicidality: Concepts, Time, and Definitions

There are numerous definitions that capture suicide and suicidal behaviours. While suicide has been extensively examined in the Canadian general population, differences in definitions of "suicide" lead to multiple and sometimes conflicting interpretations within the literature. The difficulty in defining suicide becomes more complex when examining specific "suicide" situations. For example, a death that occurred without having concrete knowledge that the intention of that individual was to die (eg. no suicide note) is rarely named a suicide death by a medical examiner. Conversely, in other situations it is clear that a suicide attempt was intended to end life, however, the individual was unsuccessful (Farrely, et al., 2009).

Given these and many other nuances, a number of terms have been created to encapsulate the concept of "suicide". These terms include completed suicide, suicide attempts, suicidal ideation, and self-harm behaviour. For this study, suicidal ideation was broadly defined as seriously considering ending your own life. A suicide attempt was described as a failed completed suicide. In other words, an attempt to end ones own life through extremely lethal means, such as hanging, poisoning, or firearms.

Self-harm behaviour, such as "cutting" or overdose of a harmful substance, is generally considered a "less lethal" form of a suicide attempt. There is debate within the literature as to whether self-harm behaviour should be encompassed in the concept of suicide or examined on its own as a separate entity (Farrelly et al., 2009). To date, most studies have included self-harm within the broad definition of suicide, with some research identifying suicide as a concept that can be represented within a continuum, ranging from self-harm to completed suicide (Farrelly et al., 2009).

With this suicide continuum in mind, a more recent term emerging throughout the literature is "suicidality". This term has encapsulated all aspects of suicide behaviours. When examining suicide in populations, suicidality may be the most useful definition, due to the all-encompassing nature of the concept. When using epidemiological data to examine suicidality (including self-harm, ideation, attempts, and completions), researchers will have the opportunity to explore the associations of suicidality more completely. For the purpose of this study, suicidality was explored through self-reported measurement of suicide ideation and suicide attempts.

Suicide in Canada. In Canada, completed suicide is the third leading cause of death among the general youth population (Chandler & Proulx, 2006). The suicide rate in 1998 was approximately 11.2 per 100,000, according to Statistics Canada. Completed suicide is nonetheless underrepresented and underreported in the literature due to the sensitive nature of applying a label of suicide to a death without conclusive evidence. For example, without a suicide note, it may be hard for medical examiners to determine that a death is in fact a suicide as opposed to an accident. Due to the stigma attached to mental disorders and consequently, suicide, completed suicide is a hard conclusion to draw without concrete evidence. Therefore, the suicide rate of 11.2 per 100,000 may be an underestimation.

In Aboriginal populations, suicide is the leading cause of death of individuals under the age of 45, with some provinces reporting Aboriginal suicide rates seven times higher than the general population (Chandler & Proulx, 2006). According to a 2007 report, the suicide rate among Aboriginal peoples in Canada is approximately 24 per 100,000; double the reported suicide rate of the general population. Furthermore, the reported suicide rate among Inuit Canadians is approximately 135 per 100,000; over ten times the national average (Kirmayer et al, 2007). Additionally, there are varying rates within provinces. MacNeil's 2008 study in British Columbia found there are some Aboriginal communities that rarely experience suicide, while others have rates 36 times the national average. These suicide rates are in stark contrast to other North American populations, where the suicide rate has decreased consistently in recent years (Waldvogel et al, 2008). While the suicide rates of Aboriginal peoples in Canada have been explored, they have not been systematically compared across communities, and therefore it is

hard to define risk factors that apply to Aboriginal populations (Kirmayer et al, 2007). Clearly, the population health issue of suicide is important for Aboriginal communities across Canada.

Suicide rates among Aboriginal youth and young adults. While suicidality is more prevalent across all Aboriginal age groups compared to other Canadian populations, the group identified as the highest risk is Aboriginal youth and young adults (ages 10-35) (Chandler & Proulx, 2006). According to a 2005 Health Canada report, suicide accounted for 22 percent of all First Nations deaths for individuals aged 10 – 19 and 16 percent of deaths in those aged 20 – 44 (considered early adults) (Health Canada, 2005). MacNeil's 2008 epidemiologic review found that Aboriginal youth in the age range of 10-19 are approximately 5.1 times more likely to die by suicide than non-Aboriginal youth in Canada (MacNeil, 2008). More specifically, the suicide rate for Aboriginal men, aged 15-24, was 126 per 100,000, while for non-Aboriginal men in Canada, the rate was 24 per 100,00. A similar difference was found for women, with the rate of suicide for Aboriginal women at 34 per 100,000 and non-Aboriginal women at 4 per 100,000 (MacNeil, 2008).

MacNeil (2008) postulates that colonial and contemporary social and political contexts that include loss of culture and identity within Aboriginal populations are significantly implicated in higher suicide rates. MacNeil (2008) argues for more careful examination of these factors, including residential school attendance, living on reserve, loss of land and language, and criminalization of cultural practices. Their association with suicide needs more extensive examination to support the development of appropriate and effective preventative strategies. Some of these variables are available in the 2006 APS and were assessed in this project.

In a general population study, Borges and colleagues (2008) used the National Co-morbidity Survey to examine predictors of suicide related outcomes over a ten-year follow-up (n=5001). The aim of this study was to measure the associations between three themes of variables (socio-demographics, suicide related outcomes, and mental disorders) and suicide related outcomes. Suicide related outcomes included suicide ideation, plans, gestures, and attempts. Socio-demographic variables examined included age, sex, marital status, employment, income, having a young child, race-ethnicity, and religious affiliation. Mental disorders included all DSM-III-R disorders (Borges et al., 2008).

Baseline results showed that 13.3% of participants reported suicidal ideation, 4% reported planning, 2.3% gestures, and 2.2% attempts (Borges et al., 2008). Results also determined that previous suicidality was the strongest predictor of later suicide related outcomes. More specifically, previous suicidal ideation was the greatest predictor of subsequent ideation (OR=13.4, 95%CI=10.5-17.2) and previous suicide attempt was the strongest predictor of a subsequent suicide attempt (OR=8.8, 95%CI=3.2-24.6). Sociodemographic results showed that being aged 15-24 was significantly associated with higher suicidal ideation as well as being in the "other" employment category. Additionally, almost all DSM-III-R disorders were associated with higher suicidal ideation, but not significantly associated with a higher instance of suicide attempts (Borges et al, 2008)

Borges' study highlights that determining early (upstream) risk factors and exploring preventative options relating to suicidality should be of utmost importance to researchers, as well as government, health care workers, and policy makers within Canada (2008).

While there has been a substantial amount of work surrounding Aboriginal suicidality, none have considered Métis peoples in Canada as a unique population. This study explored suicidality among Métis peoples living in Canada, focusing on how family context as a child, socioeconomic position, and culture is associated with suicidality as an adult (25-54).

Defining Métis Peoples in Canada

Historically, there have been many discussions in Canada around who is identified as Métis. On September 27, 2002 the Métis National Council adopted the definition that applies today. According to Métis National Council of Canada we site (www.metisnation.ca), Métis is defined as "a person who self-identifies as Métis, is of historic Métis Nation Ancestry, is distinct from other Aboriginal Peoples and is accepted by the Métis National Council. " This concept is elaborated the following way:

WHEREAS within the definition there are defined terms;

THEREFORE BE IT RESOLVED that the Métis Nation adopts the following defined terms for its national definition of Métis;

"Historic Métis Nation" means the Aboriginal people then known as Métis or Half-Breeds who resided in Historic Métis Nation Homeland; "Historic Métis Nation Homeland" means the area of land in west central North America used and occupied

8

as the traditional territory of the Métis or Half-Breeds as they were then known;
"Métis Nation" means the Aboriginal people descended from the Historic Métis
Nation, which is now comprised of all Métis Nation citizens and is one of the
"aboriginal peoples of Canada" within s.35 of the Constitution Act of 1982;
"Distinct from other Aboriginal Peoples" means distinct for cultural and nationhood
purposes (from www.metisnation.ca).

While Métis groups have long argued that they should be considered as a distinct
group in Canada, and have been constitutionally recognized as such as a result of their unique
colonization history, there has been little research that exemplifies this distinction. In one of
the few studies on Métis-specific health determinants, Dr. Carrie Bourassa (2008) argues for a
need to shift research foci, so that Métis are examined as a distinct group, rather than as a
component of a larger Aboriginal group. Bourassa (2008) found that there are significant
health and economic differences between Métis and Aboriginal peoples within Canada in
addition to the significant differences between Métis and non-Aboriginal population.
Bourassa suggests these differences may be a result of the Métis colonization experience,
which is different from the colonization experience of other Aboriginal groups in Canada.

Colonization of Métis Peoples in Canada

There are approximately 300,000 people who self-identify as Métis living in Canada. Métis
peoples in Canada have a distinct history from other Aboriginal populations. This unique
history began with the fur trade in Canada. The children of unions between Aboriginal
women and European men (the majority of whom were French and Scottish) formed a distinct
new cultural group, named the Métis (McNab & Lischke, 2005). Literary works and historical
literature, also report derogatory labels for members of this new group, such as half-breeds,
mixed-bloods, black scots, and bungi, signaling their early marginalization in Canadian
society (McNab & Lischke, 2005). The Aboriginal mothers played an important role in the
success of the fur trade and survival of its male workers, assisting with language
interpretation and land knowledge. Their children were raised with knowledge of both
European and Aboriginal cultures, evolving a new culture and language in the process.

While these relationships could have been celebrated, the Aboriginal mothers and

their children were not acknowledged as Aboriginal when the treaties were signed, or in the Indian Act[2]. Métis peoples were forced from their traditional lands and have experienced poor treatment throughout history by both European and First Nations groups in Canada (Campbell, 1973).

There is also still debate as to the legal definition of Métis in Canada. As described previously, the Métis National Council has advanced their definition, which is in accordance with the government of Canada's definition. As of 2003 to be recognized as Métis by the government of Canada, one must: 1) self-identify as Métis, 2) have ancestral connection to a historical Métis community and 3) be accepted by a Métis community (McNab & Lischke, 2007). At the same time, however, the Census data in Canada uses a slightly different definition, which is discussed thoroughly within the Methods chapter.

When considering health and health research, the focus has been either on Aboriginal peoples as a whole (inclusive of Métis) or on specific First Nations populations. Métis peoples have been largely ignored as a distinct focus in the presentation of health statistics or in health research. Little can be interpreted about Métis health status from the amount of Métis focused research to date, and building on the knowledge of Métis peoples is essential to improving health status. This includes an in-depth examination of the unique history of Métis peoples in Canada and the unique manner in which historical circumstances influence the contemporary contingencies of life and health. This study fills some of this gap, however the literature drawn to discuss findings includes studies conducted on Aboriginal groups as a whole, in which Métis individuals were included. Given the dearth of research on Métis life and health, this thesis also draws on literary works by Métis people that offer narrative insight into the topics explored here.

Métis Health in Canada

From the few studies that have been focused on Métis peoples in Canada, there are some important findings to highlight here. Much of this work has taken place in Manitoba. Research has revealed that Métis peoples have a rate of diabetes that is approximately double the rate in the general population (Bruce, 2000). An extensive report released in Manitoba

---

[2] The Indian Act is a piece of Canadian legislation that defines who can be registered as Indian and outlines their exclusive rights. An Indian woman would lose her status and associated rights if she married a non-status man.

shows that Métis people also have a significantly higher mortality rate than the general population (Martens et al., 2011). Additionally, Métis people in Manitoba have significantly higher rates of chronic diseases, including ischemic heart disease, osteoporosis, stroke, acute myocardial infarction and diabetes (Martens et al., 2011). Métis peoples in Manitoba also have significantly higher instances of hypertension, respiratory disease, and arthritis.

When considering mental illness, the Martens et al (2011) report reveals that Métis peoples have a similar rate of depression as the general population in Manitoba, but a significantly higher rate of anxiety. Additionally, the report found that Métis peoples in Manitoba had statistically higher rates of substance abuse, personality disorders, and dementia (Martens et al., 2011).

Researchers acknowledge, like many other studies, that Aboriginal peoples in Canada experience a disproportionate burden of disease, consequently leading to a shorter life expectancy. A study conducted by Tjepkema (2011) is novel in the examination of Métis peoples and non-status Aboriginals. Using census data from 1991 – 2001, results showed that premature mortality (death under the age of 75), measured in potential years of life lost (number of years left until age 75, measured as a loss to society due to early death), were double the non-Aboriginal Canadians. Looking further, 71% of deaths in the Métis population occurred between the ages of 25-74, compared to 48% of deaths in the non-Aboriginal population (Tjepkema et al., 2011). Additionally, the deaths of individuals in the Métis population were significantly younger than in the non-Aboriginal population. A direct comparison between non-status Aboriginals and Métis peoples was not explored.

Tjepkema and colleagues (2011) discuss the potential years of life lost among Métis peoples, and non-status Aboriginal peoples, compared with non-Aboriginal Canadians. The study examined socioeconomic position differences between the Métis and the non-Aboriginal population. Geographically, seven of ten Métis peoples were residents of Manitoba, Saskatchewan, or Alberta. Additionally, results showed that Métis peoples generally tended to be younger in age, and less likely to have completed secondary school, to be legally married, employed, or own a home (Tjepkema et al., 2011). Conversely, Métis peoples were more likely to live in crowded conditions, in a home requiring major repairs, and to be situated within the two lowest income groups in Canada.

There were significant differences in health between the Métis and non-Aboriginal populations as well. For example, injuries accounted for a significantly higher percentage of potential years of life lost in the Métis population, along with drug and alcohol related diseases (Tjepkema et al., 2011). More specifically, Métis men had higher rates of hypertensive heart disease, rheumatic heart disease, and unintentional injuries and violence. Along with hypertensive heart disease and unintentional injuries, Métis women experienced higher percentages of respiratory infections, alcohol use disorders, chronic obstructive pulmonary disease (COPD), and cirrhosis of the liver (Tjepkema et al., 2011). In terms of unintentional injuries, Métis women experienced higher rates of poisoning than both Métis and non-Aboriginal men. There was no difference for smoking related diseases between the Métis population and the non-Aboriginal population, whereas a difference of disease burden did exist for non-status Aboriginals in Canada (Tjepkema et al, 2011).

With injuries and drug/alcohol related deaths affecting Métis peoples in Canada significantly (and young Métis people more frequently), a focus on mental health and specifically, suicide, is an appropriate step in building knowledge around Métis health.

Bourassa (2008) explored how social determinants of health may affect the health status of Métis peoples in Canada. Her research reported a significant relationship between socioeconomic factors and lower self-rated health. These studies show the importance of exploring Métis health with a focus on the social determinants of health; an approach followed in this study.

Frameworks

The World Health Organization (WHO) defines heath as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (1948). With the recent re-emergence of the population health approach underpinning the orientation of the Public Health Agency of Canada (PHAC), there has been a significant shift in health practices and research.

The WHO definition captures a positive concept of health. PHAC argues that the view of health as a state versus a capacity makes health itself immeasurable. PHAC's approach defines health as a resource or capacity rather than a state (healthy or not healthy) (PHAC, 1994). This definition captures factors that contribute to health, such as physical environment, social, and

economic factors, referred to as health determinants. Consequently, PHAC defines the concept of health as, "the capacity of people to adapt to, respond to, or control life's challenges and changes" (Frankish et al., 1996). PHAC also suggests that these health determinants do not act in isolation to effect health, but rather in a complex combination of interactions (PHAC, 1994). This population health approach has been widely accepted in Canada, by the federal government and the provincial health ministries, ostensibly framing program, policy, and practice.

Within the determinants of health approach, there are numerous conceptual frameworks that suggest domains and pathways for the manner in which determinants of health affect health outcomes of Canadian populations. Due to the differences in what defines health between western and Aboriginal populations, the determinants of health approach needs to be adapted to fit within an Aboriginal context. This is even more important considering the history of colonization within Aboriginal peoples in Canada. Due to the unique colonization of Métis peoples, there should be a unique health determinants framework to guide research in this population. Since no Métis-specific health framework had been reported in the literature at the time of this project's development and analysis, it is informed by the First Nations holistic policy and planning model developed by the Assembly of First Nations in 2006. This holistic health framework is likely more reflective of Métis culture and health beliefs, as well as their historical experience than any of a number or Euro-western perspectives, and is consistent with the framework for the Aboriginal Peoples Survey (2006 wave) from which the data for this project were drawn.

Consistent with the WHO and others, Aboriginal communities within Canada view health as more than the presence or absence of disease. Health is defined as a balance between physical, mental, and emotional wellbeing (King et al., 2009). Additionally, good health and healing within Aboriginal communities means living in peace and harmony throughout the spirit world, the community, and among community members. In addition to the usual determinants of health recognized by PHAC, the inclusion of colonization effects (loss of culture, language, etc), migration, and globalization are regarded as essential in being able to produce meaningful explanations of health outcomes among Aboriginal peoples in Canada (King et al, 2009).

The Assembly of First Nations developed a framework (2006: p.6) that articulates an overall concept of health from an Aboriginal perspective (Figure 1).

