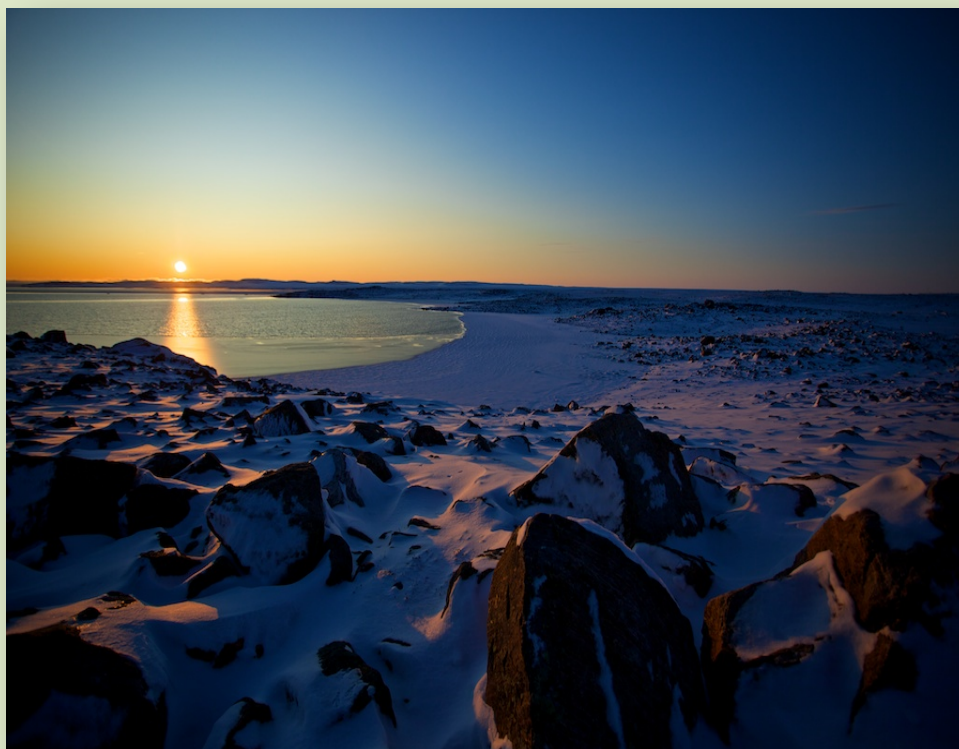


## Learning From Lives That Have Been Lived

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## NUNAVUT SUICIDE FOLLOW-BACK STUDY 2005-2010



McGill



*Douglas*  
INSTITUT MENTAL HEALTH  
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Nunavut Tunngavik Inc.

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Embrace Life Council



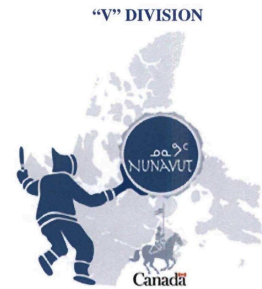
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*Nunavut Suicide Follow-Back Study: Identifying the Risk factors for Inuit  
Suicide in Nunavut*

With the Nunavut Suicide Follow-Back Study Steering Committee and the McGill Group  
for Suicide Studies

Prepared by Dr. Eduardo Chachamovich and Monica Tomlinson, in collaboration with  
Embrace Life Council, Nunavut Tunngavik Inc., and the Government of Nunavut.

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Such generous contributions added to a better understanding of suicide in Nunavut and will be important in developing more efficient strategies to help communities address further losses by suicide in the future.

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Last, but certainly not least, we would like to thank the Nunavut Follow-Back Study Steering Committee for their guidance and input during the study. These partners are also members of the Nunavut Suicide Prevention Strategy.

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## Executive Summary

Suicide is a global issue. Countries around the world are affected by suicide, and many are implementing national suicide prevention strategies to curb this issue. The World Health Organization (WHO) estimates that there are almost 1 million deaths by suicide in the world, per year.

Nowhere is this problem as striking and extreme as in certain Aboriginal populations. In Nunavut, the rate of death by suicide among Inuit has increased markedly over the last three decades, and it is currently just over 120 per 100,000 people, 10 times the Canadian suicide rate.

The main goal of *Qaujivalliani Inuusirijauvalauqtunik* – Learning from lives that have been lived was to identify the reasons behind each death by suicide in order to better comprehend, predict, and eventually prevent suicide in the future. A ‘follow-back’ design was used, which looks retrospectively into the lives of both individuals who died by suicide and individuals with comparable backgrounds who are still living to identify risk and protective factors associated with the suicide.

The project included 498 interviews with the family and friends of all 120 suicides that occurred in Nunavut between January 1, 2003 and December 31, 2006 as well as 120 living individuals who had close dates of birth, came from the same community of origin, and were the same gender as individuals in the suicide group (the was our comparison group).

In Nunavut between 2003 and 2006, more males than females committed suicide. The maximum age in the study was 62 years old and the minimum age was 13. The average age of individuals who died by suicide was 24.6 years old.

### ***Demographic Differences Between the Suicide and Comparison Groups***

- More individuals in the comparison group were married or in a common-law relationship, whereas more individuals in the suicide group were single;
- More individuals in the comparison group were employed or in school and more individuals who died by suicide were unemployed;



- Individuals in the suicide group were more than twice as likely to have been involved in legal problems compared to the living individuals;
- Individuals who died by suicide were almost four times as likely to have had less than 7 years of education than the comparison group.

#### ***Differences in Childhood Experiences Between the Suicide and Comparison Groups***

- Significantly more individuals in the suicide group had experienced childhood abuse than the comparison group;
- Significantly more individuals in the suicide group had been physically and/or sexually abused in childhood than the comparison group.

#### ***Differences in Impulsiveness and Aggression Between the Suicide and Comparison Groups***

- Levels of both impulsiveness and aggression were significantly higher among those who died by suicide.

#### ***Differences in Diagnoses of Psychiatric Illness Between the Suicide and Comparison Groups***

- Significantly more individuals in the suicide group were diagnosed with current (past 6 months) or lifetime major depressive disorder than the comparison group;
- Significantly more individuals in the suicide group were diagnosed a current or lifetime cannabis dependence or abuse disorder than the comparison group;
- Twice as many individuals in the suicide group were diagnosed a current alcohol abuse or dependence disorder than the comparison group. There were no differences in lifetime alcohol abuse or dependence. This indicates that alcohol abuse or dependence may be a more acute risk factor for suicide.

#### ***Differences in Personality Disorders Between the Suicide and Comparison Groups***

- Significantly more individuals in the suicide group were diagnosed with borderline personality disorder, conduct disorder, and antisocial personality disorder than the comparison group.

#### ***Participant's Use of Mental Health Care When in Need***

- Twice as many individuals who died by suicide took psychiatric medication than the comparison group. However, the majority of individuals did not take psychiatric medication (80%);
- Twice as many individuals who died by suicide were hospitalized for a psychiatric illness than the comparison group;
- Significantly more individuals who died by suicide were hospitalized more than once for a psychiatric illness compared to the comparison group

These concrete findings are pivotal in understanding where resources should be focused to prevent suicide in the future. The effective and sensitive use of these results can assist us in achieving the vision of the Partners of the Nunavut Suicide Prevention Strategy – a Nunavut in which suicide is de-normalized, and where the rate of suicide is the same as the rate for Canada as a whole, or lower.

## **A Brief Overview of Suicide Research**

### ***Suicide Globally...***

Suicide is a global issue. Countries around the world are affected by suicide, and many are implementing national suicide prevention strategies<sup>24</sup>. The World Health Organization (WHO) reports that deaths by suicide account for almost 1 million deaths in the world, per year. Global estimated rates of death by suicide are 14-15 deaths per 100,000 individuals, which means that one death by suicide occurs about every 40 seconds<sup>24</sup>.

In Canada, as in most of the developed world, suicide is among the top ten leading causes of death. While suicide rates among elderly have decreased in most countries, suicide rates for younger individuals have risen. For males younger than 40 years old, suicide is the leading cause of death worldwide<sup>24</sup>.

Globally, suicide is associated with several underlying factors, with mental health being the most pervasive. Suicide rates vary from country to country depending on ethnicity, occupation, employment status, region, and gender<sup>24</sup>.

Consistently, suicide claims the lives of more men than women. Other factors that are well known to increase an individual's vulnerability to dying by suicide include history of childhood maltreatment, exposure to suicidal behaviour in his or her family<sup>24</sup>, and previous suicidal behaviour<sup>51</sup>.

### ***Suicide in Aboriginal Populations...***

Nowhere is this problem as striking and extreme as in certain Aboriginal populations. Worldwide, certain indigenous populations have higher suicide rates than their country's non-Indigenous population. For example, Australian Aborigines, Maori in New Zealand, and Native Americans in the US all have high suicide rates<sup>24</sup>.

While some Aboriginal populations have suicide rates comparable to or lower than the general Canadian population (for example, the Cree in Quebec), studies in regions

containing both Aboriginal and non-Aboriginal populations often find the Aboriginal suicide rates to be much higher than those in the rest of the world.