13
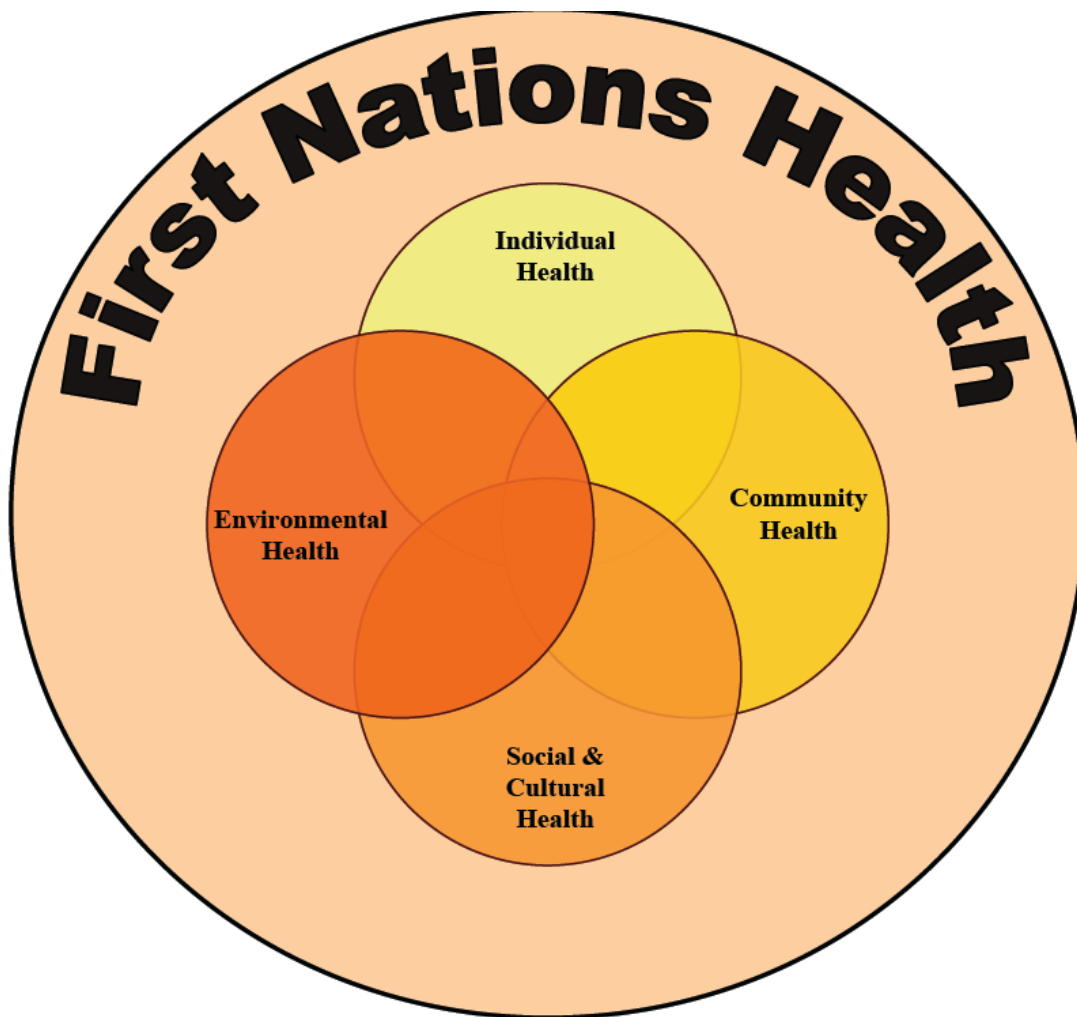
Figure 1. First Nations determinants of health.

The over arching determinants of health defined within the AFN framework are: individual health, environmental health, community health, and social and cultural health. These four determinants are overlapping, representing the substantial connections between them. Perspectives such as the overlapping of the four determinants are essential to consider in all aspects of research related to the health of Aboriginal populations. These aspects include facilitating the articulation of appropriate research questions so that the subsequent findings are appropriate and therefore more likely to influence meaningful and effective health services and prevention programming.

The AFN framework in Figure 1 was further developed into a health-reporting framework that provides more detail on the specific determinants of health, the relationships between them, and the relevance to Aboriginal populations (Figure 2).
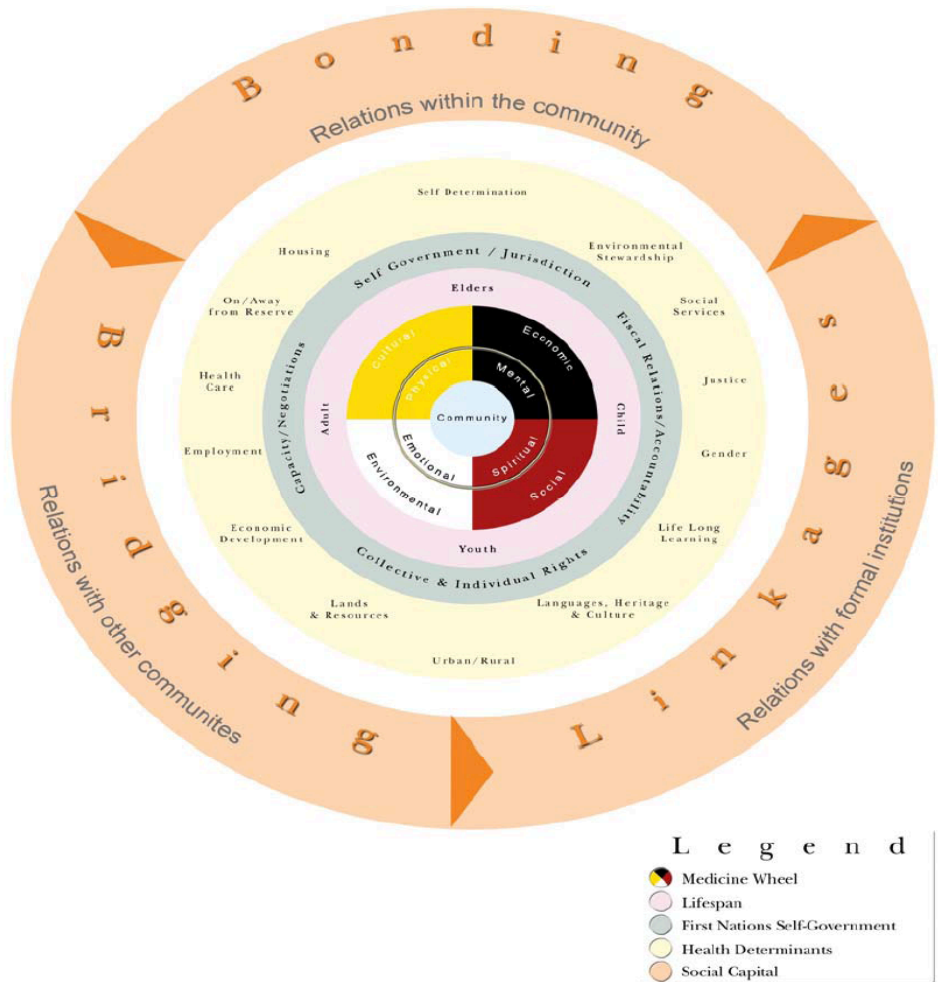
Figure 2. First Nations holistic policy & planning model.

While some of these are also found in the Public Health Agency of Canada's list of recognized determinants, a number are unique to the AFN model, such as heritage, justice, urban/rural, and lands/resources. While they may reflect the general population in some instances, these

determinants are specifically reflective of the unique history and experience of Aboriginal peoples in Canada.

There are several things about this model that make it the most appropriate when considering a health issue such as suicidality, within an Aboriginal population. First, community is at the centre of the model, with the four core health determinants surrounding the centre of community. This is distinct from the Eurowestern frameworks that place the individual as distinct and separate in the centre, signaling an important conceptual difference in the worldviews that underpin these models.

This model can be used across the lifecourse, and in this project is situated within the young adult population. Surrounding the lifespan, are the health indicators defined by the AFN (2006). These include: languages, heritage and culture, gender, justice, urban/rural, lands and resources, economic development, employment, health care, on/away from reserve, housing, self-determination, environmental stewardship, social services, and life long learning.

The final layer of the AFN framework (2006) represents social capital. It lists the relationships within the community, with other communities, and with institutions. More specifically, it allows for consideration of a history of colonization and its effects on Aboriginal health, which Eurowestern models lack.

Historically, studies examining the health and health status of Aboriginal peoples have been conducted with a Western, biomedically focused approach. Researchers have identified a disease or issue within a community and developed a strategy to eliminate that disease/issue. This "presence or absence of disease" model placed little emphasis on the cultural relevance of the solutions provided, or even on the definitions of the issues themselves. The research reported here explores several of these Aboriginal health determinants, including languages, gender, lands and resources, employment, culture, and family context.

First Nations Determinants of Suicidality

Following the population health approach, discussion around determinants of suicidality among Métis peoples is explored in this section. The sections are laid out according to the four First Nations determinants of health previously described in the AFN framework. As the AFN health determinants framework underpins the policy and planning framework that guided this project, it is practical to organize the existing literature on the determinants of suicidality within it.

Individual Health

Socioeconomic position. In this study, socioeconomic position is defined as "social and economic factors that influence what positions individuals or groups hold within the structure of a society (pg.7)" (Galobardes et al. 2006). A study conducted by Borges and colleagues (2008) reported that sociodemographic variables, including: "other" employment status, age less than 25 years, and being a parent of a young child were significantly associated with higher suicide related outcomes.

Bourassa (2008) explored socioeconomic status (SES) for Métis individuals in Canada. SES was defined as a combination of income, education, and employment. Using Canadian Census data, more specifically the 2001 wave of the Aboriginal Peoples Survey (APS) and the 2004 wave of the Canadian Community Health Survey (CCHS), Bourassa found that Métis had significantly lower SES than non-Aboriginal Canadians, but slightly higher SES than other Aboriginal peoples. While no correlates of lower SES were examined, this study suggested that lower SES might be the beginnings of an explanation for lower health status among the Métis (Bourassa, 2008).

Identity. One Canadian population-based observational study, examined whether having Aboriginal status (ie. registered under the Indian Act) had a significant effect on the incidence of severe trauma, including suicide. Researchers found that even after controlling for covariates, such as age and gender, having Aboriginal status was associated with higher rates of severe trauma and suicide. Additionally, the average age of those individuals experiencing this trauma was significantly lower for those who held Aboriginal status (Karmali et al, 2005). Specifically, the rate of traumatic suicide among status Aboriginal peoples was 24.9 per 100,000 versus 7.9 per 100,000 for the general population. What the status of being Aboriginal means for the rate of traumatic injury is difficult to discern from this analysis. For instance, perhaps there is an association between being "registered" with the government as Aboriginal and the historical trauma that is attached through the colonization of Aboriginal peoples at play here, suggesting that the construct used for analysis is a proxy measure for colonization effects (Karmali et al., 2005).

Mental health and addiction. Borges and colleagues (2008) found that most mental disorders were associated with suicidal ideation, but not necessarily suicide attempts. This

included mood disorders, such as major depressive disorder and dysthymia, anxiety disorders, such as panic, social phobia, simple phobia, generalized anxiety, and post-traumatic stress disorder. Substance use disorders were also associated with higher suicide ideation, including alcohol dependence, alcohol abuse, drug dependence, and drug abuse (Moniruzzaman, et al., 2009). Adult antisocial behaviour, conduct disorder, and antisocial personality disorder (impulse-control disorders) were all associated with higher levels of suicide ideation. Lastly, having co-morbid disorders, led to subsequent increases in suicidal ideation, with having three or more disorders putting you at the highest likelihood of suicidal ideation (OR=2.6, 95% CI=1.8-3.9) (Borges et al., 2008).

It is a well-established fact that psychiatric diagnoses are risk factors for suicidality (Gould et al, 1998). The most thoroughly examined disorders are related to anxiety and depression. The majorities of studies with a focus on anxiety and depression, however, have been conducted among general populations and need to be replicated among Aboriginal peoples in Canada, before inferring the same conclusions.

As previously mentioned, alcohol and drug abuse have also been associated with suicidality (Borges et al., 2008; Laliberte & Tousignant, 2009). A study utilizing psychological autopsies (interviews with surviving family members and close friends about the deceased and their life) within a Quebec Aboriginal community found that of the 30 examined cases, 28 had been abusing alcohol or had alcohol related issues within the year prior to their suicide (Laliberte & Tousignant, 2009). Additionally, in 23 of 30 cases individuals were intoxicated at the time of their death by suicide. This is an extremely important finding when considering the most effective ways to prevent suicide. The associations between addictions and suicidality were not explored in this project.

Education. Research on level of education and suicidality in the general population has yielded inconsistent results. Some studies have indicated that as level of education increases, suicidality decreases (Alaghehbandan et al, 2005). Additionally, some studies report that the relationship between lower level of education and suicidality is stronger for women (Alaghehbandan et al, 2005) while others report a stronger relationship for higher levels of education and suicidality among women (Denney et al, 2009). There are no comparable studies for Canadian Aboriginal populations, including anything specific to the Métis. Overall,

however, Métis peoples have been found to have lower levels of education compared to their non-Aboriginal counterparts (Bourassa, 2008). Whether this is significant to suicidality among this group is an important question that was considered in this study.

Community Health

Community falls at the centre of the 2006 AFN health framework and is interwoven throughout all of the surrounding layers. Focusing on community level variables like neighbourhood poverty and developing community based prevention and intervention strategies, as well as understanding why or why not an individual will seek help in their community are important factors to explore.

Neighbourhood poverty. A study published in 2008 examined how neighbourhood poverty is associated with suicidality among the general population in Canada (Dupere, et al., 2008). The main objective of the study was to look at this association within late adolescence and investigate whether the association remained when controlling for other known covariates and background vulnerabilities (including parents income, education, and employment). Results showed that independent of family socioeconomic status, living in a poor neighbourhood was significantly associated with elevated risk for suicidal ideation and attempts (OR=1.58 and 2.41, respectively) (Dupere et al., 2008).

Cultural continuity. Chandler and Lalonde's 1998 study explored how resources within a community would affect suicidality among Aboriginal youth. They examined markers of "cultural continuity" through resources available within the community, including education, health, cultural facilities, police/fire service, and land claims (Chandler and Lalonde, 1998). Their results showed that youth living in communities that have existing land claims were experiencing less suicide (Chandler and Lalonde, 1998). Similarly, youth who went to school in a band controlled education system also had much lower rates of suicide. The same result was found for cultural facilities, fire/police facilities, and self-governed health facilities. Authors conclude that cultural continuity among First Nations communities was significantly associated with less suicide occurrences (Chandler and Lalonde, 1998).

There is some question about the conceptual link between Chandler and Lalonde's community level measures and cultural continuity this speaks to the difficulty in measuring culture quantitatively. This is discussed further, later in this chapter. However, within the AFN

framework, Chandler and Lalonde's (1998) findings of an association between connection to community and suicidality demonstrate the importance of capturing community level factors and their concepts of cultural continuity would fit within the layer of self-determination (First Nations Self-Government). While we do not have access to these types of measures in the APS for this project, there are questions examined that ask about the respondents connections to home and community.

Help seeking. More recent research has focused on exploring the relationship between help seeking and suicide. Determining whether help seeking behaviours affect the rates of suicidality can help to guide communities and policy makers to develop comprehensive prevention, intervention, and postvention methods that encompass these findings.

Literature on this topic is inconsistent. A 2007 study of the general populations found that 57.8% of help-seekers were turning to their general practitioner versus psychiatric services in times of distress (Kovess-Masfety et al, 2007). Some research has shown that adolescents are significantly more likely to turn to their school professional instead of a health professional (Farrand et al, 2007), while other studies have shown that adolescents are most likely to turn to family and friends (Deane et al, 2001). The research on the relationship between help seeking and suicidality is limited. It is not conclusive whether those who seek help are less likely to ideate about or attempt suicide and further research must explore this important relationship. This type of exploration was not possible with the data used for this study.

Prevention and intervention strategies. One of the most used techniques in suicide intervention strategies is gatekeeper training (Isaac et al., 2009; Katz et al., 2006). In an article written by Capp and colleagues (2001), gatekeeper training is described as, "training (that) focuses on identifying key people in the community who have contact with (those at risk) and training them to recognize a person at risk of suicide, and to facilitate an appropriate referral to professional helping resources" (2001, p.1). The use of gatekeeper training has been considered successful in some Aboriginal communities within Canada (Capp et al, 2001). In keeping with the health and policy framework this study was grounded in, community is placed at the centre of health and well-being. This makes gatekeeper training a theoretically appropriate tool for intervention practices within Aboriginal and possibly Métis communities that are experiencing

suicidality. When risk factors for suicidality are identified within the Métis population in Canada, gatekeepers can subsequently be identified and trained.

Capp and colleagues (2001), provide an in-depth description of the development, implementation, and evaluation of their gatekeeper training sessions. To assess the success of the training, researchers conducted several small quantitative surveys that examined community members' knowledge, confidence, attitudes towards suicide, and barriers to seeking help.