Inuit, for example, have had among the highest rates of suicide in the last forty years. In 2000 the overall First Nations suicide rate was 24 people for every 100,000 (two times the general Canadian suicide rate<sup>35</sup>). Among Inuit, however, these were a staggering 135 people for every 100,000 between 1999 and 2003<sup>14</sup>. Suicide rates among Inuit have been, on average, ten times higher than the general Canadian population for more than 4 decades. These rates are in contrast with the low rates of suicide that Inuit societies had until about four decades ago<sup>48</sup>.

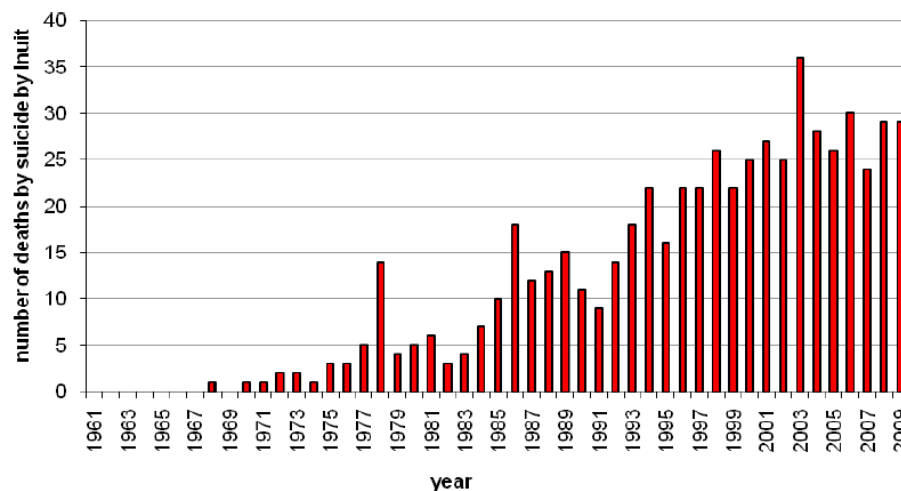
In Nunavut, the rate of death by suicide among Inuit increased markedly over the last two decades, and it is currently just over 120 per 100,000 people. 56% percent of suicides in Nunavut are committed by men younger than 25, compared to 7% in Canada. The rise in Nunavut's rate of death by suicide is almost entirely the result of an increased number of suicides by Inuit younger than 25. The rate of death by suicide among Nunavut Inuit aged 15 to 24 has increased more than six-fold since the early 1980's<sup>27</sup>.

Beyond actual deaths by suicide, rates of suicide attempts and suicidal ideation (thoughts of committing suicide) appear to be very high in Nunavut. Recent data collected at the Qikiqtani General Hospital indicate that injuries caused by suicide attempts account for almost half of all the injuries among people age 20–29<sup>57</sup>. Results from the Inuit Health Survey show that 48% of Inuit in Nunavut have thought about committing suicide at some point in their lives, whereas 29% reported having attempted suicide at some point in their lives<sup>21</sup>.

The frequency of reported suicidal thoughts among Inuit in Nunavut is higher than that reported among First Nations Canadians where, according to the First Nations Regional Longitudinal Health Survey, 31% of adults report having had suicidal thoughts at some point in their lives<sup>5</sup>. This is higher than the rate of 13% for the rest of Canada<sup>36</sup>

The following graph shows the number of suicides among Inuit in Nunavut from 1961-2009.

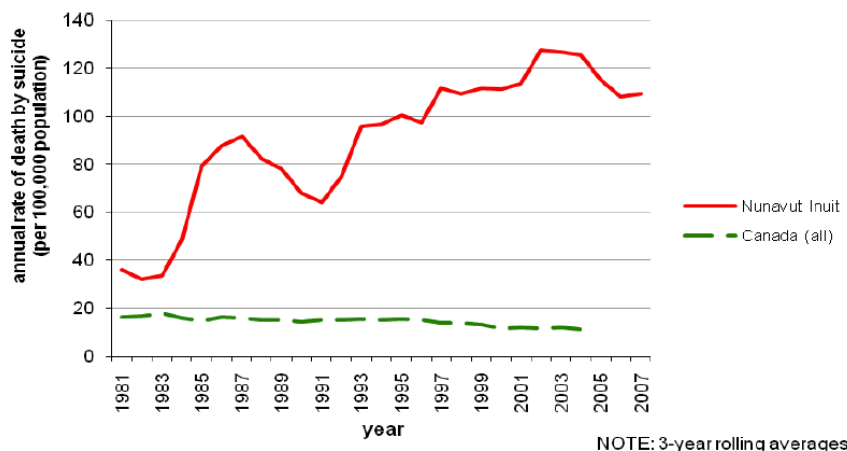
**Chart 1: Number of deaths by suicide among Nunavut Inuit, 1961-2009, by year**



Source: Hicks, Jack, *The social determinants of elevated rates of suicide among Inuit youth*. Forthcoming external PhD dissertation, Ilisimatusarfik (University of Greenland). Based on data from the Offices of the Chief Coroners of the Northwest Territories and Nunavut.

The following chart presents the high rates of suicide among Inuit in Nunavut compared to the rest of the Canadian population from 1982 to 2008.

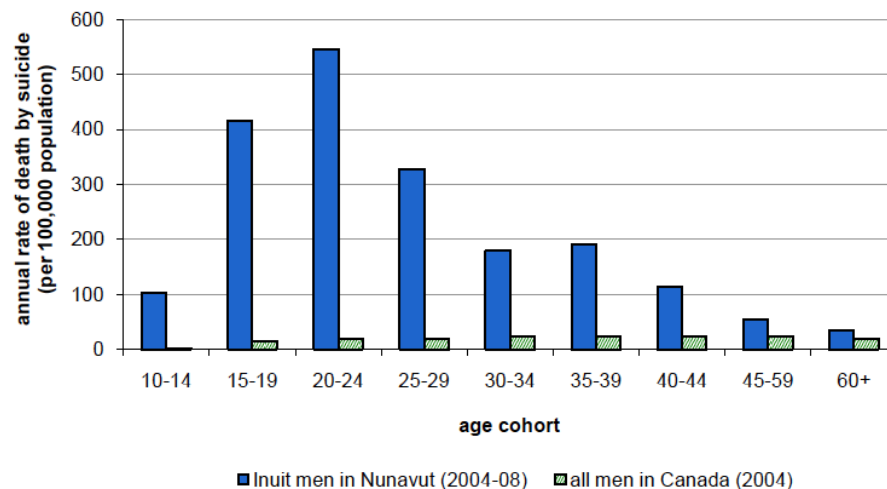
**Chart 2: Rate of death by suicide among Nunavut Inuit and Canadians as a whole, 1982-2008**



Source: Hicks, Jack, *The social determinants of elevated rates of suicide among Inuit youth*. Forthcoming external PhD dissertation, Ilisimatusarfik (University of Greenland). Based on data from the Offices of the Chief Coroners of the Northwest Territories and Nunavut and from Statistics Canada.

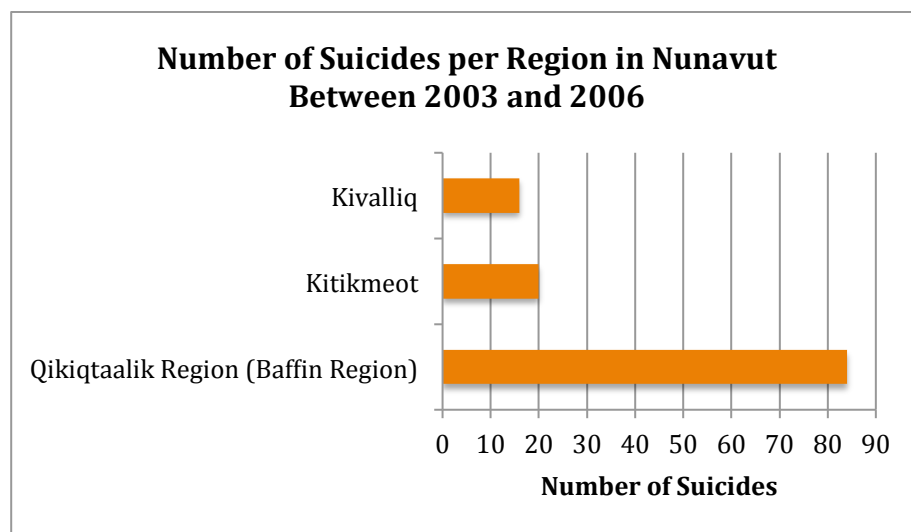
The following chart highlights the higher rates of suicide among young Inuit males, compared to the general Canadian population<sup>28</sup>.

**Chart 3: Rate of death by suicide, Inuit men in Nunavut (2004-2008) and all men in Canada (2004), by age cohort**



Source: Hicks, Jack, *The social determinants of elevated rates of suicide among Inuit youth*. Forthcoming external PhD dissertation, Ilisimatusarfik (University of Greenland). Based on data from the Office of the Chief Coroner of Nunavut and from Statistics Canada.

Between 2003 and 2006, 120 Inuit died by suicide in Nunavut. The following graph shows the number of suicides per region in Nunavut, with the highest rates of suicide being in the Qikiqtaaluk region (Baffin Region).



## Suicide and Mental Health

### ***In the General Canadian Population...***

Studies around the world have consistently demonstrated that death by suicide is frequently associated with mental health issues such as depression, anxiety disorders, personality disorders, and drug and alcohol abuse and dependence disorders<sup>24</sup>. Often individuals who have one mental illness may also meet the criteria for one or more additional mental illnesses<sup>24</sup>. In fact, mental health issues are considered one of the *most important* risk factors for suicide. In other words, when someone is having mental health problems, this person becomes more vulnerable to suicidal ideation and dying by suicide<sup>4</sup>.

### ***Among Inuit...***

Studies have shown that mental health problems are important factors for suicidal behaviours in Inuit populations as well. Individuals with suicidal ideation or those who died by suicide were more likely to have anxiety, depression and drug and alcohol abuse or dependence problems<sup>8, 23, 33, 34</sup>.

In 2008 the Government of Nunavut, Nunavut Tunngavik Inc., the Embrace Life Council, and the Royal Canadian Mounted Police formed a partnership to create a Nunavut Suicide Prevention Strategy. They reviewed evidence based research on methods that have successfully reduced suicide in other jurisdictions, released a discussion paper, conducted community consultations, and met with all key stakeholders involved with suicide prevention. In October 2010, the Strategy was tabled in the Legislative Assembly of Nunavut.

The Strategy indicates that significant investments are required for mental health services and evidence - based interventions. In addition, the Partners noted the importance of ensuring all aspects of suicide prevention are considered - prevention,

intervention, and postvention. The companion document to the Strategy, the Nunavut Suicide Prevention Strategy Action Plan, was released in September 2011. It outlines the actions to be taken under the eight commitments of the Strategy.



## Description of the Study

### ***Background***

This report was created to honour the researchers' obligation to present formal feedback to the stakeholders as part of the Canadian Institutes for Health Research (CIHR) requirements.

This report is also part of a larger strategy to make these results public and available to those who are interested in them.

### ***The Nunavut Suicide Follow-Back Study: What is it?***

A follow-back study looks retrospectively at the lives of a group of individuals who died by suicide and a comparison group (living individuals with the same demographic background) to identify risk and protective factors associated with the suicide. Looking retrospectively at the lives of both individuals who died by suicide and individuals who are still living allows us to collect a large amount of detailed information on the lives of both groups so that we may better understand why some individuals are at a higher risk of dying by suicide than others.

This is the first large-scale study of its kind to be conducted with Inuit communities in the world. The goal is to identify the reasons behind each death by suicide in order to better comprehend, predict, and prevent suicide in the future<sup>50</sup>.

### ***Funding***

Funding for this project was received from the Canadian Institutes for Health Research (CIHR). The Government of Nunavut also provided funding for the final steps of the project.

The Fonds de recherche du Québec - Santé (FRQS) and the Canadian Institutes for Health Research also funded the development of the knowledge translation strategies.

## ***Approval***

The Douglas University Mental Health Institute's Institutional Review Board provided ethical approval. The Nunavut Research Institute also issued the research license.

## ***Confidentiality***

Participants' confidentiality was handled with extreme care in this study. Names are kept confidential at all times and the researchers will not release information on single communities, families or individuals. Results will always be presented in a way that ensures complete anonymity.

During interviews, participants were free to pause and interrupt the researcher whenever they felt it appropriate or necessary. Participants were also given the option of withdrawing from the study at any time. All participants were financially compensated for their participation and were offered the choice of keeping the compensation or donating it to an organization they were interested in supporting.

When any participant was in distress at any point during the interview, the researchers were obligated to refer the participant to a health care professional, or bring them to the health care centre. The research team was always accessible by phone or email for any questions or concerns regarding the study.

Before approaching each community, the research coordinator contacted a health professional at the community health center to inform him or her of our project and to collect any relevant information on the current status of the community (i.e. if any recent suicides or other deaths had occurred, if any important events such as feasts or tournaments were planned). Visits were cancelled if the timing was not appropriate.

## ***The Nunavut Suicide Follow-Back Study: How did we do it?***

The Qaujivalliani Inuusirijauvalauqtunik ('Learning from lives that have been lived') project included all 120 suicides that occurred in Nunavut between January 1, 2003 and

December 31, 2006. It also included 120 living individuals who had close dates of birth, came from the same community of origin, and were of the same gender as individuals in the suicide group. The purpose of including living individuals with the same demographic background was to create a group with which to compare suicide cases, a “comparison group”.

The 120 suicides were identified by the Nunavut Coroner’s office, and the 120 living individuals were selected from the Nunavut Healthcare Registration File according to their date of birth, community of origin and gender. Once the living individuals were contacted, they selected family and friends to be interviewed for the study on their behalf.

Once suicide groups and living comparison groups had been selected and interviews were scheduled, each interview was conducted identically to ensure that there were no differences in the types of interviews being conducted with the families and friends of living individuals and the families and friends of individuals who died by suicide.

A complete review of the relevant medical charts (when the family gave permission) and criminal records (when the individual had one) for each individual was carried out in order to assess medical and psychological history for both the suicide and comparison groups.

From March 2006 to July 2010, a total of 498 interviews were conducted with informants in 22 communities across Nunavut, each interview took an average of two and half hours to complete. Informants were family members and friends of individuals who died by suicide between 2003-2006, as well as family members and friends of those living individuals who were invited to participate. They shared information about the individual’s childhood, upbringing, life experiences, mental health, drug use, work history, interpersonal relationships, and any known history of suicide attempts. Whenever possible, multiple interviews were conducted for each person. This ensured that we had the most complete profiles of information on each individual in our study.

After completing the data collection, the lengthy process of organizing and analyzing the data began. The interviewer wrote a clinical-biographical narrative for each

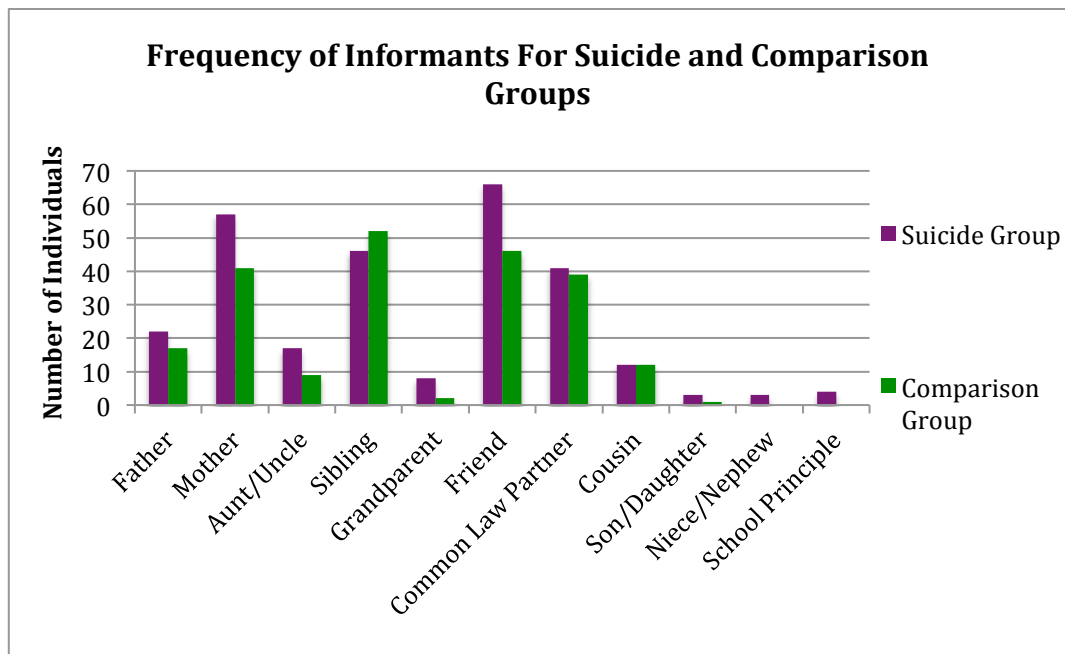
individual, in which details of his or her life were summarized. The biographical narrative described the individual's upbringing, familial relationships, academic performance, romantic experiences, interpersonal relationships, occupational life and detailed information about any psychiatric symptoms. This narrative, a copy of the medical records, and the completed set of instruments were sent to the coordinating center for further processing.

At McGill University, the instruments were assessed to ensure completeness. Any discrepancy in information between instruments (or between an instrument and the content of the narrative summary) was identified and resolved by discussion with the interviewer. The narratives were then blinded so that individuals who died by suicide and those of the comparison group could not be distinguished (i.e. the case was disguised, details on the circumstance of death were removed and verbs were all changed to the past tense). The standardized case narrative, a summary of the medical records, and the psychiatric diagnoses were then forwarded to a panel of research collaborators to validate the psychiatric diagnoses that were given by the interviewer. Typically, panel sessions lasted 1.5-2 hours, and 7-10 cases were examined per session<sup>a</sup>. This significant commitment of time is crucial to ensure the reliability of results.