They found that gatekeeper-training workshops were extremely successful. Specifically, participants felt better educated at identifying suicidality within their community and had more confidence in their ability to help. Conversely, attitudes about sending an identified "at-risk" individual for professional help decreased after receiving the gatekeeper training. Authors postulate that this may be due to their increased confidence in their own ability to help, but could not statistically confirm this (Capp et al, 2001). Gatekeeper training appears extremely useful in preventing suicide and could be a good approach for high incidence communities in particular.

Social and Cultural Health

The determinants that could be included under a category of social and cultural health varies between (and within) different populations and could be linked to their beliefs/practices. The 2006 AFN health framework is an important guide in determining the types of variables that might be considered under the category of social and cultural health for Aboriginal population groups. Based on the AFN framework, this project saw gender as a health determinant that falls under social and cultural health.

Gender. Generally, women have higher rates of suicide attempts compared to men, while men have higher rates of suicide completion (Alaghehbandan et al, 2005; Karmali et al, 2005). More specifically, one study on the general population showed that men who had experienced their parents' divorce during their childhood were at much higher risk for adult suicidality as compared to women who endured similar life situations (Lizardi et al, 2009). The same study showed that men were more likely to experience lifetime suicidality if their parents had a history of psychopathologies throughout their childhood, while parental psychopathologies had no significant effect on women's lifetime suicidality.

A 2009 study examined the gender differences in methods of suicide attempts within the general population. Branco and colleagues (2009) found that there were significant differences

between men and women. Results showed that men tend to attempt by using more lethal means, such as hanging or gunshot wounds. Women tend to use methods such as cutting, poisoning, and overdose much more frequently than men (Branco et al., 2009). When examining youth, hanging is the most used method of suicide attempt for both men and women. In terms of lethality, gunshot wounds are considered the most lethal means of suicide attempts, followed by hanging (Branco et al., 2009).

In a qualitative study conducted by Farrelly and colleagues (2009) in an Aboriginal community in Australia, researchers discovered a cultural aspect of self-harm in the women of this particular community: hair cutting. Interview participants noted that if a woman within the community cut her hair, it was a significant self-harming behaviour that would indicate that woman wants to end her own life. While this cultural aspect of suicidality has not been explored fully in multiple communities, the findings point to the need for uncovering culturally specific behavioural markers such as hair cutting for suicidality.

Environmental Health

Environmental health, according to the AFN health framework, includes: housing quality, water quality, and land quality. While there are no studies to date on the relationship between these environmental health determinants and suicidality, it is an important area to explore in future research to gain a more comprehensive understanding of suicidality in an Aboriginal health context. It was not possible to explore this relationship using the 2006 APS, as questions specific to this area were not asked.

Family Context as a Determinant of Health

Family is an understudied, but potentially large contributor to Aboriginal and Métis health. When considering a health issue among these populations, it is essential to consider the historical context of colonization, and the great effect this had on the family structure of these groups. In Canada specifically, the roles of residential schooling, reserve communities, and child welfare agency involvement with families needs to be considered. Identity has been widely discussed in terms its the great disruption through colonization (Campbell, 1973; Mosionier, 2009) and identity of the family is no exception.

Within the AFN health framework, family is a central and overarching theme. Research conducted in general populations on family context has suggested that experiencing adversity in

childhood can lead to a greater risk of suicidality (Johnson et al., 2002). Madeline Gould and colleagues (1998) have shown in non-Aboriginal research that parental separation or divorce is significantly associated with suicidal tendencies. Additionally, having no biological relatedness to your parent/guardian has also been associated with suicidality (Slap et al, 2001). A Danish study, published in 2010 reported that losing a biological parent significantly increased the risk of suicide attempt in 10-22 year old offspring (RR= 1.71, CI= 1.49–1.96), while losing both parents doubled that risk of suicide attempts (Jakobsen & Christiansen, 2010).

While these general population studies have examined the associations between family context variables and suicidality, there have been no studies to date exploring the link between family context and suicidality in Aboriginal or Métis populations. Using the 2006 wave of the Aboriginal Peoples Survey, these associations were explored in this project.

Culture as a Determinant of Health

Central within the AFN (2006) framework, culture can be linked back to the colonization experience. Since marginalization from culture and language is such a central feature of colonization, it is important to attempt to understand how culture links to suicidality. While there are measures of culture in the APS, there is vast literature that is uneasy about the manner in which culture is captured in quantitative instruments, which is discussed below.

A systematic review conducted in 2009 assessed the usefulness of using "culture" as an explanation in population health. Authors scoured eight national epidemiology journals between the years of 1930 and 2008, discovering that one in every 200 articles published had culture appearing in the title (Hruschka, 2009). Upon further review of 100 culture-related articles, the author expressed two major concerns with the majority of the articles reviewed: 1) the majority of articles did not specify the precise pathway that led culture to influence health and 2) these articles did not assess the plausibility of those pathways. This is cause for concern when these articles lead researchers to infer that culture is a powerful health determinant (Hruschka, 2009).

There has been debate as to whether culture can be conceptualized and measured as a determinant of health (Brown et al., 2009; Wilson & Rosenberg, 2002). This is partly due to the fact that culture is extremely complex and difficult (if not impossible) to reduce to a set of variables. The definition of culture becomes trickier when trying to use it as an explanation for health or health disparities. Brown and colleagues (2009) suggest that there can be useful

23

measures of culture, if conceptualized properly through the use of ethnographically constructed instruments. This is not yet a widely accepted approach and the authors do discuss the ongoing need to retain a balance of hypothesis testing and participant driven needs to measure culture (Brown et al., 2009).

Wilson and Rosenberg (2002) examine whether using the measures available in the 1991 wave of the Aboriginal Peoples Survey (APS), can contribute to the literature around Aboriginal health and whether the findings can be situated within a determinants of health framework. The 1991 wave of the APS measured culture by asking survey participants about their participation in traditional activities. Wilson and Rosenberg (2002) explored whether these measures of culture were significantly associated with health measures. Their findings were counter-intuitive, suggesting that participation in traditional activities was associated with lower self-rated health. They suggest that the measures intended to assess culture are actually proxy-measures for other constructs, and therefore, must be revised to more appropriately capture culture (Wilson & Rosenberg, 2002). For example, in their study, participating in hunting/fishing/trapping was associated with lower self-rated health. This result may be due to the measure being a proxy for lack of resources rather than an actual association with culture. For example, if the participant did not have the income to purchase food, and for this reason was relying primarily on hunting/fishing/trapping, perhaps they are suffering from lower self-rated health due to income, not culture. If these results are taken at face value, authors suggest two conclusions: 1) traditional activities are not important determinants of health and/or 2) culture as measured in the APS cannot be captured with a health determinants framework (Wilson & Rosenberg, 2002). Wilson and Rosenberg (2002) conclude that future surveys that make effective changes to their questions will be significantly better at placing traditional activities within a determinants-of-health framework.

Future waves of the APS included revision to the culture-related questions. For instance, there were no questions in the 1991 wave surrounding traditional healing practices. This has since been added. Further, the cultural activities question previously lumped all activities (hunting/fishing/trapping/berry picking/fiddling/participation in sweats, etc) into one question. This has also been changed in subsequent waves of the APS with individual questions for each of these activities. These newer versions of the culture questions are explored in this study, and as

will become apparent in the results and discussion, problems in associating these measures with health measures persist.

Summary

While suicidality has been explored extensively within the general population, and risk factors have been explored within the Aboriginal population, there is no research that considers Métis peoples in Canada. Using a holistic health framework, such as the AFN 2006 policy and planning wheel, is important for constructing the analytical strategy, as well as interpreting the results in a culturally appropriate way. Existing research, much of it in non-Aboriginal populations, has touched on several key concepts of the AFN framework, such as mental health, identity, economic development, employment, gender, age, and some aspect of social capital. At the same time, there are many concepts in Aboriginal populations and in the Métis that have not been explored. Within the research on health determinants, family context and suicidality has not been explored. With family intertwined in every circle of the AFN framework, this is a concept that is clearly important to explore. There are several other constructs within the framework that have not been explored and may be essential to health of Métis peoples. For example, there are several land/ecological factors that have not been considered when examining the health of this population. Additionally, colonization impacts, which is an overarching theme in the AFN framework affecting most constructs and every layer within the model, has not been adequately considered in previous health research within the Métis population. This is a major gap in the existing knowledge around Métis health and emphasizes that the use of an appropriate framework to guide health research is essential in developing a full understanding of any issue within a given population.

Chapter 3: Methods

This chapter outlines the methodological process followed to complete this project, beginning with an overview of the Aboriginal Peoples Survey followed by a description of the methodology of the present study. This description involves details concerning the sample, measurement of study variables and the analysis plan.

Overview of the Aboriginal Peoples Survey (2006)

The Aboriginal Peoples Survey (APS) is a nation-wide survey that was developed in order to provide an overview of the social and economic conditions that Aboriginal peoples live in. Additionally, the survey was designed to help identify the needs of Aboriginal peoples in Canada in areas such as education, health, employment, language, and housing. This particular version of the survey asks questions that are not previously asked in any other Canadian survey and has the capability to answer a wide variety of important public health questions. The change in the 2006 APS questions is not discussed within the documents provided by Statistics Canada. However, there were several recommendations provided through documentation of health disparities within the Aboriginal populations in Canada (ex. Royal Commission on Aboriginal Peoples (RCAP)) that could have had an impact on the survey design. While the addition of new questions in the most recent version of the APS is essential as the community learns more about the needs of the population, it is difficult to track trends over time with the evolution of the questions. Goals of this survey according to Statistics Canada were to: provide a picture of the current situation, honour and acknowledge cultural values and diversity, raise awareness of strengths and challenges, track changes over time, allow good policy decision-making regarding services for people, and assist in advocating for resources (Statistics Canada, 2006).

The 2006 APS was created through partnership between several organizations and conducted by Statistics Canada. Specifically, an "Implementation Committee" (IC) was created to ensure that all organizations and parties involved in the 2006 APS were satisfied with the content development (Statistics Canada, 2006). This IC was comprised of several groups, including federal and provincial governmental organizations, along with community groups such as the National Association of Friendship Centres, Native Women's Association of Canada, etc. Additionally, an Elder was involved in every step of content development, implementation, and

dissemination (Statistics Canada, 2006). Funding was provided from multiple federal organizations, including: Indian and Northern Affairs Canada (INAC), Human Resources and Social Development Canada (HRSDC), Health Canada (HC), Canada Mortgage and Housing Corporation (CMHC) and Canadian Heritage (CH) (Government of Canada, 2006).

This thesis is based on the third wave of the APS, which was previously conducted in 1991 and 2001 (Statistics Canada, 2006). While many questions remained consistent across the three waves, there have been several changes to questions and new questions have been added. One significant change is that a Métis supplement was added in order to examine Métis peoples separate from other Aboriginal populations. This was done to ensure a full understanding of Aboriginal peoples in Canada, but makes longitudinal comparisons difficult. The new data collected in 2006 provides a unique opportunity to observe the changes that have happened over time (for variables that have been included in all three waves) in addition to providing opportunity for a cross-sectional examination of the current state of these populations. There have been many advances as a result of the data provided by the previous waves of the APS surveys. Most notably, the Royal Commission on Aboriginal Peoples published a report with numerous recommendations on improving the lives of Aboriginal peoples in Canada (INAC, 1996). Other organizations throughout Canada, such as community planners, Aboriginal organizations, service providers, and government have been able to use data to support new programming and improve existing services for Aboriginal peoples (Statistics Canada, 2006).

The third wave of the APS was conducted between the fall of 2006 and the spring of 2007 (Statistics Canada, 2006). Closely related to the 2006 Census survey, this survey aimed to provide a profile of what life was like for Aboriginal peoples in Canada. There is no other survey that examines the health care priorities among Aboriginal peoples in Canada, making this survey an extremely useful tool for health research and improvement to policy and programming. Both rural and urban communities were included in the survey sample. This 2006 survey did not include the large Aboriginal population who live in reserve communities or federal institutions such as hospitals or correctional facilities across Canada (Statistics Canada, 2006).

Another advantage of the 2006 APS is that there is additional information that was collected in 2006 Census data that is attached to the APS (Statistics Canada, 2006). This creates an immensely detailed dataset that can provide invaluable information. Additionally, the 2006

APS data can be analyzed at several levels, including national, provincial, sub-provincial, community (Statistics Canada, 2006).

Sample. The APS is a cross-sectional survey that is collected every five years, following the model of the census data. Individuals who participated in the census survey and who identified as Aboriginal in ancestry were contacted later to complete the APS. The total sample size for 2006 cycle was 61,041 Aboriginal people and is weighted to be representative of the Canadian Aboriginal population.[3] Children (over the age of six) and adults were included in the 2006 APS. As previously mentioned, this did not include Aboriginal peoples who live in reserve communities or federal institutions such as hospitals or correctional facilities.

For individuals under the age of 14, data was collected from their parent/guardian, while everyone over 15 provided their own answers. The data was collected over the phone by trained interviewers, with the exception of the Northwest Territories, Yukon, and Nunavut, where the interviews were conducted in person. The overall response rate was approximately 80%, a strong response rate that can be considered to be fairly representative of this population.

Appropriate weights were calculated and utilized to ensure that the sample was a representation of the population of Canadian Aboriginal peoples living off reserve. Additionally, a general bootstrapping methodology was adopted to address any sampling errors that may have occurred. Bootstrapping is a re-sampling technique used to obtain representative estimates of summary statistics. To address non-sampling errors, creators of the 2006 APS referred to the 2001 APS to evaluate the survey process entirely, including development, content, conducting the survey, and data analysis (Statistics Canada, 2006).

Data collection. A systematic sampling approach was used for the 2006 APS and led to a simple random sample (Statistics Canada, 2006). A simple random sample survey is defined by the identical and known probability that any one individual may be selected to participate; it is the purest form of sampling. As with any sampling technique, a simple random sample may lead to bias in large population datasets, as every participant may not accurately represent the larger population. These sampling errors were taken into consideration and addressed by Statistics Canada through statistical techniques to weight each participant appropriately (ie. bootstrapping).

---

[3] Each individual was interviewed and weighted to represent several individuals using a simple random sample method.

Additional steps were taken to ensure that those individuals selected to participate were not burdened with more than two post-censal surveys.

The 2006 APS was conducted using a paper version of the questionnaire over the telephone, except for in Inuit regions, where the survey was done with a personal interview (Statistics Canada, 2006). Any participants between the ages of 15 and 17 were required to have permission from a parent or guardian to participate. An important aspect of this survey is that it was possible to conduct the questionnaire in 20 different Aboriginal languages. If there was a request for a language that was not already included, a translator was hired to meet this need (Statistics Canada, 2006).

Questionnaires. The 2006 APS had a total of four questionnaires, including an Adult Core (aged 15+), Children and Youth, (aged 6-14), Métis Supplement, and Arctic Supplement (Statistics Canada, 2006). For the purpose of this project, the questionnaire included and discussed is the Métis Supplement. All questions were asked in reference to a specific date (October 31, 2006) to ensure that all participants were providing their responses with the same time frame in mind, as data collection occurred over several months (Statistics Canada, 2006).

The Adult Core questionnaire focuses on several lifestyle aspects for Aboriginal people across Canada (Statistics Canada, 2006). These include: education, language, labour (employment), health, communication technology, mobility, and housing. The Métis Supplement has data that includes topics such as family background, child welfare, social interaction, health and mental health. While some of the topics include the same questions across surveys, the mental health and family background components of the Métis Supplement are important pieces that were explored extensively in this project (Statistics Canada, 2006).

Data accuracy. Researchers who developed the APS addressed issues of data accuracy primarily by examining sampling and non-sampling errors. To address non-sampling errors, survey creators took several steps, including pilot tests of the questionnaires. Additionally, high response rate was acheived. To increase response, Statistics Canada hired as many Aboriginal interviewers as possible and trained them to encourage participation through follow-up of refusals and potential respondents who were not home at the time. Potential sampling errors include things such as misinterpretation of the question or "wrong flow" of the questionnaire (Statistics Canada, 2006).

29

Access to data. The majority of the data collected with the APS in 1991, 2001, and 2006 is accessible to the general public online through a PUMF file. All data is confidential and cannot be traced back to the individuals who participated. Provided on the Statistics Canada website, data is broken down into the two age groups. Each questionnaire is provided and additionally, links to a methods guide and a user guide to assist in any statistical analysis. Data is compatible with both SAS and SPSS statistical analysis computer software programs. Lastly, the data is broken down by some socioeconomic position information such as by Aboriginal group (First Nations, Metis, or Inuit), age, gender, and location.

The more sensitive variables, or variables that have low response rates, are only accessible through Statistics Canada's Research Data Centres (RDC). These variables may be considered sensitive in terms of the question itself, or in terms of the number of participants who responded. If there are a smaller number of respondents, statistics Canada will err on the side of caution and suppress the data to ensure the confidentiality of its participants. To gain access to the RDC, and the more sensitive data, a researcher must apply to Statistics Canada with their analysis plan and rationale for the project. Once accepted, the researcher goes through a rigorous background check and data training session to ensure that the responsibility that comes with handling the data is understood.

Defining Aboriginal Peoples in Canada

The 2006 APS identified participants through the Census survey (Statistics Canada, 2006). More specifically, four screening questions were provided to identify an Aboriginal survey population. These questions include an ethnic origin question, a self-reported question, an Indian band/First Nation membership question, and a Treaty or Registered Indian question (Statistics Canada, 2006).

The 2006 APS defines Aboriginal people as, "The descendants of the original inhabitants of North America. The Canadian Constitution recognizes three groups of Aboriginal people – First Nations (or North America Indian people, consisting of status and non-status Indians), Métis, and Inuit. These are three separate peoples with unique heritages, languages, cultural practices, and spiritual beliefs." (Statistics Canada, 2006)

North American Indians are defined as, "All Aboriginal people in Canada who are not Inuit or Métis. North American Indian peoples are one of the three groups of people recognized

as Aboriginal in the Constitution Act, 1982. This also refers to First Nations people consisting of Status and non-Status Indians." (Statistics Canada, 2006).

A non-status Indian is defined throughout the survey as, "A person who identifies as First Nation or North American Indian but in not registered under the Indian Act." (Statistics Canada, 2006).

The APS definition of Inuit is, "Inuit means people in Inuktitut, the language of Inuit people. Most Inuit live in the Northwest Territories, Nunavut, Northern Quebec and Labrador." (Statistics Canada, 2006).

Lastly, the 2006 APS defines Métis as, "People of mixed North American Indian and European ancestry who identify themselves as Métis people, as distinct from North American Indian people, Inuit, or non-Aboriginal people. The Métis have a unique culture that draws on their diverse ancestral origins, such as Scottish, French, Ojibway, and Cree." (Statistics Canada, 2006). It is important to note that this definition of Métis peoples in Canada only partly reflects the definition provided by the Métis National Council (MNC).

The Present Study

Study Purpose and Research questions

The research objectives of this study were both descriptive and analytic. The descriptive objective was to determine the prevalence of suicide ideation and suicide attempts among adult Métis peoples over the age of 15 and whether the prevalence varied by age and gender. The analytic objective was to understand, using multivariable modeling, what factors (ie., socioeconomic, family context, culture) were associated with suicidality in this population and whether the nature of that relationship varied according to gender.

Research questions.

Among Métis peoples aged 15 years and older:

1) What proportion report lifetime suicidal ideation?
    i) Does the proportion reporting lifetime suicidal ideation vary by gender and age?
2) What proportion report having attempted suicide: a) during their lifetime; and b) in the past year?

31

i) Does the proportion reporting having attempted suicide during their lifetime or in the past year vary by gender and age?

Among Métis peoples aged 25-54 years:

3) Are socioeconomic position, family context, and/or indicators of culture associated with lifetime suicidal ideation and/or suicide attempts?

   i) Does the nature of the relationship between socioeconomic position, family context, culture and suicidal ideation/attempts vary by gender?

Participants

For the purpose of this project, all individuals who self-identified as Métis peoples living in Canada (not on reserve) were included in the analysis of research questions 1 and 2. For research question 3, analyses focused on those aged 25-54. Throughout the analyses, results are reported separately for men and women.

Key Concepts and Measures

Key concepts under investigation in this study were suicidality, family context, and culture, selected on the basis of the research literature and informed by the conceptual frameworks presented in the previous chapter. Also of interest in this study was gender and socioeconomic position. To operationalize these key concepts, the APS questionnaire was carefully reviewed and items believed to most adequately reflect these concepts based on the 2006 AFN framework, along with definitions within the literature were selected for inclusion into the study as dependent and independent variables. The end result of this process is detailed in Table 3.1 and summarized in text below.

      Dependent variables. There were three dependent variables in the study representing key components of suicidality: suicidal ideation (ie., having ever considered suicide during one's lifetime), lifetime suicide attempts (ie., having ever attempted suicide) and suicide attempt within the previous year. All variables were dichotomous (yes/no). All participants were asked the suicidal ideation question. Only the participants who responded either "yes, I don't know, or refused" to the suicidal ideation question were subsequently asked about lifetime and past year suicide attempts. Although the validity and reliability of measures of suicidality have received

scant attention in the literature, some research suggests self-report questions combined with a face-to-face clinical interview may result in the most accurate determination of suicidality (Yigletu et al., 2004). However, agreement between self-report measures of suicidality alone, as in this study, and clinical interviews has been reported as 80%.

Independent variables. Most independent variables are categorical. Independent variables encompass three constructs: Socioeconomic position, family context, and culture (see Table 3.1).

Socioeconomic position. Socioeconomic position was assessed by four variables: marital status, education, employment, and home ownership. Current marital status consisted of five categories: married, single, separated, divorced, and widowed. Educational attainment was a dichotomous variable indicating if the individual had graduated high school or not. Employment status was divided into three groups: employed, unemployed and looking for work, and unemployed and not looking for work. Participants were also asked whether they rented or owned their own homes.

Family context. Family context was assessed using 16 variables. With such a large number of variables purportedly measuring various dimensions of a single construct, aggregation of variables into a single measure is sometimes appropriate. However, based on previous work examining the association between culture measures and self-rated health using the 1991 APS done by Wilson and Rosenberg (2002), the decision was made to keep the variables separate in the analysis. In addition, due to the fact that there has been no research surrounding suicidality among Métis peoples and family context has not been examined in other Aboriginal populations, there is not enough knowledge of these variables to combine them effectively. In addition, aggregating variables may make interpretation of associations (or lack there of) more challenging.

Family context variables include family make up: growing up in a single or joint parent home, mother and father's ancestry, whether or not parents are still living, number of siblings (continuous variable), and whether or not a sibling had died under the age of two. Other family context variables surround child welfare: being removed by child welfare, residing in foster care (with or without Aboriginal foster parents) or residential/boarding school attendance, and whether or not they were officially adopted. Lastly, the context of the family environment was

33

captured through variables surrounding the language spoken in the home and whether or not respondents reside in their community of origin.

Culture. The construct of culture was captured through 9 APS variables. As was the case for the family context variables, no culture variables were combined. The culture variables included hunting, trapping, gathering, fishing, participating in traditional artwork or a Métis organization, seeing an Aboriginal healer, and speaking an Aboriginal language.

Brown and colleagues (2009) describe the process of developing an appropriate variable of "culture". These authors suggest that once it is decided that "culture matters" in health by a particular group, ethnographic methods can commence with tools such as open ended interviews (with members of the culture being examined) and only then can researchers move toward more structured tools to develop the culture construct (Brown et al., 2009). These constructs may help to test and detect subtle measures of culture that are affecting health quantitatively. While this approach could not be taken in this project, there were changes to the survey questions that at least somewhat addressed the types of challenges Wilson and Rosenberg (2002) encountered in their work with the 1991 (first ever) wave of the APS. The present study worked with the revised culture questions and the discussion re-addresses the effectiveness of the changes for understanding the determinants of suicidality.

Another difficulty in measuring culture, even when starting with ethnographically based tools, is that they rarely account for intracultural variability (Brown et al., 2009). This may be a significant problem when considering that population subgroups have different views, and may also be experiencing the worst health. Brown (2009) suggests that these intracultural differences may be integral in delineating the variability of cultural notions within a population, while acknowledging that when looking at population insights, this may not always be possible. Taking Brown's (2009) suggestions and developing appropriate measures of culture will help shift towards a cultural epidemiology; designing instruments to measure culture and the cultural process that may lead to population health outcomes.

Age. For research questions 1 and 2, participants over age 15 were examined. For research question 3, analysis focused on those aged 25-54. This decision was based on previous literature in other Aboriginal populations that places the 25-54 age group at higher risk of suicidality (Chandler & Proulx, 2006). Additionally, while those aged 15-24 are included in the

survey and also may have an elevated risk, their life situations are drastically different than those aged 25-54 and this makes interpretation of the results surrounding family context particularly difficult. Therefore, they were not included in this analysis, but should be considered in future research.

Table 3.1

Variables included in statistical analysis as represented in the 2006 APS.

Concept	Definition	Operationalization in the APS
Suicidality	A term encapsulating all aspects of suicide behaviour. For this study, suicidality includes suicidal ideation and suicide attempts	Lifetime suicidal ideation Lifetime suicide attempts Past year suicide attempts
Gender	The socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women (WHO, 2011)	Sex (Male/Female)
Socioeconomic position:	The "social and economic factors that influence what positions individuals or groups hold within the structure of a society (pg.7)" (Galobardes et al. 2006). .	Marital status: • Married • Divorced • Separated • Single • Widowed Employment: • Employed • Unemployed, looking for work • Unemployed, not looking for work Education: • Graduated high school • Did not graduate high school

35

Home ownership:
- Renting your home
- Own your home

| **Family Context** | A term that encompasses the context of family life given the unique history of family background, cultural beliefs and participation, current context of physical family make up, and emotional environment. | Live in Community you were born in Number of siblings Two-parent vs. single parent home Father currently living Aboriginal Father Mother currently living Aboriginal Mother Sibling death < 2 years old Aboriginal language in home as a child French in home as a child Aboriginal mixed with French in home as a child Ever removed from home by child welfare Ever in foster care Aboriginal foster parent Ever in residential/boarding school Ever officially adopted |

Culture	The unique system of shared beliefs, values, and practices/activities of a particular group (in this case Métis).	• Speak an Aboriginal language • Ever hunted • Ever fished • Ever trapped • Ever gathered • Seen an Aboriginal healer • Own traditional clothing • Do traditional artwork • Member of Métis organization

Analysis

Data analyses involved a multi-stage process consisting of bivariate and multivariable logistic regression analyses using SPSS 17.0 and STATA 11 for Windows. Preliminary analyses are presented followed by analyses conducted to specifically address research questions.

Preliminary Analysis

Descriptive analyses were conducted for all the variables, displayed by means and ranges for continuous variables and for categorical variables, frequencies and percentages were calculated.

Analyses Addressing Research Questions 1 and 2

Among Métis people over the age of 15 years:

1) What proportion report lifetime suicidal ideation?

  a) Does the proportion reporting lifetime suicidal ideation vary by gender and age?

2) What proportion report having attempted suicide: a) during their lifetime; and b) in the past year?

  i) Does the proportion reporting having attempted suicide during their lifetime or in the past year vary by gender and age?

  Crosstabs were conducted to determine the frequencies and percentages of participants who have experienced lifetime suicidal ideation, lifetime suicide attempts, and a past year

suicide attempt, overall and according to age and gender. Next, the differences between men and women were tested for statistical significance using chi-square analyses.

Analyses addressing Research Questions 3

3) Are socioeconomic position, family context, and/or indicators of culture associated with lifetime suicidal ideation and/or suicide attempts?

a) Does the nature of the relationship between socioeconomic position, family context, culture and suicidal ideation/attempts vary by gender?

To address research question number three a series of multivariable logistic regression analyses were conducted to identify if indicators of socioeconomic position, family context, or culture variables are associated with suicidality, while controlling for all other variables within the model.

Prior to the multivariable analyses, a series of bivariate logistic regression analyses were conducted to determine which independent variables would be entered into the multivariable models. Based on Hosmer & Lemshow (1989), a p-value </= .20 was chosen as the statistical criterion for inclusion. A statistical criterion was chosen due to the fact that there is no existing research in Métis populations in regard to suicidality that would otherwise provide a substantive rationale for inclusion or exclusion of the variables of interest. These bivariate logistics regressions were conducted separately for suicide ideation and suicide attempts.

Following the selection of individual variables based on the bivariate analyses, two multivariable models were created, one for lifetime suicidal ideation and one for lifetime suicide attempts. Results of the multivariable analyses were reported separately for men and women. Three blocks of independent variables were entered into the models in successive steps: Model 1, socioeconomic position; Model 2, socioeconomic position and family context; Model 3, socioeconomic position, family context, and culture.

The sequence of entry of the blocks of variables into the models was determined on the basis of substantive evidence in the literature of a relationship with suicidality coupled with confidence in the strength of the linkage between a measure and the construct it is attempting to capture, also as discussed in the literature.

Lastly, bootstrapping was conducted throughout the analysis to ensure that the results were representative of the Métis peoples in Canada and all results were released by the Research Data Centre, in accordance with their rules and regulations.

Chapter 4: Results

This chapter provides detailed results of the bivariate and multivariable analyses using the 2006 Aboriginal Peoples Survey (APS); conducted with SPSS and STATA statistical software programs. Following the research questions set out in the introduction, results focus first on the prevalence of suicidal ideation and suicide attempts within the Métis population of Canada. Next, results of the bivariate analysis report the associations between suicidality and measures of socioeconomic position, family context, and culture. Lastly, the results of the multivariable analyses are reported. This chapter reports results only: the significance of the findings as well as challenges with interpretation are explored in the discussion chapter that follows.

Research Question 1: Prevalence of Lifetime Suicidal Ideation

Overall, approximately 13% of the Métis peoples age15 and older in Canada have experienced suicidal ideation in their lifetime (data not shown). The proportion of participants reporting suicide ideation by gender and age is shown in Table 1.The proportion of women who had experienced lifetime suicidal ideation was 14%. For men, the overall proportion of lifetime suicidal ideation was 11.5%. This gender difference was not statistically significant (p=0.125). Additionally, women experience lifetime suicidal ideation at higher proportions then men across all age groups, with the greatest proportion of women reporting ideation in the 25-54 year old age group (9.1%). The highest proportion of men who have experienced ideation also fall into the 25-54 age range (7.5%). However, as was the case for Métis people 15 years of age and older, among 25-54 year olds, gender differences in the proportions reporting suicide ideation were not statistically significant (p=0.227).

Research Questions 2: Prevalence of Suicide Attempts

Only those who responded anything except "no" ("yes", "I don't know", or "Not stated") to the question "Have you ever seriously considered suicide or taking your own life?" were asked further questions about suicidality. The result is that, among Metis people age 15 years and older, approximately 38% of those who ideated about suicide also attempted at some point in their life (data not shown).

Table 1 also shows the proportion of Métis participants who had attempted suicide, by gender and age group. Among Métis women age 15 years or older (and who had met the inclusion criteria outlined above for being asked the suicide attempt question), 50.8% had

attempted suicide at some point in their life time, compared to 36% of Metis men . This gender difference was statistically significant (p=0.001). The highest prevalence of lifetime suicide attempts was reported by women (32%) and men (23.1%) in the 25-54 year old age group; this gender difference was not statistically significant (p=0.111). Due to small cell sizes[4], only overall rates of past year suicide attempts could be explored. As shown in the last two columns of Table 1, almost identical proportions of men and women, approximately 14%, had attempted suicide within the last 12 months (p=0.98).

Table 4.1

Weighted percentages of suicidality, odds-ratios, 95% confidence intervals, and chi-squared significance of gender differences for participant's responses to suicidality questions by age group and gender.

Age	Suicide Ideation		Lifetime Suicide Attempt	
	N(%)	OR (95% CI)	N(%)	OR (95%CI)
Women:				
15-24	6540 (2.8)	-	3570 (10.9)	-
25-54	21039 (9.1)	1.18 (0.86-1.62)	10470 (32.0)	1.50 (1.04-2.16)
55+	5220 (2.2)	1.06 (0.72-1.55)	2610 (8.0)	1.08 (0.66-1.77)
Men:				
15-24	4270 (2.1)	-	1290 (5.9)	-
25-54	15010 (7.5)	0.82 (0.45-1.50)	5300 (23.1)	1.50 (1.04-2.16)
55+	3750 (1.9)	0.83 (0.40-1.75)	1610 (7.0)	1.08 (0.66-1.77)
Gender Differences	Chi-square pvalue		Chi-square pvalue	
15+	0.125		0.001	
25-54	0.227		0.111	

Note. Cases are weighted and rounded to the nearest 10 as per Statistics Canada Research Data Centre. regulations.

If there were insufficient cell sizes (n<10), that cell was not included in the analysis (shown as -).

Research Question 3: Associations to Suicidality

---

[4] Any unweighted individual question that had fewer than 10 responses could not be included in the analysis

The rest of this chapter focuses on the process of building multivariable models to assess the associations between the independent variables and suicidal ideation and attempts. The first part of this analysis consists of variable reduction, conducted through bivariate logistic regression. The purpose was to include only those variables (in each of the broad groupings of socioeconomic position, family context and culture) which met the statistical criterion ($p<0.20$) suggested by Hosmer & Lemshow, 1998.

As reported previously, the prevalence of suicidality was highest among 25-54 year olds. The remainder of this analysis therefore focuses on the high prevalence age group of 25-54, separated by gender. Additionally, due to small cell sizes, past year suicide attempts could not be included in any further analyses, so the outcomes of interest moving forward are lifetime suicidal ideation and lifetime suicide attempts. I begin below with the results of the socioeconomic position analysis.

Socioeconomic Position and Suicidality: Bivariate Associations

Socioeconomic position variables were chosen from the APS 2006 Métis Supplement and included education, employment, marital status, and home ownership (see Tables 2, 3, 4, and 5). This section presents the results of the bivariate analysis conducted to reduce the number of socioeconomic position variables included in the multivariable logistic regression.

Lifetime suicidal ideation. As shown in Table 2, for women, all socioeconomic position variables met the statistical criterion ($p<0.20$) for inclusion into the multivariable model. Similar results were reported for men (Table 3) with the exception of education.