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<sup>a</sup> For a full review of this study's methodology, please consult Chachamovich, E., Haggarty, J., Cargo, M., Hicks, J., Kirmayer, L. J., & Turecki, G. (2013). A psychological autopsy study of suicide among Inuit in Nunavut: Methodological and ethical considerations, feasibility and acceptability. *International Journal of Circumpolar Health*, 72.

The following chart shows how many interviews were conducted with different kinds of informants for both the suicide and comparison groups.



The interviews used in follow-back designs have some questions that allow people to answer freely at length and some questions that require people to choose answers from a set list of options. Open-ended questions are suitable to collect information on such topics as the path of life events and interpersonal relationships. Structured questionnaires can gather information about behavioural patterns, mental illness, and childhood adversities.

## Diagnosing Mental Illness

In order to make formal diagnoses of major mental disorders and personality disorders, we used two current and well known tools called the Structured Clinical Interview for the DSM Disorders I and the Structured Clinical Interview for the DSM Disorders II<sup>20</sup> (SCID-I and the SCID-II)<sup>19, 20, 30, 54, 62</sup>. The DSM, from which these measures are based, is the Diagnostic and Statistical Manual of Mental Disorders<sup>10 49</sup>; it is a comprehensive book of all mental illnesses used around the world by mental health professionals of all kinds<sup>6, 45, 49, 53</sup>.

The SCID-I assesses major psychiatric disorders and the SCID-II assesses personality disorders. Both tools have been shown to provide consistent diagnoses across health care professionals<sup>38</sup>. Formally assessing these disorders using these well-known and widely used tools is very important because psychiatric and personality disorders are consistently shown to be associated with suicide gestures<sup>4, 7, 32</sup>.

### ***Additional Measures***

Psychopathology alone does not account for suicide<sup>11, 32, 40, 47</sup>. For example, even though major depression is the most prevalent diagnosis among those who died by suicide, the vast majority of people with major depression do not make suicide attempts.<sup>12, 17, 18, 41</sup> Other factors that independently contribute to suicide completion among individuals with major depressive disorder include impulsiveness, aggression, family history of psychopathology (mental health problems), previous suicide attempts, and exposure to childhood abuse<sup>9, 16, 18, 22, 39, 41, 58, 61</sup>. Instruments and scales to assess these factors were also included (see *Table 1*).

Instruments and scales were thoroughly reviewed prior to the study to ensure that their content was appropriate for the Inuit context, when possible. Some items in the Life Trajectory Scale were modified and others added in order to encompass important aspects of life in the Inuit culture, such as personal experiences with non-Inuit, sense of importance of the Inuit culture, experiences with residential schools, opportunities to hunt and fish and/or to be connected to Inuit culture, ability to speak English/Inuktitut/Inuinnaqtun, contact with the government, and thoughts for the future of Nunavut, among others.

These scales are usually given directly to the person they are about. Since we were interviewing the friends and family of living individuals and individuals who died by suicide, we modified the scales to be in third person. For example, the question “Have you felt sad lately?”, in the socio-demographic questionnaire, was changed to “Has he/she felt sad lately?”.

**Table 1: Nunavut Follow-Back Study Design**

<b>Scale</b>	<b>Purpose Of Scale</b>
<b>Socio-Demographics</b>	<p>A structured questionnaire that gathers information about:</p> <ul style="list-style-type: none"> <li>• Demographics (ex. Age, Relationship Status, Sex, Religion)</li> <li>• Alcohol Use</li> <li>• Drug Use</li> <li>• Physical/Psychological/Sexual Abuse</li> <li>• Legal Problems</li> <li>• Medication Taken for Psychiatry Problems</li> </ul>
<b>Life Overview</b>	An open-ended instrument that gathers information about the informant's perceptions of the individual's life
<b>Family Antecedents of Psychiatric Disorders</b>	A structured instrument that gathers information about the history of mental illness in biological family members, and past suicidal behaviours in both biological and adopted family members.
<b>Barratt Impulsiveness Scale<sup>6</sup></b>	A structured scale that gathers information about how impulsive someone is in his or her behavioural and emotional responses to people and situations.
<b>Brown and Goodwin Lifetime History of Aggression<sup>13</sup></b>	A structured scale that gathers information about the level of aggression a person shows when interacting with other people in different situations. For example, it looks at behaviour

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*in school, ability to cooperate with teachers, and aggressive outbursts at family and friends.*

***Suicide History Scale***<sup>10, 24</sup>

*A structured scale that collects information about previous suicide attempts and ideation.*

***Life Trajectory***<sup>56</sup>

*An open-ended instrument that gathers detailed information on childhood, adolescence, and adult experiences. It looks at where individuals lived, what kinds of life experiences they had, their personal life (marriage, children, friends), as well as their professional life (school, jobs, unemployment).*

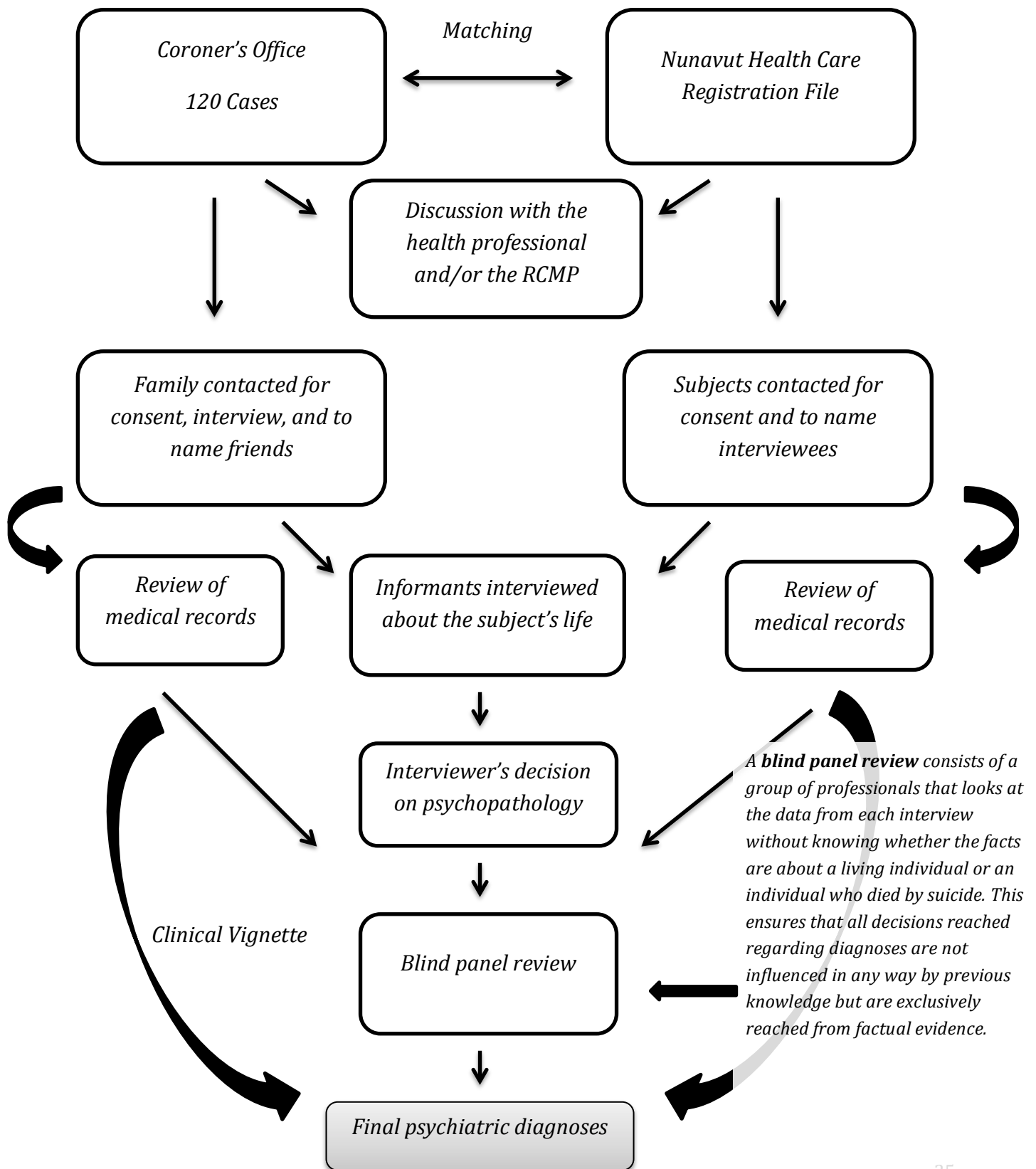
***Genealogical Map***<sup>3</sup>

*A detailed map of biological and adopted family members and their relationship to the individual in question.*

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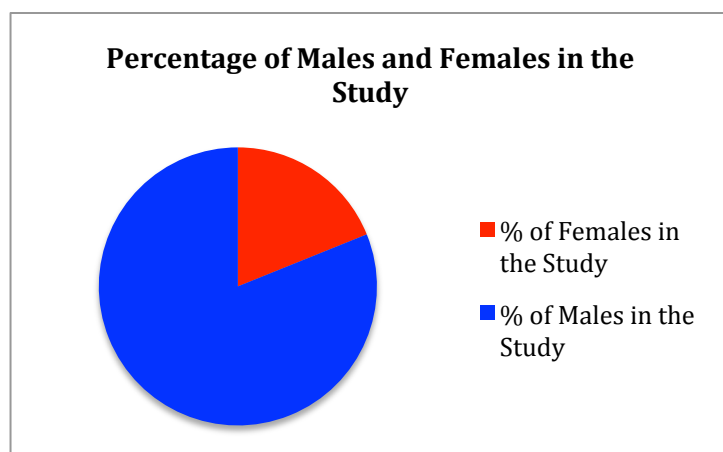
Figure 1: A Detailed Overview of the Nunavut Follow-Back Study Design



## Demographic Characteristics

The following charts and graphs show answers to questions asked during the demographic section of the interviews. **“Risk Factors”** are individual factors that increase a person’s chances of committing suicide.