Table 4.2

Bivariate relationships between socioeconomic position variables and lifetime suicidal ideation for women aged 25-54.

	OR	95% CI	p value
Education:			
<high school	1.36	0.90-2.07	0.141
Employment:			
Not employed, looking	1.12	0.54-2.31	0.763
Not employed, not looking	1.65	1.19-2.30	0.003
Marital Status:			
Divorced	2.21	1.42-3.45	0.000
Separated	1.76	0.99-3.12	0.054
Single	1.40	0.99-1.97	0.058
Widowed	3.87	1.65-9.07	0.002
Home Ownership:			
Renting versus owning	2.09	1.55-2.83	0.000

Note. OR=odds-ratio, CI=confidence interval. Reference categories include: graduated from high school, employed, married, and owning your home.

Table 4.3

Bivariate relationships between socioeconomic position variables and lifetime suicidal ideation for men aged 25-54.

	OR	95% CI	p value
Education:			
<high school	1.16	0.71-1.91	0.555
Employment:			
Not employed, looking	3.22	1.54-6.73	0.002
Not employed, not looking	2.65	1.38-3.72	0.001
Marital Status:			
Divorced	2.18	1.23-3.88	0.008
Separated	1.51	0.65-3.50	0.341
Single	1.85	1.19-2.87	0.006
Widowed	1.47	0.13-16.75	0.755
Home Ownership:			
Renting versus owning	2.32	1.59-3.39	0.000

Note. OR=odds-ratio, CI=confidence interval. Reference categories include: graduated from high school, employed, married, and owning your home.

Lifetime suicide attempts. As presented in Table 4 (for women) and Table 5 (for men), all socioeconomic position variables (education, employment, marital status, and income) were associated with lifetime suicide attempts at the p<0.20 level.

Table 4.4

Bivariate relationships between socioeconomic position variables and lifetime suicide attempts for women aged 25-54.

	OR	95% CI	p value
Education:			
<high school	1.84	0.87-3.88	0.108
Employment:			
Not employed, looking	1.93	0.53-7.00	0.315
Not employed,not looking	1.81	0.96-3.40	0.065
Marital Status:			
Divorced	2.18	1.23-3.88	0.008
Separated	1.51	0.65-3.50	0.341
Single	1.85	1.19-2.87	0.006
Widowed	1.47	0.13-16.75	0.755
Home Ownership:			
Renting versus owning	2.14	1.26-3.63	0.005

Note. OR=odds-ratio, CI=confidence interval. Reference categories include: graduated from high school, employed, married, and owning your home.

Table 4.5

Bivariate relationships between socioeconomic position variables and lifetime suicide attempts for men aged 25-54.

	OR	95% CI	p value
Education:			
<high school	4.65	1.91-11.25	0.001
Employment:			
Not employed, looking	1.75	0.49-6.22	0.389
Not employed,not looking	3.15	1.26-7.86	0.014
Marital Status:	-	-	-
Home Ownership:			
Renting versus owning	1.66	0.83-3.34	0.154

Note. Insufficient observations for marital status, therefore, it is excluded. OR=odds-ratio, CI=confidence interval. Reference categories include: graduated from high school, employed, married, and owning your home.

Family Context and Suicidality: Bivariate Associations

This section presents the results of the bivariate analysis conducted to reduce the number of family context variables to be included in the multivariable logistic regression. These variables were taken from the family background and child welfare sections of the 2006 APS (see Table 3.1).

Lifetime suicidal ideation. The results of the bivariate logistic regression analyses are presented for women in Table 7 and men in Table 8. The family context variables that met the statistical criterion were: community of origin, family size, sibling death under the age of 2, having an Aboriginal or mixed language in the home, having an Aboriginal mother and/or father, being removed from home by child welfare agencies, living in foster care (with Aboriginal parents), and residential schooling.

Table 4.6

Bivariate logistic regression showing odds-ratio and 95% confidence interval for relationships between family context variables and lifetime suicidal ideation for women aged 25-54.

	OR	95% CI	p value
Not living in community of origin	0.78	0.56-1.09	0.143
Increasing family size	1.01	1.00-1.03	0.009
Parent status:			
Single parent	1.03	0.39-2.74	0.950
Other	0.81	0.31-2.12	0.675
Father deceased	1.22	0.89-1.67	0.226
Non-Aboriginal father	0.80	0.59-1.07	0.126
Mother deceased	1.21	0.85-1.73	0.292
Non-Aboriginal mother	1.25	0.90-1.74	0.177
Sibling death	1.55	1.03-2.33	0.037
No Aboriginal language in home	0.81	0.58-1.15	0.242
No French in home	0.84	0.63-1.14	0.274
No mixed language in home	0.55	0.35-0.88	0.013
Separated from family by child welfare	2.89	1.94-4.30	0.000
In foster care	3.14	2.16-4.56	0.000
Non-Aboriginal foster parents	0.67	0.26-1.68	0.388
Attended residential/boarding school	1.11	0.37-3.30	0.857

	OR	95% CI	p value
Officially adopted	0.72	0.39-1.33	0.291

Note. Values are weighted with a bootstrapping technique to reflect the Métis population in Canada. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Table 4.7

Bivariate logistic regression showing odds-ratio and 95% confidence interval for relationships between family context variables and lifetime suicidal ideation for men aged 25-54.

	OR	95% CI	p value
Not living in community of origin	0.75	0.49-1.14	0.178
Increasing family size	1.00	0.98-1.02	0.846
Parent status:			
Single parent	0.60	0.20-1.83	0.371
Other	0.93	0.29-2.98	0.905
Father deceased	1.00	0.68-1.46	0.988
Non-Aboriginal father	0.93	0.62-1.40	0.733
Mother deceased	0.93	0.58-1.48	0.757
Non-Aboriginal mother	1.01	0.68-1.50	0.949
Sibling death	1.51	0.95-2.41	0.084
No Aboriginal language in home	0.74	0.49-1.13	0.161
No French in home	0.79	0.54-1.15	0.218
No mixed language in home	0.71	0.42-1.23	0.223
Separated from family by child welfare	1.78	0.99-3.18	0.054
In foster care	2.20	1.25-3.87	0.006
Non-Aboriginal foster parents	2.73	0.58-12.88	0.204
Attended residential/boarding school	3.04	0.89-10.38	0.076

	OR	95% CI	p value
Officially adopted	0.94	0.43-2.04	0.876

Lifetime suicide attempts. Independent variables that met the statistical criterion (p<0.20) included: community of origin, deceased father, having French language in the home, being removed from home by child welfare, living in foster care (with Aboriginal parents), and residential schooling.

Table 4.8

Bivariate logistic regression showing odds-ratio and 95% confidence interval for relationships between family context variables and lifetime suicide attempts for women aged 25-54.

	OR	95% CI	p value
Not living in community of origin	1.57	0.84-2.94	0.155
Increasing family size	1.00	0.98-1.02	0.626
Parent status:			
Single parent	0.58	0.09-3.54	0.550
Other	0.32	0.05-1.93	0.216
Father deceased	0.68	0.39-1.20	0.184
Non-Aboriginal father	0.81	0.47-1.38	0.439
Mother deceased	0.82	0.43-1.57	0.547
Non-Aboriginal mother	0.79	0.44-1.41	0.430
Sibling death	0.94	0.44-1.98	0.861
No Aboriginal language in home	1.01	0.56-1.84	0.969
No French in home	0.94	0.55-1.62	0.829
No mixed language in home	0.64	0.28-1.48	0.296
Separated from family by child welfare	2.50	1.22-5.11	0.012
In foster care	1.88	0.95-3.75	0.071

Non-Aboriginal foster parents	0.25	0.03-1.97	0.186
Attended residential/boarding school	3.99	0.45-35.28	0.213
Officially adopted	1.66	0.56-4.95	0.359

Note. Values are weighted with a bootstrapping technique to reflect the Métis population in Canada. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Table 4.9

Bivariate logistic regression showing odds-ratio and 95% confidence interval for relationships between family context variables and lifetime suicide attempts for men aged 25-54.

	OR	95% CI	p value
Not living in community of origin	1.54	0.60-3.44	0.296
Increasing family size	0.98	0.93-1.02	0.321
Parent status:			
Single parent	1.25	0.18-8.63	0.821
Other	0.73	0.12-4.47	0.734
Father deceased	1.19	0.57-2.49	0.643
Non-Aboriginal father	0.64	0.30-1.38	0.257
Mother deceased	1.59	0.68-3.68	0.283
Non-Aboriginal mother	1.59	0.68-3.68	0.283
Sibling death	0.83	0.40-1.70	0.602
No Aboriginal language in home	1.63	0.69-3.85	0.261
No French in home	0.42	0.18-0.97	0.043
No mixed language in home	1.30	0.64-2.60	0.467
Separated from family by child welfare	0.37	0.13-1.06	0.063
In foster care	1.12	0.39-3.16	0.838

	OR	95% CI	p value
Non-Aboriginal foster parents	0.97	0.37-2.56	0.949
Attended residential/boarding school	0.57	0.04-8.07	0.673
Officially adopted	2.72	0.31-24.27	0.369

Note. Values are weighted with a bootstrapping technique to reflect the Métis population in Canada. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Culture and Suicidality: Bivariate Associations

This section presents the results of the bivariate analysis conducted to reduce the number of culture variables included in the multivariable logistic regression. All independent variables with a level of significance <0.20 were included in the multivariable logistic regression analysis.

  Lifetime suicidal ideation. The results of the bivariate logistic regression analysis are presented for women and men in Tables 10 and 11, respectively. Culture variables that met the statistical criterion (p<0.20) included: speaking an Aboriginal language, hunting, fishing, trapping, gathering, seeing an Aboriginal healer, and participating in traditional art or craftwork or a Métis organization.

Table 4.10

Bivariate logistic regression showing bootstrapped odds-ratio and 95% confidence interval for relationships between culture variables and lifetime suicidal ideation for women aged 25-54.

	OR	95% CI	p value
Do not speak Aboriginal language	0.75	0.49-1.13	0.169
Never hunted	0.55	0.41-0.75	0.000
Never fished	0.64	0.40-1.05	0.079
Never trapped	0.71	0.48-1.08	0.116
Never gathered wild plants	0.65	0.48-0.889	0.006
Never owned traditional Métis clothing	0.84	0.57-1.23	0.372
Never seen Aboriginal Healer	0.42	0.29-0.61	0.000
Never done Métis art/craftwork	0.57	0.31-1.05	0.000
Not a member of Métis organization	0.83	0.58-1.18	0.072

Note. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Table 4.11

Bivariate logistic regression showing bootstrapped odds-ratio and 95% confidence interval for relationships between culture variables and lifetime suicidal ideation for men aged 25-54.

	OR	95% CI	p value
Do not speak Aboriginal language	0.70	0.40-1.23	0.217
Never hunted	0.88	0.60-1.29	0.507
Never fished	0.99	0.51-1.92	0.978
Never trapped	0.87	0.60-1.27	0.476
Never gathered wild plants	0.75	0.50-1.12	0.160
Never owned traditional Métis clothing	1.21	0.70-2.07	0.498
Never seen Aboriginal Healer	0.69	0.43-1.11	0.122
Never done Métis art/craftwork	0.56	0.34-0.93	0.024
Not a member of Métis organization	1.30	0.82-2.06	0.267

Note. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Lifetime suicide attempts. The results of the bivariate logistic regression analysis are presented in Tables 12 and 13. All independent variables with a level of significance <0.20 for either men or women were included in the multivariable logistic regression analysis. Culture variables that met the statistical criterion (p<0.20) included: speaking an Aboriginal language, fishing, participating in traditional art or craftwork, and owning traditional Métis clothing.

Table 4.12

Bivariate logistic regression showing bootstrapped odds-ratio and 95% confidence interval for relationships between culture variables and lifetime suicide attempts for women aged 25-54.

	OR	95% CI	p value
Do not speak Aboriginal language	0.46	0.21-1.00	0.051
Never hunted	0.88	0.52-1.49	0.631
Never fished	1.80	0.74-4.34	0.192
Never trapped	0.95	0.47-1.93	0.894
Never gathered wild plants	1.10	0.61-1.98	0.754
Never owned traditional Métis clothing	0.51	0.26-1.03	0.059
Never seen Aboriginal Healer	1.07	0.57-2.01	0.824
Never done Métis art/craftwork	0.60	0.31-1.05	0.072
Not a member of Métis organization	1.00	0.52-1.93	0.992

Note. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Table 4.13

Bivariate logistic regression showing bootstrapped odds-ratio and 95% confidence interval for relationships between culture variables and lifetime suicide attempts for men aged 25-54.

	OR	95% CI	p value
Do not speak Aboriginal language	0.82	0.29-2.35	0.709
Never hunted	1.37	0.65-2.91	0.412
Never fished	1.72	0.46-6.37	0.416
Never trapped	0.77	0.38-1.58	0.480
Never gathered wild plants	1.05	0.49-2.22	0.980
Never owned traditional Métis clothing	0.58	0.21-1.61	0.295
Never seen Aboriginal Healer	0.59	0.25-1.35	0.210
Never done Métis art/craftwork	0.80	0.31-2.10	0.653
Not a member of Métis organization	0.90	0.38-2.13	0.810

Note. Values are rounded as per the Research Data Centre Regulations. OR=odds ratio; CI=confidence interval.

Results of the Multivariable Regression Analyses

Any independent variable from the bivariate analysis that met the statistical criterion of p<0.20 was included in the multivariable analyses. To enhance comparison, models were kept consistent for men and women, all aged 25-54. For example, if a variable was associated (p< 0.20) with suicidality in men, but not women, it was still included in the final model for both genders. The order of entry was drawn from the literature and the conceptual frameworks presented in chapter 2.

Lifetime suicidal ideation for women. The independent relationships between socioeconomic position, family context, and culture variables and suicidal ideation for women is presented in Table 14. All data was weighted to reflect the population of Métis women in Canada.

Model one: Socioeconomic position and suicidal ideation for women. For women, being unemployed and not currently looking for work was associated with a 1.58 times higher likelihood of experiencing lifetime suicide ideation than women who were employed. Additionally, being divorced was associated with a decreased likelihood of lifetime suicide ideation compared to being married, while being widowed led to an increased association with suicidal ideation. Lastly, renting versus owning your home lead to a 1.87 times increased odds of experiencing lifetime suicidal ideation.

Model two: Socioeconomic position, family context and suicidal ideation for women. In Model two, family context variables were added into the multiple regression. Within this model, none of the socioeconomic position variables remained statistically significant. Within the family context variables, having a sibling who died before the age of two was significantly associated with an increased likelihood of lifetime suicidal ideation compared to those who had not (OR=2.40, CI=1.10-5.25). Furthermore, being removed from your home as a child by child welfare or the church was associated with a 4.34 times higher likelihood of ideation as an adult compared to women who were never removed from their homes (p=0.037). Being placed in foster care, or attending a residential/boarding school was not statistically significantly associated with lifetime suicidal ideation.

Model three: Socioeconomic position, family context, culture variables and suicidal ideation for women. Model three consisted of culture, family context, and socioeconomic position variables. Renting versus owning your home was significantly associated with higher lifetime ideation (OR=1.72), as was experiencing a sibling's death (OR=2.40). . Being removed from your childhood home by child welfare or the church was approaching statistical significance, with an OR=3.33 (p=0.086). None of the culture variables added into Model three reached statistical significance. The increase in the –log likelihood value from Model one to Model three shows that model three is capturing more of the relationship between suicidal ideation and the risk factors explored.

Table 4.14

Multivariate model for women aged 25-54 who have experienced lifetime suicidal ideation.

	Model One		Model Two		Model Three	
	OR	95% CI	OR	95% CI	OR	95% CI
Socioeconomic Position:						
Not graduated high school	1.13	0.74-1.72	1.26	0.62-2.57	1.34	0.67-2.74
Employment:						
Not employed, looking	0.79	0.33-1.91	0.36	0.09-1.34	0.36	0.09-1.44
Not employed, not looking	**1.58**	**1.06-2.36**	1.37	0.71-2.64	1.43	0.73-2.80
Marital Status:						
Divorced	**0.52**	**0.35-0.77**	0.46	0.26-0.83	0.45	0.26-0.84
Separated	0.77	0.42-1.40	0.51	0.22-1.20	0.51	0.22-1.20
Single	0.55	0.36-0.84	0.52	0.28-0.94	0.51	0.26-0.96
Widowed	**2.77**	**1.17-6.58**	1.32	0.36-4.92	1.30	0.36-4.92
Renting your home	**1.87**	**1.32-2.65**	1.62	0.92-2.84	**1.72**	**0.99-2.98**
Family Context Variables:						
Live in community born in			1.62	0.33-1.19	0.65	0.34-1.25
Number of family members			1.02	0.96-1.07	1.02	0.96-1.08
Aboriginal father			0.19	0.66-2.12	1.25	0.68-2.30
Aboriginal mother			1.52	0.74-3.09	1.49	0.73-3.04
Sibling death <2 years of age			**2.40**	**1.10-5.25**	**2.40**	**1.05-5.48**
Aboriginal language in the home			1.08	0.44-2.63	1.27	0.47-3.41
Mix language in the home			0.60	0.25-1.42	0.66	0.28-1.53
Removed from home by child welfare			**4.34**	**1.09-17.23**	3.33	0.84-13.19
Placed in foster care			0.74	0.17-3.25	0.85	0.20-3.62
Attended a residential/boarding school			0.27	0.01-8.61	0.31	0.01-11.23
Culture Variables:						
Speak an Aboriginal language					1.17	0.38-3.62
Ever hunted					0.59	0.32-1.11
Ever fished					1.21	0.48-3.10
Ever trapped					1.15	0.52-2.54
Ever gathered					0.76	0.41-1.43
Ever seen an Aboriginal healer					0.65	0.29-1.41
Participate in traditional artwork					0.82	0.36-1.85
-log likelihood		-45935.60		-19336.58		-18849.74

Note. OR=odds-ratio, CI=confidence interval. Reference categories for all culture variables was "never participating" in the activity listed. Statistically significant results are presented in bold.