### Sex

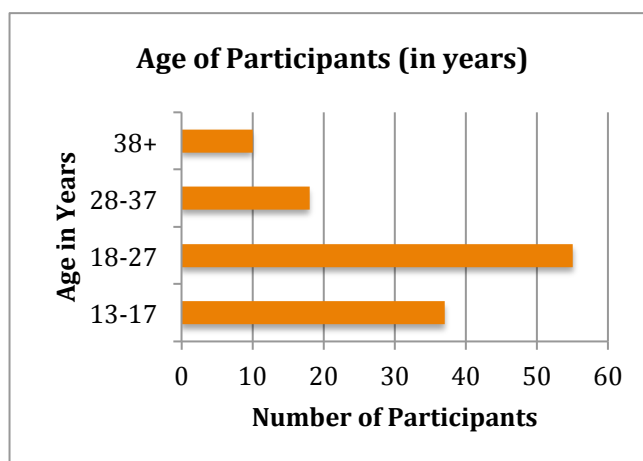


This pie chart shows the total percentage of female and male individuals in the study. In Nunavut between 2003 and 2006, more males than females committed suicide. This is consistent with the gender differences in suicide among the

general Canadian population. For example, of the total number of Canadians who committed suicide in 2009, 77% of them were male<sup>15</sup>. There were 196 males and 44 females in our study. 99 (82.5%) of suicide completers were male and 21 (17.5%) were female.

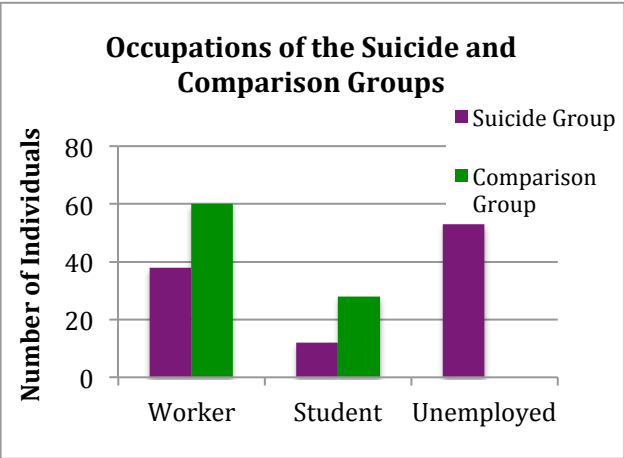
### Age of Death for the Suicide Group

This chart shows the number of individuals who died by suicide in each age group. The maximum age in the study was 62 years old and the minimum age was 13. The average age of individuals who died by suicide was 23.6 years old. The



average difference in birth dates between the suicide and control groups was 59.27 days (with a standard deviation of 72.2 days).

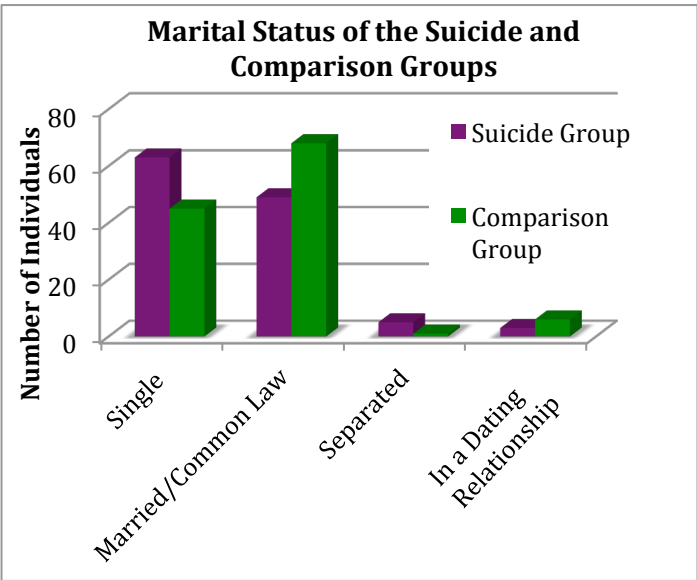
**Occupation**



This graph describes the individuals' occupational statuses. The suicide group was less likely to have a job or be a student at the time of death. The comparison group was more likely to be employed or studying.

**Marital Status**

Individuals who died by suicide were almost two times (1.82 times) more likely to be single than the comparison group. On the other hand, the comparison group was more likely to be married or living with a common-law partner<sup>b</sup>. Several other studies have also shown that living alone or being single is correlated with a higher risk of

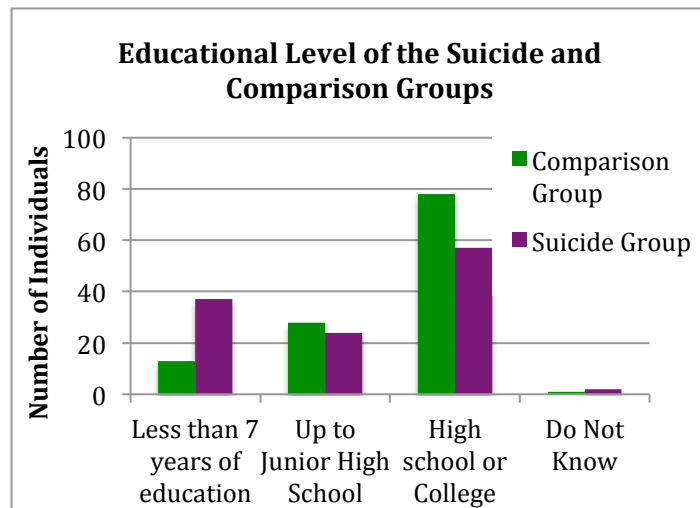


<sup>b</sup> The item for marital status on the Socio-Demographic questionnaire was "Civil status of S: 1) Single, 2) Married/Common-Law, 3) Separated, 4) Divorced, 5) Widow(er), 6) Dating Partner, 7) Do Not Know". "S" stood for subject. All categories that had one or no individuals were not represented in this graph.

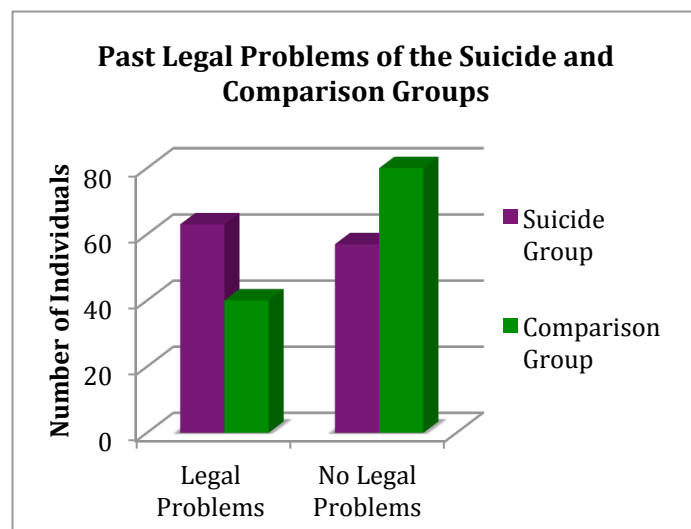
suicide. Conversely, living with a partner decreases one's likelihood of one committing suicide<sup>45</sup>.

### Level of Education

Individuals who died by suicide were 3.6 times more likely to have had less than 7 years of education than the comparison group. It is possible that school dropout may be an indication that the individual is living in unfavourable conditions, which may in turn lead to suicidal behaviour in the future.