Lifetime suicidal ideation for men. The independent relationships between socioeconomic position, family context, and culture variables and suicidal ideation for men aged 25-54 are presented in Table 15. All data was weighted to reflect the population of Métis men in Canada.

Model one: Socioeconomic position and suicidal ideation for men. Socioeconomic position variables included in model one are presented in Table 16. For men, being unemployed was associated with a higher likelihood of experiencing lifetime suicidal ideation. More

specifically, compared to employed men, being unemployed/looking for work or being unemployed/not looking for work was associated with a 4.72 and 2.26 times greater odds of ideation, respectively. Men who rented their home had a 1.94 times increased likelihood of experiencing lifetime ideation compared to men who owned their own home. No statistically significant association emerged between marital status and suicidal ideation.

Model two: Socioeconomic position, family context and suicidal ideation for men. Model two consisted of family context and socioeconomic position variables (as shown in Table 15). As in Model one, being unemployed and looking for work remained significantly associated with a higher likelihood of suicidal ideation (OR=3.81, CI=1.34-10.86). Being unemployed but not looking for work was no longer statistically associated with lifetime suicidal ideation. For the family context variables added in model two, not living in the community you were born in was associated with a decreased likelihood of experiencing lifetime suicidal ideation (OR=0.40, p=0.028). In addition, the relationship between having a sibling die under the age of two and experiencing lifetime suicidal ideation was borderline statistically significant (OR=2.22, p=0.057). Being removed by child welfare or the church from your childhood home was not statistically associated with higher likelihood of suicidal ideation.

Model three: Socioeconomic position, family context, culture variables and suicidal ideation for men. Model three consisted of culture, family context, and socioeconomic position variables. The socioeconomic position variable, being unemployed and looking for work, remained statistically significant in all three models. Within the family context variables, living in the community you were born in and experiencing the death of sibling under the age of two remained statistically associated with an increased likelihood of ideation. Moreover, the strength of the relationship between the death of a sibling and suicidal ideation increased (OR=2.35, p=0.04) in Model 3. As for the culture variables, the only significant association was between participating in traditional art/craftwork and lifetime suicidal ideation. Specifically, not participating in traditional art or craftwork was associated with a decreased likelihood of experiencing lifetime ideation (OR=0.37, p=0.052). In Model one, the –log likelihood was -10774.47 and increased to -4580.80 in Model three. This increase shows that Model three is a better fit in exploring suicidal ideation than Model one.

56

Table 4.15

Multivariate model for men aged 25-54 who have experienced lifetime suicidal ideation.

	Model One		Model Two		Model Three	
	OR	95% CI	OR	95% CI	OR	95% CI
Socioeconomic Position:						
Not graduated high school	0.96	0.59-1.59	0.82	0.39-1.73	0.76	0.36-1.62
Employment:						
Not employed, looking	**4.72**	**1.77-12.66**	**3.81**	**1.34-10.86**	**3.58**	**1.28-10.04**
Not employed, not looking	**2.26**	**1.19-4.29**	1.14	0.37-3.55	1.28	0.39-4.16
Marital Status:						
Divorced	0.97	0.48-1.97	1.58	0.60-4.18	1.53	0.55-4.31
Separated	1.59	0.59-4.32	2.31	0.61-8.70	2.13	0.53-8.44
Single	1.60	0.77-3.32	2.54	0.92-7.03	2.34	0.89-6.17
Widowed	0.39	0.10-1.60	0.97	0.12-7.77	0.72	0.72-7.21
Renting your home	**1.94**	**1.22-3.07**	2.02	0.95-4.29	1.94	0.91-4.14
Family Context Variables:						
Live in community born in			**0.40**	**0.19-0.86**	**0.40**	**0.19-0.87**
Number of family members			0.94	0.85-1.04	0.94	0.85-1.03
Aboriginal father			0.46	0.21-1.03	0.49	0.21-1.12
Aboriginal mother			1.20	0.60-2.41	1.34	0.64-2.80
Sibling death <2 years of age			**2.22**	**0.97-5.04**	**2.35**	**1.04-5.30**
Aboriginal language in the home			0.97	0.30-3.17	0.92	0.28-3.02
Mix language in the home			0.66	0.23-1.94	0.77	0.25-2.35
Removed from home by child welfare			0.76	008-6.93	0.83	0.08-8.39
Placed in foster care			2.53	0.30-22.13	2.34	0.23-23.56
Attended a residential/boarding school			9.40	0.33-271.37	5.97	0.35-102.10
Culture Variables:						
Speak an Aboriginal language					0.95	0.30-3.04
Ever hunted					0.76	0.37-1.56
Ever fished					0.70	0.18-2.64
Ever trapped					1.55	0.75-1.62
Ever gathered					0.81	0.40-1.62
Ever seen an Aboriginal healer					0.89	0.30-2.67
Participate in traditional artwork					**0.37**	**0.14-1.01**
-log likelihood		-10774.47		-4748.20		-4580.80

Note. OR=odds-ratio, CI=confidence interval. Reference categories for all culture variables was "never participating" in the activity listed. Statistically significant results are presented in bold.

Lifetime suicide attempt for women. The independent relationships between socioeconomic position, family context, and culture variables and lifetime suicide attempts for women are presented in Table 16. All data was weighted to reflect the population of Métis women in Canada.

There were no statistically significant relationships in models one, two, or three between lifetime suicide attempts and socioeconomic position, family context, or culture variables. However, there are several variables that were approaching significance. For instance, renting

versus owning your home was approaching a statistically significant relationship with likelihood of experiencing a lifetime suicide attempt (p=0.067). Additionally, not having an aboriginal language in your home as a child was associated with a 5.83 times increased odds of suicide attempt compared to those that did have an Aboriginal language within their home. This was not, however, statistically significant (p=0.08). Conversely, having a mixture of Aboriginal and French language in your home as a child showed a trend approaching significance of decreasing likelihood of suicide attempts (OR=0.18, p=0.074). Within model three, the association between not having an Aboriginal language in your childhood home and likelihood of experiencing a lifetime suicide attempt continued to increase, but did not reach statistical significance (OR=6.82, p=0.065). The –log likelihood continues to decrease drastically from Model one (-31454.05) to Model three (-12756.34), suggesting that Model three is a much better fit than Model one.

Table 4.16

Multivariate model for women aged 25-54 who have experienced a lifetime suicide attempt.

	Model One		Model Two		Model Three	
	OR	95% CI	OR	95% CI	OR	95% CI
Socioeconomic Position:						
Not graduated high school	1.62	0.79-3.32	2.21	0.56-8.79	2.80	0.57-13.90
Employment:						
Not employed, looking	1.69	0.40-7.20	4.14	0.21-80.73	4.23	0.17-106.85
Not employed, not looking	1.38	0.65-2.91	1.17	0.40-3.38	1.14	0.41-3.20
Marital Status:						
Divorced	0.58	0.34-1.00	0.77	0.34-1.73	0.63	0.28-1.40
Separated	0.90	0.38-2.09	2.09	0.53-8.27	2.03	0.58-7.11
Single	0.88	0.52-1.51	1.41	0.65-3.07	1.34	0.62-2.87
Widowed	0.98	0.09-10.53	2.19	0.26-18.53	2.16	0.19-24.52
Renting your home	1.81	0.96-3.42	2.29	0.86-6.07	2.14	0.78-5.89
Family Context Variables:						
Live in community born in			1.33	0.41-4.30	1.31	0.39-4.44
Father alive			0.73	0.30-1.82	0.69	0.28-1.72
Aboriginal language in the home			5.83	0.80-42.67	6.82	0.89-52.22
Mix language in the home			0.18	0.03-1.18	0.17	0.02-1.44
Removed from home by child welfare			0.81	0.16-4.15	0.68	0.12-40.4
Placed in foster care			1.81	0.30-10.99	1.92	0.32-11.49
Culture Variables:						
Speak Aboriginal language					0.70	0.06-8.62
Ever fished					0.97	0.21-4.46
Ever gathered					1.46	0.52-4.13
Own traditional Métis clothing					0.94	0.16-5.63
Participate in traditional artwork					0.36	0.11-1.23
-log likelihood		-31454.05		-13081.64		-12756.34

Note. OR=odds-ratio, CI=confidence interval. Reference categories for all culture variables was "never participating" in the activity listed. Statistically significant results are presented in bold.

Lifetime suicide attempts for men. The independent relationships between socioeconomic position, family context, and culture variables and lifetime suicide attempts for men are presented in Table 17. All data was weighted to reflect the population of Métis men in Canada.

There were two socioeconomic position variables associated with an increased likelihood of experiencing a lifetime suicide attempt for men aged 25-54. First, not graduating high school was associated with a 4.26 times increased likelihood of a lifetime attempt compared to men that did graduate (p=0.002). Second, being unemployed and not looking for work was significantly associated with likelihood of experiencing an attempt (OR=4.84, p=0.003).

59

Within models two and three, there were no associations between lifetime suicide attempts and socioeconomic position, family context, and culture variables that remain statistically significant. The relationship between not graduating, compared to graduating, from high school and experiencing a lifetime suicide attempt was approaching statistical significance, with an increased odds of 3.27 (p=0.08). With a –log likelihood of -2673.63, Model three is a better model fit than Model one.

Table 4.17

Multivariate model for men aged 25-54 who have experienced a lifetime suicide attempt.

	Model One		Model Two		Model Three	
	OR	95% CI	OR	95% CI	OR	95% CI
Socioeconomic Position:						
Not graduated high school	**4.26**	**1.74-10.41**	2.69	0.77-9.36	**3.27**	**0.86-12.44**
Employment:						
Not employed, looking	1.32	0.37-4.71	2.09	0.33-13.37	2.06	0.26-16.46
Not employed, not looking	**4.84**	**1.72-13.60**	2.80	0.55-14.30	2.85	0.61-13.39
Marital Status:						
Divorced	0.67	0.23-2.02	2.75	0.36-20.87	1.56	0.26-9.21
Separated	1.13	0.22-5.85	2.28	0.23-21.73	1.60	0.16-15.96
Single	0.74	0.27-2.04	0.94	0.20-4.54	0.81	0.13-4.88
Widowed	-	-	-	-	-	-
Renting your home	1.60	0.70-3.69	1.64	0.47-5.68	1.54	0.42-5.63
Family Context Variables:						
Live in community born in			1.83	0.43-7.78	1.82	0.41-8.07
Father alive			1.55	0.44-5.43	1.69	0.45-6.28
Aboriginal language in the home			0.89	0.19-4.05	0.62	0.10-3.76
Mix language in the home			0.52	0.13-2.04	0.64	0.15-2.71
Removed from home by child welfare			14.44	0.34-607.17	19.9	0.38-1053.20
Placed in foster care			0.21	0.01-4.41	0.14	0.01-2.76
Culture Variables:						
Speak Aboriginal language					0.76	0.10-6.00
Ever fished					4.32	0.19-100.18
Ever gathered					1.74	0.35-8.65
Own traditional Métis clothing					2.83	0.27-29.59
Participate in traditional artwork					1.74	0.34-9.01
-log likelihood	-5851.51		-2767.32		-2673.63	

Note. OR=odds-ration, CI=confidence interval. Reference categories for all culture variables is "never participating" in the activity listed. Statistically significant results are presented in bold.

Summary. Results of the final model for suicide ideation showed that that for women, renting versus owning your home, the death of sibling under age 2, or being removed by a child welfare agency, the church, or government officials were significantly associated with suicidal ideation when controlling for all other socioeconomic position, family context, and culture

variables. There were no independent associations between suicide attempts and any of the socioeconomic position, family context, or culture variables for women. This may be due to smaller cell sizes, resulting in limited power in the analysis.   Different results emerged for men, with unemployment, living in the community of origin, death of a sibling under age 2, and participating in traditional craftwork all significantly associated with suicidal ideation. Not graduating from high school and unemployment were significantly associated with suicide attempts for men when controlling for all other socioeconomic position, family context, and culture variables within the final model.

Chapter 5: Discussion

Reflecting on the history of Métis peoples in Canada and the 2006 AFN framework, the results of this study are interpreted in this chapter. Proceeding in the order of the research questions, this chapter begins with a summary of the prevalence of suicidality among Métis peoples. The remainder of the chapter then focuses on a discussion of the results of the multivariable models. The strengths and limitations of the study are presented, and the chapter finishes with the conclusions and recommendations that can be drawn from this project.

Suicidality in Canada

In Aboriginal populations, suicide is the leading cause of death of individuals under the age of 45, with some provinces having suicide rates among Aborignal people that are seven times higher than the general population (Frohlich et al., 2006; Chandler & Proulx, 2006). In addition, there are substantial differences in suicide across population groups between men and women. In 2000, the suicide rate for Aboriginal men, aged 15-24, was 126 per 100,000, while for non-Aboriginal men in Canada, the rate was 24 per 100,00. The rate of suicide for Aboriginal women aged 15-24 has been reported at 35 per 100,000 and for non-Aboriginal women at 4 per 100,000 (MacNeil, 2008). This is even more concerning when considering that these rates are determined through medical examiners reports or datasets, meaning that suicide will be underreported.

Suicide is a traumatic phenomenon, which affects not only those who attempt and complete, but also friends, family, and community. The motivations behind a suicide attempt have been explored with both qualitative and quantitative research in general Canadian populations. This is the first study, however, to examine the issue of suicidality among Métis peoples in Canada, using the 2006 wave of the Aboriginal Peoples Survey (APS).

The APS is a cross-sectional snapshot in time of the current social and economic conditions for Aboriginal peoples in Canada. Drawing in particular on the Métis supplement to the survey, this project reported for the first time on the prevalence of suicidality within this population. There are numerous limitations in the interpretation of the results being reported here, including the conduct of the survey (which questions were asked under which circumstances), sample size adequacy for quantitative analysis, and conceptual issues with the construction of some of the measures. The interpretations presented here are therefore cautious.

62

Because of limitations with which the survey captures time in relation to measures of suicidality, it is not possible to report incidence rates, only prevalence[5]. Finally, none of the associations discussed can be considered causal, as the data is retrospective and cross-sectional.

The discussion of results that follows here is organized according to the research questions, beginning with a summary of the findings around prevalence of suicide ideation and attempts.

Research Questions 1 and 2: Prevalence of Suicidality Among Métis Peoples

Suicidal ideation. Overall, the prevalence of lifetime suicidal ideation was 13% for Métis survey respondents, which is weighted to represent the Métis population in Canada. This result is similar to the prevalence of suicidal ideation among Aboriginal peoples in Canada reported elsewhere, which is approximately 13.3% (Borges et al., 2008). Both figures are much higher than the prevalence of suicidal ideation in the non-Aboriginal Canadian population, which is reported at .012%, or 12 per 100,000 (Kirmayer et al., 2007).

Suicide attempts. Turning to a consideration of the prevalence of lifetime and past year suicide attempts, the APS is limited in that only those who responded "yes", "I don't know", or "Not stated" to the question "Have you ever seriously considered suicide or taking your own life?" were asked further questions about suicide attempts. Those who answered "no" to the question about ideation were not asked any of the attempts questions. The literature suggests that this may lead to underrepresentation of attempts in a gendered way. That is, some research has shown a link between impulsivity and suicide attempts, with a stronger relationship for men (Anestis, Selby, & Joiner, 2007). Therefore, if a suicide attempt happens impulsively (whether successful or not, and the APS would obviously only capture the unsuccessful attempts), the individual may not have experienced suicidal ideation or planning, therefore answering "no" to that question precluding their being asked the questions about attempts. These individuals, perhaps predominantly men, would be missed. The implications are far-reaching in this study hindering the potential to appropriately interpret observed statistical associations between the attempt outcome and socioeconomic position, family, or culture variables, especially for men. At a more basic level, because of this the prevalence of suicide attempts among men are likely underestimated.

---

[5] Incidence rates describe newly diagnosed cases of suicidality in a specified period of time, whereas prevalent cases may have experienced their suicidality at any time point within their life.