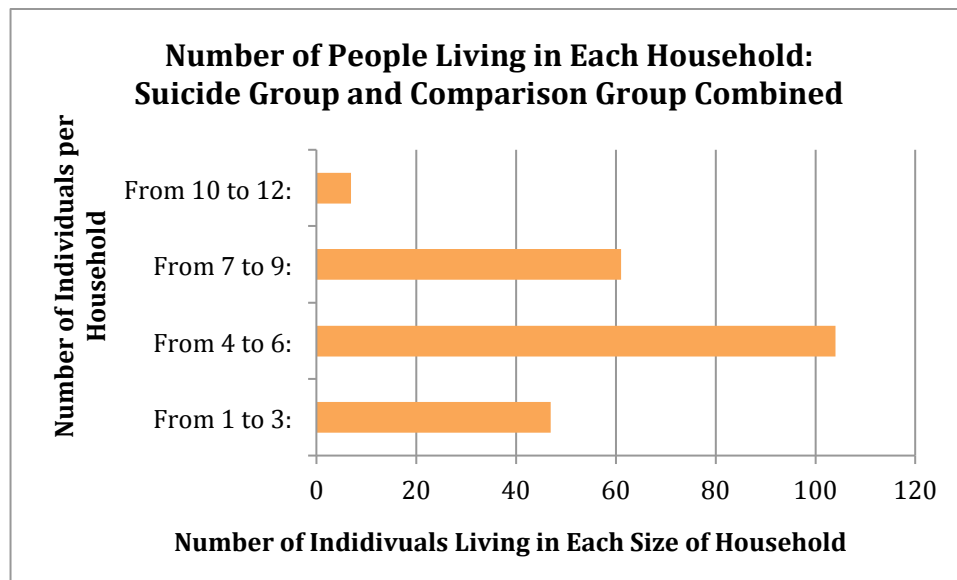
### Judicial Problems



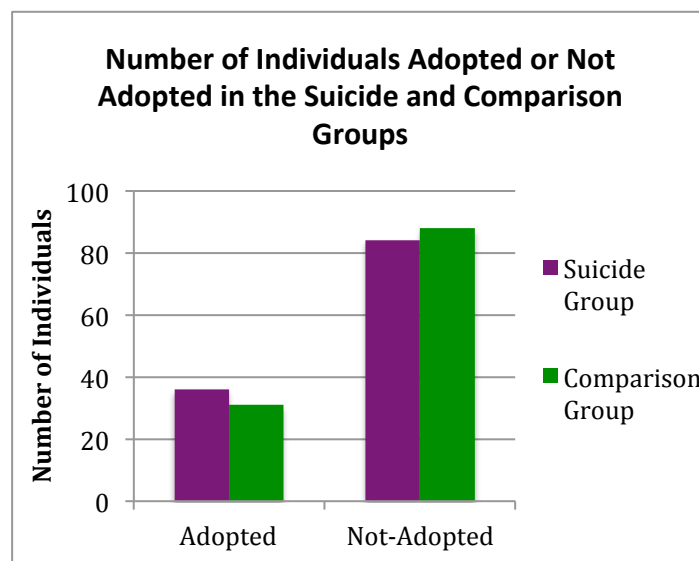
This graph shows whether or not each individual experienced legal problems in his or her life. The individuals in the suicide group were 2.21 times more likely to have been involved in legal problems compared to the living individuals.

## Number of people living in each household

Overcrowding is known to be a problem in Nunavut. The 2011 census shows that the average number of persons per dwelling in Canada is 2.5<sup>59</sup>, while in Nunavut the total number of people living in each individual's household varied from 1 to 12 people. The average was 5.4 people per household. There was no significant difference between the number of people living in the suicide group and comparison groups' households (average of 5.58 people and 5.23 people, respectively).



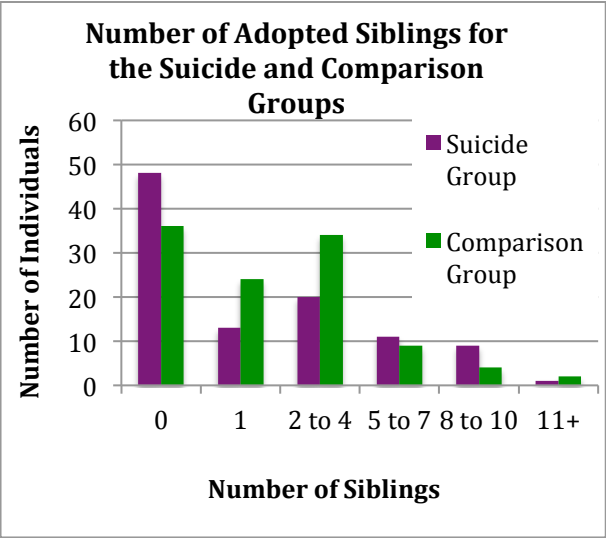
## Adoption



Informants were asked whether or not the individual in question was adopted. The informant could answer “yes”, “no”, and “I don’t know”. The definition of adoption included extra-familial adoption (i.e., when someone from another family adopts a child), and intra-

familial adoption (i.e., when someone within the family adopts a child, such as grandparents, aunts or uncles, etc.). In the comparison group, this information was not known for one individual. Unfortunately, we could not collect information about what kind of adoption took place for these individuals, nor about the families they were adopted into. When statistical tests were applied, no notable difference was found in number of adoptions between the suicide and the comparison groups.

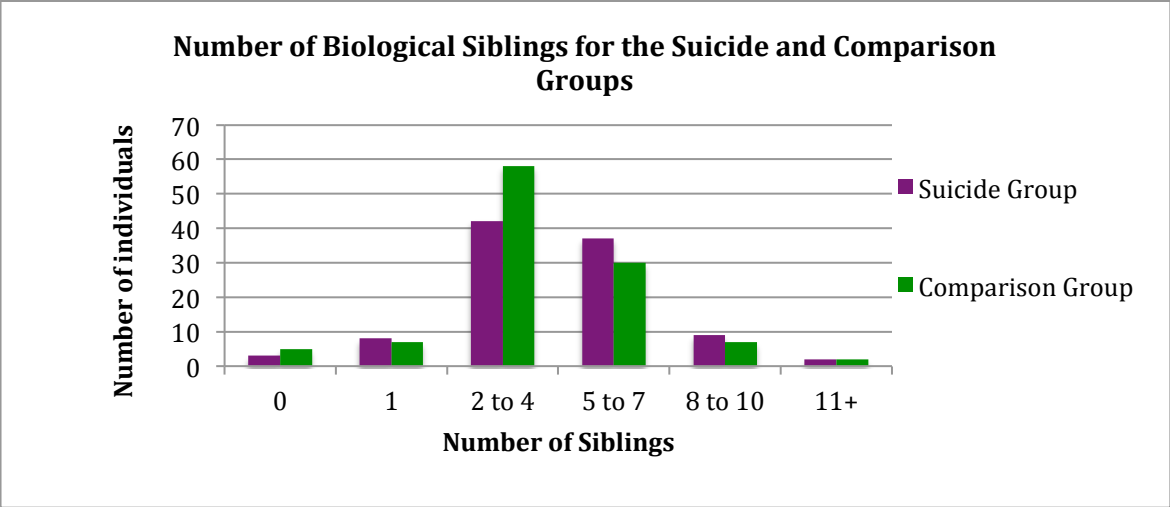
**Biological and Adopted Siblings**



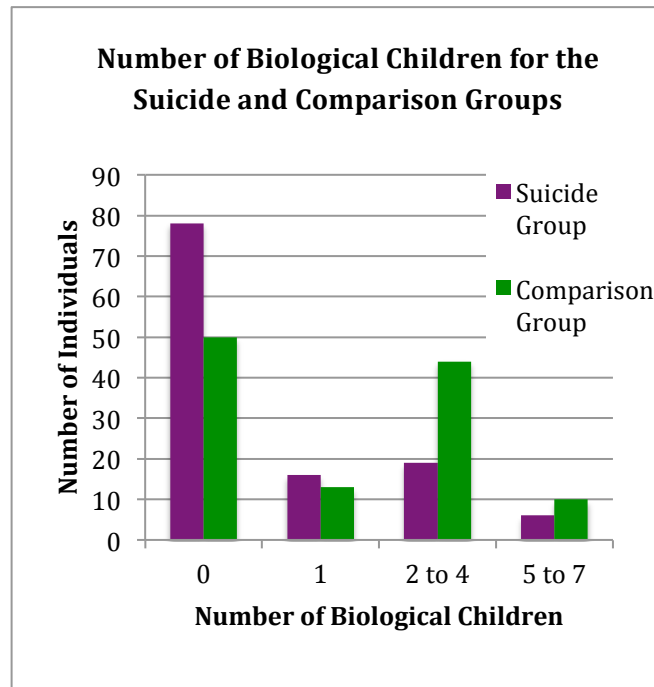
During the interviews, we asked informants how many siblings the individuals had (this included both adopted and biological siblings). On average, the individuals who died by suicide had 4.1 biological siblings, and 2.5 adopted siblings.

The comparison group had an average number of 4.4 biological siblings and an average of 2 adopted siblings each.

There was no significant difference between the suicide and comparison groups in number of biological or adopted siblings.



## Biological and Adopted Children



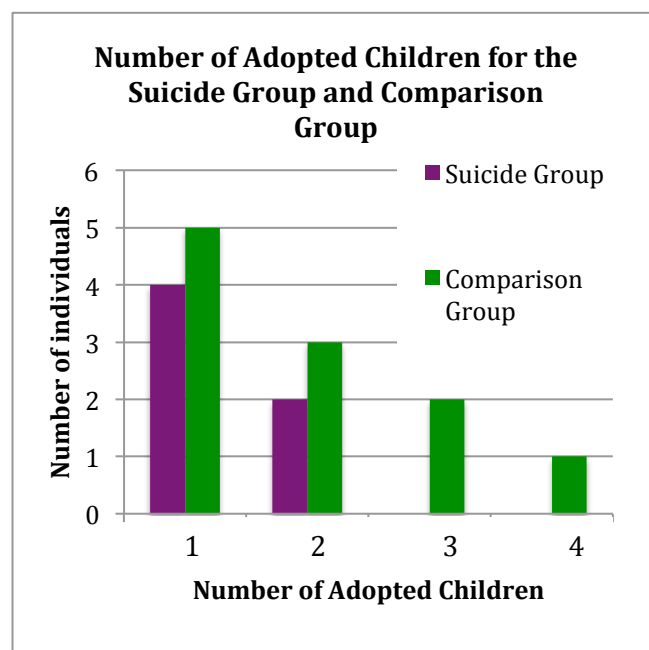
Informants were asked whether the individual had either biological children or adopted children.

The average number of biological children in the suicide group was 0.88 children (less than 1 child per person) and 1.62 in the comparison group (almost two children per person).

The comparison group had more biological children than the suicide group.

At the same time, 57% of individuals in the comparison group had at least 1 child, and 34% of the suicide group had at least 1 child. Therefore, it was not uncommon for individuals in the study to be parents.

This graph shows the number of adopted children that individuals in each group had. In general, very few individuals had adopted children.



## Childhood Maltreatment

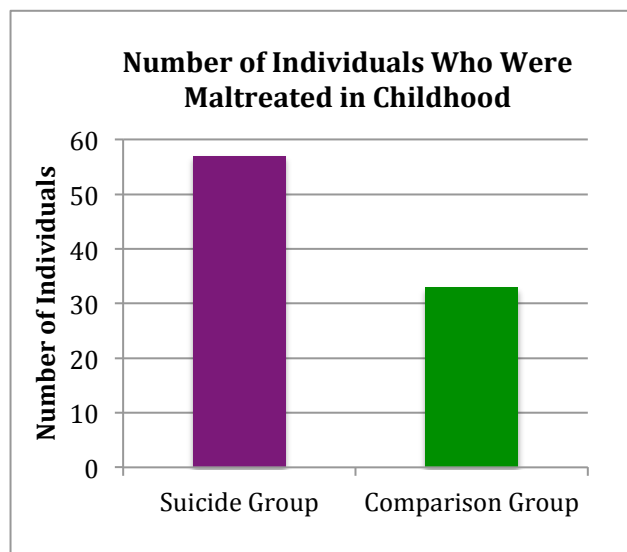
Childhood maltreatment is a broad term that refers to physical abuse, sexual abuse, emotional abuse, and neglect during childhood. Recent studies show that childhood maltreatment is a global issue spanning North America<sup>31, 52</sup>, Europe<sup>29</sup>, and Asia<sup>63</sup>. Across the world, studies demonstrate that childhood maltreatment is a robust indicator of future negative outcomes.

Victims of childhood abuse attempt or commit suicide significantly more often than those who were not maltreated in childhood. Additionally, the number of suicides attempted increases as a function of maltreatment severity and persistence<sup>31</sup>. Similarly, those who are maltreated in childhood are five times more likely to present suicide-related behaviours than a demographically matched comparison group<sup>52</sup>.

Childhood maltreatment is also associated with several other negative outcomes that may be linked to suicide and suicidal behaviours. Mental health problems, adult personality disorders, criminal behaviour, cognitive and emotional problems, drug and alcohol abuse disorders, risky sexual behaviours, and obesity problems<sup>29</sup> are significantly more common in those who suffered from childhood maltreatment compared to those who did not<sup>42</sup>.

The negative impact of childhood maltreatment on mental health, physical health and suicidal behaviour is profound, prevalent, and globally supported. Therefore, it is imperative to include research on childhood maltreatment when exploring the risk factors for suicide.

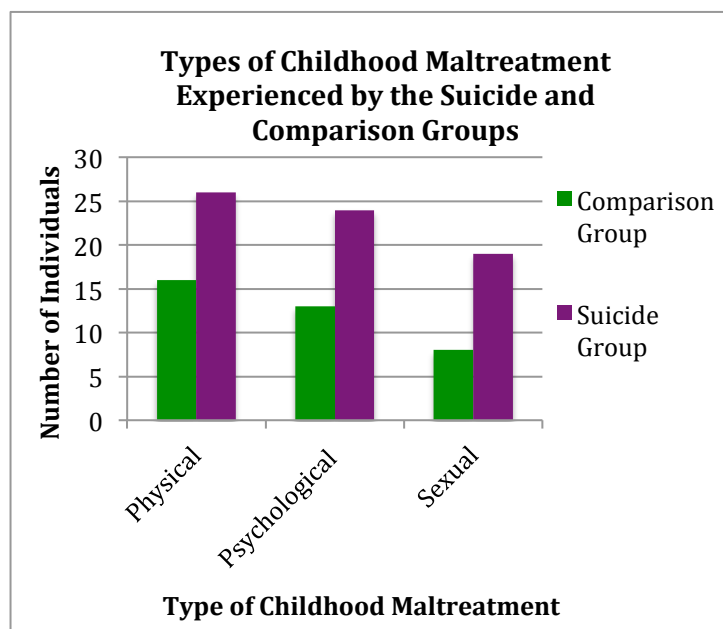
In our study we asked informants if they were aware of any form of childhood maltreatment. Specifically, Informants were asked “Has \_\_\_\_\_





ever been a victim of abuse by anyone during the course of his or her life?” from the Socio-Demographic Questionnaire (See *Table 1*).

Informants had the option of answering “yes”, “no” or “I don’t know”<sup>c</sup>. The above graph shows the number of individuals in the suicide and comparison groups that were abused in childhood, based on the responses given. Almost half (47.5%) of the suicide group had reported being abused in childhood as compared to almost a third (27.5%) of the comparison group.



Childhood abuse was then divided into three groups in our study. We asked whether individuals had been sexually, physically, and/or psychologically abused in childhood. Several individuals had experienced more than one form of abuse, and therefore individuals may be represented in more than one group. 21.6%

of the suicide group had experienced physical abuse in childhood, compared to 13.3% of the comparison group. 15.8% of the suicide group and 6.7% of the comparison group had experienced sexual abuse in childhood. 20% of the suicide group and 10.8% of the comparison group had experienced psychological (emotional) abuse in childhood.

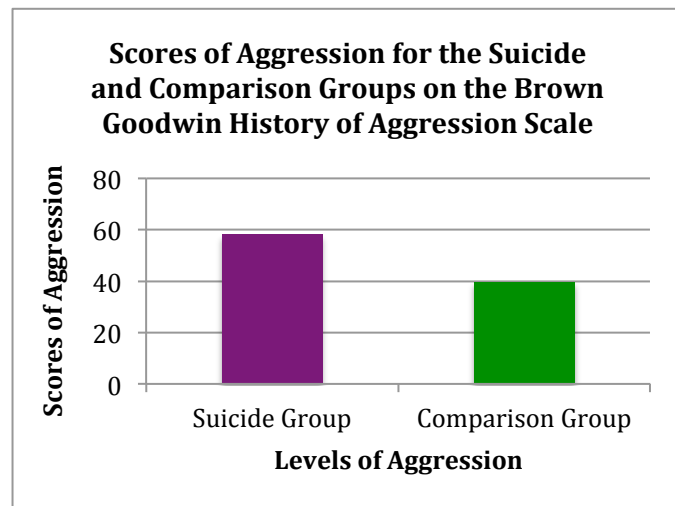
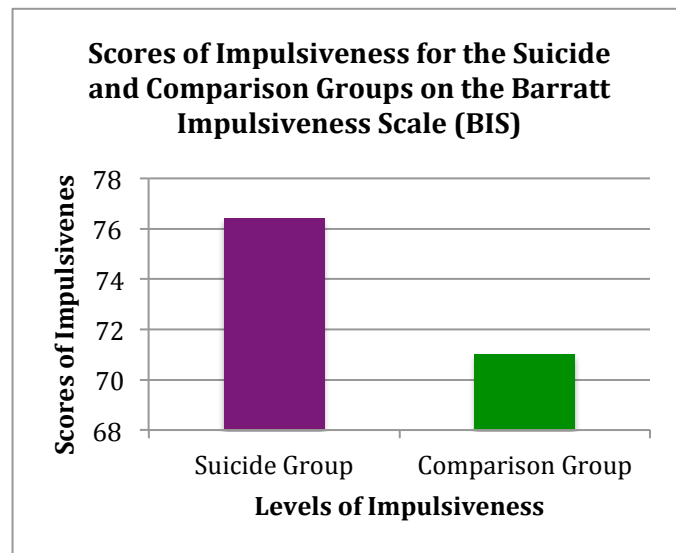
Significantly more individuals in the suicide group had been physically and/or sexually abused in childhood compared to the comparison group.

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<sup>c</sup> Because this information is based on the responses given to this question, childhood maltreatment may have been underreported. Informants may not have known about the abuse, or they may have felt uncomfortable sharing this information.