With these limitations in mind, the frequency of lifetime suicide attempts captured for those who reported ideation behaviour (both genders combined) was approximately 38%. A gendered analysis reveals that among those who had suicide ideation, the prevalence of lifetime suicide attempts differed for men and women, with a statistically significant higher proportion of women than men (51% vs. 36%) having attempted suicide. For both women (32%) and men (23%), the 25-54 year old age group had the highest proportion of participants reporting a suicide attempt, with no statistically significant difference by gender. This finding is similar to reports from other Aboriginal populations, but the partial way in which suicidality is captured in the APS may not properly capture the gender dynamic. For instance, studies have reported with both Aboriginal and non-Aboriginal Canadian populations that men are much more likely to complete suicide than women (Alaghehbandan et al, 2005; Karmali et al, 2005). Women tend to have multiple attempts, using less lethal means such as cutting or poisoning (over dose), while men tend to use extremely lethal means such as firearms and hanging. As the APS is self-report, there is no measure of completed suicide. Without this, it is impossible to know for sure the true relationship between gender and suicide attempts for Métis peoples in Canada. The APS captures some of this gender difference, but additional analyses with different data sources would be required to fully explore the gendered experience of suicidality for Métis people, and would be justified on the basis of the literature with other population groups.

Past year suicide attempts cannot be reported here by age groups, due to small cell sizes, but overall, 14% of suicide attempts reported in the survey had occurred within the last 12 months. This result speaks to the urgency of the issue of suicidality among Métis peoples. This proportion was the same for both men and women, but as with the lifetime attempts, further research with other data sources is required to properly understand the role of gender.

Having established prevalence of suicide ideation and attempts as captured in the 2006 APS for Métis people, the survey also afforded the opportunity to look at how these outcomes are associated with the life circumstances captured within it. These include basic socioeconomic-related determinants of health such as education, employment, marital status, and home ownership, but also extended to a more detailed consideration of peoples experiences with their families and communities, as well as their connections to culture. The determinants examined in this study were consistent with Aboriginal health frameworks such as the AFN (2006) policy and

planning framework. Of particular interest were those variables that literary works and the research literature link to the colonization experience of Métis people.

The bivariate results did produce some statistically significant (p< .05) results, however I do not discuss them in detail here. It is important to remember that the bivariate results are crude estimates, which do not adjust/control for the influence of other variables. Venturing what would be at best cautious interpretations of these values combined with the sensitivity of the outcome of interest (suicidality), I feel it is important here to focus on the more reliable results produced by the multivariable models. This is because using these models accounts for some confounding of other independent variables, revealing a truer relationships between concepts such as socioeconomic position, family context, culture, and suicidality (as measured in the APS).

Given the dearth of research literature specific to Métis health and colonization impacts, the discussion of the statistical findings that follows here draws also on the literary works, many biographical, of Métis writers. This becomes especially important where statistically relevant associations appear counterintuitive or perplexing. Nuanced and contextual interpretations are critical, and a space is opened with this research to critically consider what exactly is being captured through the survey measures. I argue that the strength of the linkage between a measure and its conceptual basis becomes increasingly tenuous and problematic as the complexity of the circumstance the measure is attempting to capture increases.

Research Question 3: Multivariable Models

The multivariable models were built based on a criterion of p<0.20 in the bivariate analysis; meaning the independent variable was strongly statistically associated with suicidality and may therefore reflect a substantively important relationship. Model one consisted of socioeconomic position variables, including employment, marital status, renting versus owning a home, and education. Model two included all significant family context variables in addition to socioeconomic position variables. In addition to socioeconomic position and family context variables, model three included all significant culture variables.

Suicidal ideation for women. Within model one (socioeconomic position variables), there were several significant associations with suicidal ideation. When progressing into the final model (Model 3), however, only renting versus owning a home remained statistically associated with lifetime suicidal ideation. This variable was used as a proxy measure for income, as there

was not an available income variable within the APS. Therefore, this may have been a reflection of economic situations within the rental group, and therefore lead to higher instances of suicidality. Bourassa's (2008) work has shown that within Métis populations, lower income is associated with poorer self-rated health. This finding may be a reflection of what was found here.

There was one family context variable that remains significant in model three when all other socioeconomic position, family context, and culture variables are also included in the model. Death of a sibling was associated with increased odds of suicidal ideation (OR=2.40, p=0.039). Along with the emotional trauma of losing a sibling under the age of two, previous research by Smylie and colleagues (2010) has suggested that infant death may be an indicator of exposure to adverse life circumstances. When death in infancy does not result, the influence on life course may be captured later in outcomes such as suicidality. Also important is the relationship between suicidal ideation and being removed from your childhood home by child welfare, church, or government officials. While this relationship was significant in model two, it did not hold statistical significance in model three (OR=3.33, p=0.086). However, due to the small number of individuals who had identified being removed (7% overall), and separating them by gender in the analysis, may have lead to a non-significant result (type two error, elaborated further under limitations). If the sample size were larger, I would speculate that this relationship would remain significant. Literary works by Métis authors, detail negative experiences within the child welfare system that led to family trauma and suicide (Campbell, 1973; Mosionier, 2009). This relationship is an important one for Métis peoples to consider further in future studies.

Suicide attempts for women. There were no statistically significant relationships in models one, two, or three between lifetime suicide attempts and socioeconomic position, family context, or culture variables. This may mean that the variables used within the APS are measuring similar constructs and due to multicollinearity, no significant relationships emerged. It could also mean that the measures themselves were not capturing the construct that the question intends, but rather a deeper issue that cannot be interpreted within the context of this study. For instance, while Maria Campbell's biography (1973) includes some very troubling early life experiences, she explicitly locates these in happier experiences that draw on cultural and

66

linguistic practices of Métis people, and which are also reflected in the APS questions (bolded). She says,

>"I hurt because in my childhood I saw glimpses of a proud and happy people. I heard their laughter, saw them **dance**, and felt their love (p.9)…Our parents spent a great deal of time with us, and **not just our parents but the other parents in our settlement**. They taught us to dance and to **make music** on the guitars and **fiddles.** They played cards with us, they would take us on long walks and **teach us how to use the different herbs, roots and barks**. We were taught to **weave baskets from the red willow** and while we did these things together we were told the stories of our people – who they were, where they came from, and what they had done. Many were legends handed down from father to son. Many of them had a lesson but mostly they were fun stories about funny people (p.18)."

The 'hurt' she describes feeling could be captured as suicidal ideation or attempt in a survey such as the APS. In addition, it is obvious from this story that there are other aspects of connection to family and community that are not explored in the APS, such as oral tradition, and humour.

Taken as a whole Campbell's (1973) biography, and others like it, weave a complex story that clearly demonstrates how a people can on the one hand be embedded in a highly pathological context of addictions, abuse, family dysfunction, and intimate partner violence (strongly linked in the research literature to suicidality), and at the same time draw strength and joy from the language and culture of that same context. What biographies like these reveal is that what is positive in this context may be outweighed by the pathological aspects that for this population group are grounded in the ongoing impact of colonization (*glimpses of a proud and happy people*); so the outcome remains overwhelmingly negative, with complex associations that are difficult to capture empirically. Interpreting counterintuitive or confusing results (as we see particularly well in the crude bivariate analyses), or results that show no association (as we see here in the multivariable analyses) where literature and literary works suggest there should be, such as in the relationships between family, community, and culture and suicidal ideation and attempts is a significant challenge in this study with the available data. Future research can address this issue with an all-encompassing mixed methods strategy across the arts, humanities, health, and social sciences. In this way, stories, art, empirical observations, and epidemiological observations can be systematically brought together to shed light on the issue.

67

Suicidal ideation for men. The relationships between suicidality, socioeconomic position, family context, and culture variables were generally different for Métis men as compared to Métis women. Within the socioeconomic position model (model one), unemployment was associated with a higher likelihood of experiencing lifetime suicidal ideation. More specifically, being unemployed but looking for work was more highly associated with ideation (OR=4.72, p=0.002) compared with being unemployed but not looking for work (OR=2.26, p=0.013). There are several potential reasons for this relationship. The first considers gender roles. Traditionally, men were the breadwinners for Métis families (Campbell, 1973). Having trouble finding work would conflict with this role and may lead to higher instances of suicidal ideation. Kraut and Walld (2003) found that lacking full-time employment was significantly associated with increased suicidality in the general population. They also found that no Aboriginal person who reported working full time had attempted suicide (Kraut & Walld, 2003). Second, not having work may be a proxy measure for lower income and economic status, which has been associated with lower rated heath, and therefore may increase suicidality (Bourassa, 2008; Adelson, 2005). This possible explanation is supported by the significant relationship between renting versus owning your home and higher suicidal ideation.

The relationship between unemployment and suicidal ideation remained significant in model two (OR=3.81, CI=1.34=10.86) and model three (p=0.015). This suggests that unemployment is associated with increased suicidal ideation, independent of all other family context and culture variables.

Turning to the family context variables, living in the community you were born in and experiencing the death of sibling remained statistically associated with an increased odds of lifetime ideation. There are several potential explanations for the 'living in community of birth' result. First of all, given the history of colonization of Métis peoples in Canada, this measure may be accounting for the context of an individuals' family and community environment. As previously mentioned in the results chapter, this may be an instance where aspects of the context in which this community measure is experienced accounts for more of the negative experiences, therefore outweighing the expected positive health effect. Chandler and Lalonde's (1998) found that individuals in communities with high control and capacity had low or zero suicide rates, and those with lowest capacity and control within their community had the highest suicide rates.

68

Why the community measure in this study would be significant for men and not women is unclear. The relationships between sibling death, and suicidality , as discussed earlier for women may also be similarly experiences by men.

For men, there was one culture variable that was significantly associated with suicidal ideation in model three. Participating in traditional art or craftwork was statistically associated with experiencing lifetime ideation. There is nothing in the research literature or in literary works that would offer an explanation for this result. Why only for men? And why the measure of participation in traditional art or craftwork, an activity that is more commonly the domain of women? This result may be due to small cell sizes, or may more substantively reflect issues of measuring culture that are revealed when their association with a dependent variable, such as a health outcome, is explored.

Suicide attempts for men. Without considering family context or culture, there were two socioeconomic position variables associated with an increased likelihood of experiencing a lifetime suicide attempt for men aged 25-54. First, not graduating high school was associated with a 4.26 times increased likelihood of a lifetime attempt (p=0.002). Second, being unemployed and not looking for work was significantly associated with likelihood of experiencing an attempt (OR=4.84, p=0.003). These variables again point to a relationship between suicidality and socioeconomic position.

Within models two and three, there were no relationships that remained statistically significant. The relationship between not graduating from high school and experiencing a lifetime suicide attempt was, however, approaching statistical significance (p=0.08). With previous research indicating that men are more likely to complete suicide on their first attempt, I would suggest again that the lack of relationships here may be due to the fact that those most severely affected have already completed suicide and therefore, can not be accounted for in the survey.

Limitations of the Study

   Study design. The secondary analysis conducted in this project may be stronger if it utilized a survey specifically designed for the research questions addressed. Additionally, the APS is a self-reported cross-sectional study. Self-reported questionnaires are prone to bias and potential misinterpretation of the questions, which would affect the responses and results of the analysis. The cross-sectional nature of the survey means that results cannot be considered causal, as there is no possibility to measure trends over time. However, using this cross-sectional survey is an important first step to assessing suicidality among the Métis population.

   Measurement. While this was the third wave of the APS, it was the first wave to consider suicidality. After future waves have been conducted that also include suicidality, there can be comparisons over time, which will increase the understanding gained in this project. In addition to being cross-sectional, there are several issues with the variables themselves.

   Type one errors. A type one error occurs when a significant result is found where there is actually no meaningful relationship between the variables.

   This may be a particular issue in the crude bivariate analyses, where some of the statistically significant results were perplexing. Why, for example, is there a statistically significant association between not having a mixture of Aboriginal and French language in the home as a child and lifetime suicidal ideation for women aged 25-54 (table 6), but not for the other language variables?. The numbers of responses to the mixed language question were quite small, which may have potentially caused a type one error, a false significant result.

   Type two errors. A type two error occurs when a meaningful relationship between the dependent and independent variables is overlooked because it is not considered statistically significant.

   While the relationship between suicidal ideation and being removed from your childhood home by child welfare, church, or government officials is significant in model two, it did not hold statistical significance in model three (OR=3.33, p=0.086). However, due to the small number of individuals who have identified being removed (7% overall), and analytically separating them by gender, may have resulted in a type two error. Given the significant research and literary material on this topic, I speculate that if the sample size were larger, this relationship would remain significant.

Additionally, those respondents who reported attending a residential school during childhood were 3.99 times more likely to attempt suicide, however, this result was also not statistically significant (p=0.213). Given the history of residential schooling effects, and its near statistical significance, it is included in the final statistical models. The loss of statistical significance here may be attributable to the age range of participants in this study (25-54), where only a small number of respondents at the upper end of the age range would have been old enough at the time of the survey to have personally attended residential schools. A study of the association between suicidality and residential school attendance among an older cohort may find stronger significance values. An interesting question to ask the younger Métis cohort, however, would be if their parents or grandparents attended residential or boarding school as a means of getting at the intergenerational impacts of that experience.

Multicollinearity. When strong associations exist between two or more independent variables in a multivariable regression model, multicollinearity is said to be present (Tabachnik & Fidell, 2006). As the degree of multicollinearity increases among predictors, standard errors also increase, which in turn increases the likelihood of a type two error. In an attempt to reduce the probability of multicollinearity in this study (given the large number of variables potentially relevant to understanding suicidality), I conducted a series of bivariate analyses to reduce the number of potential predictors considered. However, the relatively few statistically significant findings that emerged from the multivariable modeling suggests that additional analytic techniques (e.g factor analysis) to reduce the degree of association between predictors, may need to be applied.

Suicidality. The measurement of suicide attempts within the APS was not ideal. The question was only asked of a subsample of individuals who had responded positively to the question of suicidal ideation. There is literature that suggests that suicide attempts may be linked to impulsivity (Weitoft, 2003). Additionally, a study by Laliberte and Tousignant (2009) links suicide attempts in Aboriginal populations, with a context of intoxication, further supporting the potentially impulsive nature of the act. Clearly there may not always be a linear temporal relationship that begins with suicidal ideation and leads to an attempt with a plan. The impulsive act of suicide attempts was not captured with the current measurement of suicidality within the APS.

71

Culture and family context. Culture did not emerge as either a predictor or protective factor for suicidality in the multivariable analyses, while in the bivariate analysis, it seemed to be a predictor. Family context variables also proved problematic to interpret. This speaks to the great challenges of measuring complex constructs such as these effectively as well as the importance of a nuanced interpretation of results. Both of these are essential to understanding the issue that is actually being captured within the survey.

Generally, a counterintuitive result asks not that we accept it because it is statistically significant, or ignore it because it is unsubstantiated in the literature, but rather that we dig deeper; into the substantive literature and the analytical strategy to uncover possible reasons. The danger of an uncritically accepted statistical result for program and policy development is at best no change in the issue of concern and at worst magnifying the negative outcome. Either of these is a waste of scant resources. A deeper consideration of a surprising result may point to previously unanticipated areas of influence for program or policy, or reveal problems with the data collection tool, sampling approach, or analytical strategy. While beyond the scope of the present study, the association between determinants of health and suicidality warrant deeper investigation, before moving on too far into advancing program and policy recommendations.

In terms of developing better measures for quantitative work, future studies should focus on implementing an approach like the one discussed by Brown and colleagues (2009). Beginning with an ethnographically based strategy driven by the Métis community is the optimal way to create quantitative measures of culture. This mixed methods approach is even more significant for interpretive rigor, and should be expanded, as already discussed, to encompass the empirical contributions of arts, humanities, social, and health sciences. The inclusion of artistic and literary works should not be underestimated for their contribution to understanding the complexities of the human experience overall and especially that of specific populations. Epsikenew's (2009) groundbreaking and award-winning literary analysis of Indigenous literature, trauma, and public policy is a welcome contribution to the scholarly dialogue that requires further integration into population health-oriented explorations of issues such as suicidality.

Métis Framework. At the time this study was conducted, there was no Métis framework in which this research could be grounded. In April 2011, a lengthy examination of Métis health in Manitoba was released, and a Métis framework is proposed. This framework would have been

ideal at the outset of this project to guide the building of research questions and analysis process. The framework proposes merging of Indigenous and Western knowledge development approaches to create a way of translating knowledge that is unique to the Métis population and different from the AFN framework used for this study (Martens et al., 2011). Further, it defines Métis health as a balance of spiritual, emotional, physical, intellectual, political, economic, social, cultural, nation, community, family, individual, child, youth, adult, and elder aspects of life (Martens et al., 2011). Recalling that the APS was constructed with the 2006 AFN framework as a guide, applying a Métis framework could lead to a better Métis supplement in future waves of the APS. Such a supplement could include Métis specific constructs such as nation and intellectual aspects that are not listed within the AFN framework and may be important determinants for Métis peoples.

Strengths of the Study

While every study has limitations, this study has several strengths. This was the first study to examine suicidality among Métis peoples in Canada. Additionally, it was one of the first studies to consider how family context is associated with suicidality within any Aboriginal population. Secondly, using a national dataset like the 2006 APS ensured that the results were representative of Métis peoples across Canada. Lastly, framing the research within the context of Métis history, specifically, their unique history of colonization in Canada was essential to interpreting the results in a sensitive and informative way. Dissemination of this research within the Métis community will hopefully aid in moving forward with the most appropriate strategies for continued healing.

Conclusions

Suicide ideation was experienced by approximately 13% of the Métis peoples in Canada. Within that 13%, approximately 38% have also attempted suicide. The age group most affected by suicidality in Métis peoples are those aged 25-54. This is a similar prevalence to the other Aboriginal populations in Canada. There were also a number of gender differences within suicidality, and examining these differences is extremely important. Given the unique colonization of Métis peoples and its adverse health effects, Métis peoples must be considered as a unique population group. Research within this population requires a health determinant and health reporting framework developed by Métis people.

There are aspects of family context that are unique to the Métis peoples of Canada. From this study, we can conclude that losing a sibling under the age of two was a significant predictor of suicidal ideation, while controlling for all other variables. Finally, being removed from the home by child welfare agencies, the church, or government officials' resulted in increased odds of suicidality.

While culture is extremely important to Métis peoples, to date, research has not created quantitative variables that effectively construct what culture means to this population, especially when applied to studies that move beyond description to assessing association with outcomes of interest. Future work may want to focus on employing the technique of beginning within the community and with an ethnographic approach to develop quantitative measures (Wilson & Rosenberg, 2002).

The results of this study point to the need for a much more mixed methods approach to understanding issues like suicidality, in particular with populations like the Métis who are experiencing the ongoing effects of a complex colonization history. While the results of this study confirm that suicidality is an important concern for Métis peoples, the determinants of this outcome require further empirical scrutiny in advance of appropriately informing suicidality prevention program and policy initiatives.

REFERENCES

Adelson, N. (2005). Embodiment of inequity. *Canadian Journal of Public Health, 96;* S45-S61.

Alaghehbandan, R., Gates, K.D., & MacDonald, D. (2005). Suicide attempts and associated factors in Newfoundland and Labrador. *Canadian Journal of Psychiatry, 50(12);* 762-769.

Anestis MD, Selby EA, Joiner TE. The role of urgency in maladaptive behaviors. *Behavior Research and Therapy.* 2007;45:3018–29.

Assembly of First Nations, Health & Social Secreteriat. (2006). A First Nations health reporting framework. Ottawa, Ontario. Assembly of First Nations.

Bakker, D. (1997). A language of our own: The genesis of Michif, the mixed Cree French language of the Canadian Métis. *New York: Oxford University Press.*

Borges, G., Angst, J., Nock, M.K., Meron Ruscio, A., Kessler, R.C. (2008). Risk factors for the incidence and persistence of suicide-related outcomes: A 10-year follow-up study using the National Comorbidity Surveys. *Journal of Affective Disorders, 105*; 25-33.

Bourassa, C. (2008). Destruction of the Métis nation: Health consequences. *ProQuest Dissertations and Theses;* 2008; ProQuest Dissertations & Theses (PQDT) pg. n/a

Branco, B.C., Inaba, K., Barmparas, G., Talving, P., David, J.S., Plurad, D., Green, D.J. & Demetriades, D. (2009). Sex-related differences in childhood and adolescent self-inflicted injuries: A National Trauma Databank review. *Journal of Pediatric Surgery, 45*; 796-800.

Brown, R.A., Kuzara, J., Copeland, W.E., Costello, E.J., Anhold, A., Worthman, C.M. (2009). Moving from ethnography to epidemiology: Lessons learned in Appalachia. *Annals of Human Biology, 36(3);* 248-260.

Bruce, S. (2000). Prevalence and determinants of diabetes mellitus among the Métis of western Canada. *American Journal of Human Biology, 12(4);* 542-551.

Campbell, M. (1973). Half-breed. *Halifax, NS, Canada: Goodread Biographies/Canadian Lives.*

Capp, K., Deane, F.P., Lambert, G. (2001). Suicide prevention in Aboriginal communities: application of community gatekeeper training. *Australian and New Zealand Journal of Public Health, Aug 2001, 21(4);* 315.

Chandler, M.J., Lalonde, C.E., Sokol, B.W., & Hallet, D. (2003). Personal persistence, identity development, and suicide: a study of Native and Non-native North American adolescents. *Monographs of the Society for Research in Child Development, 68(2)*, 1-130.

Chandler, M. & Proulx, T. (2006). Changing selves in changing worlds: Youth suicide on the fault-lines of colliding cultures. *Archives of Suicide Research, 10*, 125-140.

Dean, F., Wilson, C.J., Ciarrochi, J. (2001). Suicidal ideation and help-negation: not just hopelessness or prior help. *Journal of Clinical Psychology, 57(7);* 901-914.

Denney, J.T., Rogers, R.G., Krueger, P.M., Wadsworth, T. (2009). Adult suicide mortality in the United States: Marital status, family size, socioeconomic status and differences by sex. *Social Science, 90(5);* 1167.

Dupere, V., Leventhal, T., Lacourse, E. (2008). Neighborhood poverty and suicidal thoughts and attempts in late adolescence. *Psychological Medicine;* 1-12.

Episkenew, J. (2009). Taking Back Our Spirits: Indigenous Literature, Public Policy, and Healing. *University of Manitoba Press, Winnipeg, MB.*

Farrand , P, Parker, M., Lee, C. (2007). Intention of adolescents to seek professional help for emotional and behavioural difficulties. *Helath and Social Care in the Community, 15(5);* 464-473.

Farrelly, T. & Francis, K. (2009). Definitions of suicide and self-harm behaviour in an Australian aboriginal community. *Suicide and Life Threatening Behaviour, 39(2);* 182-9.

Flouri, E. (2009). Psychological and sociological aspects of parenting and their relation to suicidal behavior. *Archives of Suicide Research, 9(4)*; 373-383.

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

Frankish, C. J., Green, L. W., Ratner, P. A., Chomik, T., & Larsen, C. (1996). Health impact assessment as a tool for health promotion and population health. Report for Health Canada: Ottawa.

Frohlich, K.L., Ross, N., & Richmond, C. (2006). Health disparities in Canada today: Some evidence and a theoretical framework. *Health Policy, 79;* 132-143.

Galobardes, B., Shaw, M., Lawlor, D.A., Lynch, J.W., Smith, G.D. (2006). Indicators of socioeconomic position (part 1). *J Epidemoiol Community Health, 60(7);* 7-12.

Gould M.S., King R., Greenwald S., Fisher P., Schwab-Stone M., Kramer R., Flisher A.J., Goodman S., Canino G., & Shaffer D. (1998). Psychopathology associated with suicidal ideation and attempts among children and adolescents. *American Journal of Academy of Child and Adolescent Psychiatry, 37(9);* 915-23.

Government of Canada (2006). Aboriginal Peoples Survey. Accessed from http://www.statcan.gc.ca/cgiin/imdb/p2SV.pl?Function=getSurvey&SDDS=3250&lang= en&db=imdb&a dm=8&dis=2. (February 28, 2010)

Health Canada (2005). A Statistical Profile on the Health of First Nations in Canada for the Year 2000. Ottawa, ON: Her Majesty the Queen in Right of Canada.

Hosmer, D., & Lemeshow, S. (1989). Applied logistic regression. New York: Wiley.

Hruschka, D.J. (2009). Culture as an explanation in population health. *Annals of Human Biology, 36(3);* 235-247.

Isaac, M., Elias, B., Katz, L.Y., Belik, S.L., Deane, F.P., Enns, M.W., Sareen, J., Swampy Cree Suicide Prevention Team. (2009). Gatekeeper training as a preventative intervention for suicide: A systematic review. *Canadian Journal of Psychiatry, 54(4);* 260-269.

Jakobsen, I.S. & Christiansen, E. (2010). Young people's risk of suicide attempts in relaton to parental death: A population-based register study. *The Journal of Child Psychology and Psychiatry, epub ahead of print.*

Johnson, J.G., Cohen, P., Gould, M.S., Kasen, S. Brown, J., Brook, J.S. (2002). Childhood adversities, interpersonal difficulties, and risk for suicide attempts during late adolescence and early adulthood. *Archives of General Psychiatry, 59*; 741-749.

Karmali, S., Laupland, K., Harrop, A.R., Findlay, C., Kirkpatrick, A.W., Winston, B., Kortbeek, J., Crowhoe, L., Hameed, M. (2005). Epidemiology of severe trauma among status Aboriginal Canadians: a population based study. *Canadian Medical Association Journal, 172(8);* 1007-11.

Katz, L.Y., Elias, B., O'Neil, J., Enns, M., Cox, B.J., Belik, S.L., Sareen, J. (2006). Aboriginal suicide behaviour research: from risk factors to culturally-sensitive interventions. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 15(4);* 159-67.

77

King, M., Smith, A., Gracey, M. (2009). Indigenous health part 2: the underlying causes of the health gap. *The Lancet, 374*; 76-85.

Kirmayer, L.J., Brass, G.M., Holton, T., Paul, K., Simpson, C., & Tait, C. (2007). Suicide among Aboriginal people in Canada. *The Aboriginal Health Foundation Research Series.*

Kovess-Masfety, V., Saragoussi, D., Seveilla-Dedieu, C., Gilbert, F., Suchocka, A., Arveiller, N., Gasquet, I., Younes, N., Hardy-Bayle, M.C. (2007). What makes people decide who to turn to when faced with a mental health problem? Results from a French survey. *BMC Public Health, 7;* 188.

Kraut, A. & Walld, R. (2003). Influence of lack of full-time employment on attempted suicide in Manitoba, Canada. *Scand J Work and Environmental Health, 29(1);* 15-21.

Laliberte, A. & Tousignant, M. (2009). Alcohol and other contextual factors of suicide in four Aboriginal communities of Quebec, Canada. *Crisis, 30(4);* 215-21.

Lizardi, D., Thompson, R.F., Keyes, K., & Hasin, D. (2009). Parental divorce, parental depression, and gender differences in adult offspring suicide attempt. *Journal of Nervous and Mental Disorders, 197;* 899-904.

MacNeil, M.S. (2008). An epidemiologic study of Aboriginal adolescent risk in Canada: The meaning of suicide. *Journal of Child and Adolescent Psychiatric Nursing, 21*;3-12.

Martens, P., Bartlett, J., Burland, E., Prior, H., Burchill, C., Huq, S., Romphf, L., Sanguins, J., Carter, S., Baily, A. (2011). Profile of Métis health status and healthcare utilization in Manitoba: A population-based study. *Manitoba Centre for Health Policy in Collaboration with the Manitoba Métis Federation, Department of Community Health Sciences, Faculty of Medicine, University of Manitoba.*

McNab, David & Lischke, Ute (2005). *Walking a tightrope: Aboriginal people and their representations* (ISBN 0-88920-460-8).

McNab, David, & Ute Lischke. (2007) The Long Journey of a Forgotten People Métis Identities and Family Histories. Waterloo, Ont: Wilfrid Laurier University Press.

Métis National Council. (2011). Definition of Métis peoples. Retrieved from *www.metisnation.ca*.

Moniruzzaman, A., Pearce, M.E., Patel, S.H., Chavoshi, N., Teegee, M., Adam, W., Christian, W.M., Henderson, E., Craib, K.J., Schechter, M.T., Spittal, P.M., Cedar Project

Partnership. (2009). The Cedar Project: correlates of attempted suicide among young Aboriginal people who use injection and non-injection drugs in two Canadian cities. *International Journal of Circumpolar Health, 68(3);* 261-73.

Morrissette, J.P. (1994). The holocaust of First Nation people: Residual effects on parenting and treatment implications. *Contemporary Family Therapy: An International Journal, 16(5),* 381-392.

Mosionier, B. (2002). Come walk with me: A memoir. *Winnipeg, MB, Canada: High Water Press.*

Obomsawin, A. & Cannell, M. (1987). Richard Cardinal: Cry from a diary of a Métis child. *National Film Board of Canada.*

Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

Public Health Agency of Canada. (1994). Population health. Retrieved from http://www.phac-aspc.gc.ca/index-eng.php.

Indian and Northern Affairs Canada. (1996). Royal Commission on Aboriginal Peoples. *Government of Canada*.

Slap G., Goodman E., & Huang B. (2001). Adoption as a risk factor for attempted suicide during adolescence. *Pediatrics, 108(2);* E30.

Smylie, J., Fell, D., Ohlsson, A., Joint Working Group on First Nations, Indian, Inuit, and Métis Infant Mortality of the Canadian Perinatal Surveillance System. (2010). *Canadian Journal of Public Health, 101(2);* 143-48.

Statistics Canada (2006). Aboriginal Peoples Survey, 2006: Concepts and methods guide. *Social and Aboriginal Statistics Division,* Ottawa.

Tjepkema, M., Wilkins, R., Senecal, S., Guimond, E., Penney, C. (2011). Potential years of life lost at ages 25 to 74 among Métis and non-status Indians, 1991 to 2001. *Component of Statistics Canada Catalogue no. 82-003X. Health Reports.*

Waldvogel, J.L., Rueter, M., & Oberg, C.N. (2008). Adolescent suicide: Risk factors and prevention strategies. *Current Problems in Pediatric Adolescent Health Care, 38*, 110-125.

Wilson, K. & Rosenberg, M.W. (2002). Exploring the determinants of health for First Nations peoples in Canada: can existing frameworks accommodate traditional activities? *Social Science & Medicine, 55;* 2017-2031.

Wise, P.H. (2003). The anatomy of a disparity in infant mortality. *Annu. Rev. Public Health, 24;* 341-62.

World Health Organization. (2011). Gender, women, and health. Retrieved from www.who.int/gender.

Yigletu, H., Tucker, S., Harris, M., Hatlevig, J. (2004). Assessing suicide ideation: Comparing self-report versus clinician report. *Journal of American Psychiatric Nurses Association, 10(1);* 9-15.

Table 1

Variables, corresponding questions, and reference category from the Aboriginal Peoples Survey used for this analysis.

Variables	Question From APS	Reference Category
Socioeconomic position:		
Age	-	Anyone not 25-54
Gender	Are you male/female?	
Marital Status:	-	Widowed
Married		
Divorced		
Separated		
Single		
Widowed		
Employment:	Last week, did you work for pay or in	Employed
Employed	self-employment?	
Unemployed, looking	Did you look for paid work during	
for work	the last four weeks? For example: did	
Unemployed, not	you contact an employment centre,	
looking for work	check with employers, place or	
	answer newspaper adds?	
Education:	Did you graduate from high school?	Graduated
Graduated high school	Please do no include graduation	
Did not graduate high	through a High School Equivalency	
school	program (GED)	
Home Ownership:	Is your home rented or owned by	Own a home
Renting your home	your or another member of this	

Own your home	household?	

Family Context:

Live in Community you were born in	Do you still reside in the community where you were born?	Do not live in community born in
Number of siblings	Including yourself, how many children were there in your family? Include biological siblings, half-brother & sisters, step-brothers & sisters as well as adopted brothers & sisters?	
Two-parent vs. single parent home	Did you spend all or most of your childhood in a two-parent or single parent home?	Two-parent home
Father currently living	Is your biological father now living?	Father living
Aboriginal Father	Is (or was) your father Aboriginal by ancestry, that is, Indian/First Nation, Métis or Inuk?	Aboriginal father
Mother currently living	Is your biological mother now living?	Mother living
Aboriginal Mother	Is (or was) your biological mother Aboriginal by ancestry, that is, Indian/First Nation, Métis or Inuk?	Aboriginal mother
Sibling death < 2 years old	Did any of your brothers or sisters die before they were two years old?	No death
Aboriginal language in home as a child	Was any Aboriginal language, such as Michif, Cree, Saulteaux or Dene ever spoken at home when you were a child?	Aboriginal language in home
French in home as a	Was French ever spoken at home	French language in

child	when you were a child?	home
Aboriginal mixed with French in home as a child	Was the French spoken at home mixed with an Aboriginal language such as Cree, Ojibway or Saulteaux?	Mixed language in home
Ever removed from home by child welfare	As a child, were you ever removed or separated from your family, for any length of time by child welfare agencies, church or government officials?	Never removed
Ever in foster care	Were you ever placed in a foster home or in foster care at any time under the age of 18?	Never in foster care
Aboriginal foster parent	Thinking of the foster home where you stayed the longest, were your foster parents Aboriginal by ancestry, that is, Indian/First Nation, Métis or Inuit?	Aboriginal foster parent
Ever in residential/boarding school	Were you ever a boarder in a residential school or boarding school at any time under the age of 18?	Never in residential/boarding school
Ever officially adopted	Were you ever officially adopted	Adopted

Culture:

Speak an Aboriginal language	Do you speak an Aboriginal language?	Speak
Ever hunted	Have you ever hunted?	Yes hunted
Ever fished	Have you ever fished?	Yes fished
Ever trapped	Have you ever trapped?	Yes trapped
Ever gathered	Have you ever gathered?	Yes gathered
Seen an Aboriginal	Have you ever seen an Aboriginal	Seen an Aboriginal

healer	healer?	healer
Own traditional clothing	Do you own a sash, a traditional Métis shirt or other articles traditionally associated with Métis culture?	Yes own clothing
Do traditional artwork	Do you do any art or craftwork in traditional Métis or Aboriginal Motifs?	Yes participate in artwork
Member of Métis organization	Are you a member of any Métis cultural, social or political organizations or associations, such as a metis dance group, Métis local or Métis Nation organizations	Yes member or Métis organization