## Aggression and Impulsiveness

Informants were asked to complete the *Barratt Impulsiveness Scale*<sup>6</sup> (See Table 1) for each individual. This scale measures individual levels of impulsiveness. The results from this scale showed that the suicide group was more impulsive than the comparison group.



Informants also completed the *Brown Goodwin Lifetime History of Aggression* scale<sup>13</sup> (see Table 1) to assess aggressive behaviour in different situations. This scale showed that the suicide group was more likely to have a history of aggressive behaviours towards other individuals and in different

situations. This scale also has three different sections to assess aggression in childhood, adolescence and adulthood. In all three sections, the suicide group had higher levels of aggression than the comparison group.

## Mental Health

Mental Health means emotional well-being, ability to face one's challenges and ability to cope with stress. The definition of mental health, according to the World Health Organization (WHO) is:

*“Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community.”<sup>64</sup>*

When someone has intense emotional problems, and these problems lead to impairment in coping with stress, doing habitual daily activities, or dealing with interpersonal problems, his or her mental health may be affected. Mental disorder means the presence of marked emotional or behavioural problems, which cause significant impairments in someone's life (adapted from the American Psychiatric Association definition<sup>1</sup>).

According to Health Canada <sup>25</sup>, mental illnesses can take many forms and are grouped into different categories including:

***Table 2: Categories of Mental Illness***

<b>Mood Disorders</b>	<b>Schizophrenia</b>	<b>Personality Disorders</b>	<b>Substance Abuse Disorders</b>
Mood disorders affect how a person feels (sadness, for example)	Schizophrenia affects how one perceives the world (distorted perceptions)	Personality disorders affect how a person sees him or her self in relation to others and how that person interacts with individuals around him or her	Substance abuse disorders are related to drinking or drug use that cause significant problems in a person's life

Although suicide is not itself considered a mental illness, it is often the result of some underlying mental illness <sup>25</sup>.

## Major Psychiatric Illness

Major psychiatric disorders were investigated in this study in both groups. The results describe the presence of psychiatric disorders in different moments of an individual's life. First, we gathered information about the last 6 months prior to the death by suicide (in the suicide group) or prior to the interview (in the comparison group). We then gathered information about each individual's life prior to the last 6 months (i.e., from adolescence or childhood until 6 months prior to the death or the interview). The objective of asking about distinct moments in an individual's life is to understand if the mental problems that contributed to the suicide attempts started earlier in the individual's life, were recent problems, or existed both currently and in the past. These disorders were assessed using the Structured Clinical Interview for DSM Disorders (SCID-I) (See *Diagnosing Mental Illness*)<sup>20, 38</sup>

It is important to note that, while the number of individuals diagnosed with these disorders in the last 6 months and prior to the last 6 months is reported separately, individuals may fall into both groups. Therefore, individuals may have had the disorder (or multiple disorders) both recently and in the past.

For diagnoses of major psychiatric illness in the past 6 months, we found notable differences between the suicide and comparison groups in numbers of individuals diagnosed with major depressive disorder, cannabis abuse or dependence and alcohol abuse or dependence. These results were such that the suicide group was more likely to be diagnosed with each of these disorders than the comparison group.

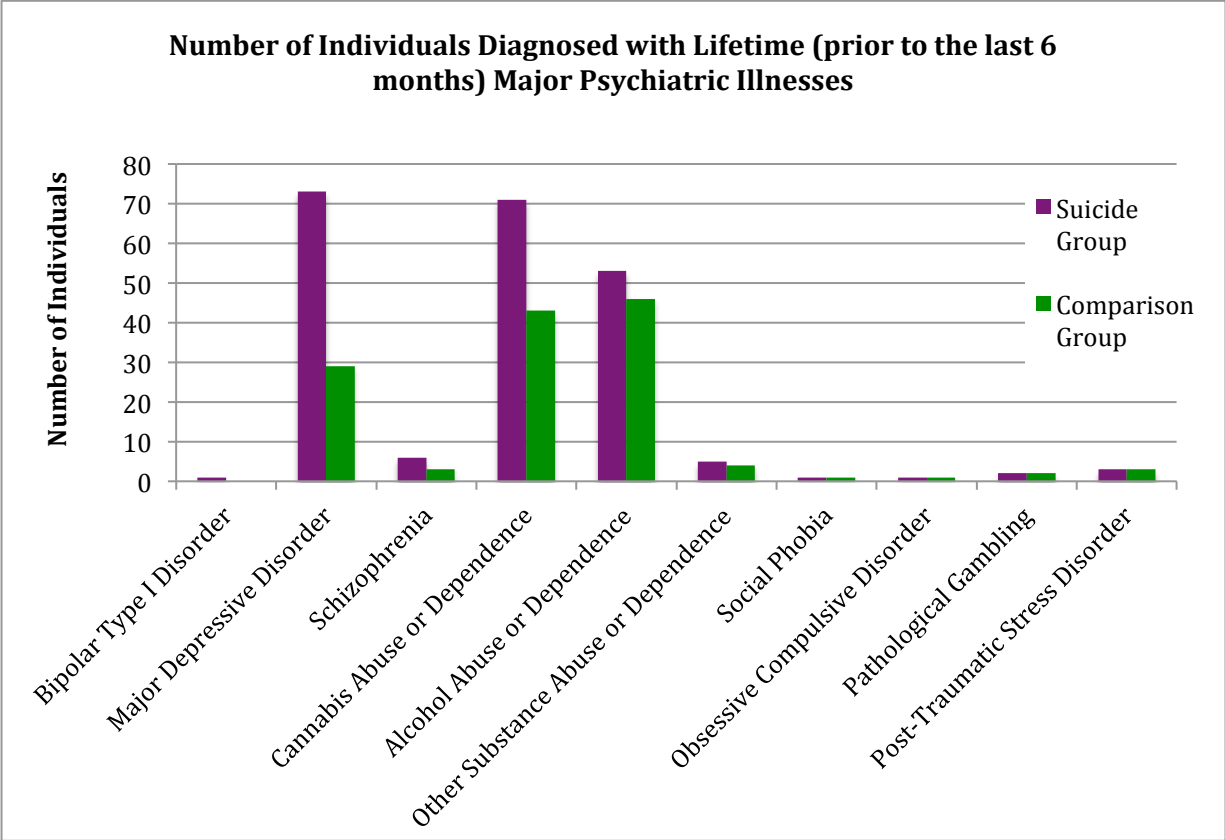
While more individuals who died by suicide were diagnosed with major depressive disorder in this study, rates of major depressive disorder were higher than the general Canadian population for both groups. Approximately 8% of the general Canadian population will experience major depression at some time in their lives, whereas in our study, 61% of suicide completers and 24% of the comparison group were diagnosed with major depressive disorder. Therefore, the rates of major depressive disorder among Inuit in our study were higher than the national average.

Individuals were also screened for adjustment disorder, bipolar type I disorder, schizophrenia, other drug abuse or dependence, social phobia, obsessive-compulsive disorder, pathological gambling, and post-traumatic stress disorder both in the last six months and prior to the last six months. A very small number of individuals were diagnosed with these disorders (less than five people per group) and the number of people diagnosed with these disorders did not notably differ between the suicide and comparison groups.

Several of the individuals diagnosed with a major psychiatric disorder were also diagnosed with at least one other mental disorder. Among the individuals in the suicide group that had one psychiatric diagnosis, 71.8% was diagnosed with another mental disorder. In the comparison group, 56.5% of those with one psychiatric diagnosis were diagnosed with another mental disorder. Therefore, it may be the interaction of multiple mental disorders that increased individual risk for suicide. While accurate Canadian statistics were not available with which to compare these rates, a recent US study reported that 54% of those with a lifetime history of at least one mental illness also had at least one other mental illness<sup>26</sup>. It indicates that rates of comorbidity (having more than one psychiatric diagnosis) in the comparison group are comparable to US rates. However, those in the suicide group are markedly higher.

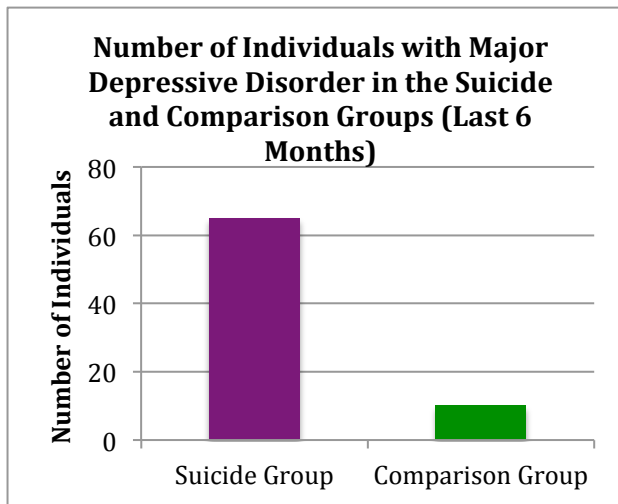
The rates of major psychiatric illness found in this study were higher than in the general Canadian population. Nationally, about 20% of Canadians will have an episode of mental illness during their lifetime, with many of these illnesses falling under the major psychiatric illness category<sup>26</sup>. More specifically, approximately 8% of the general Canadian population will experience major depression at some time in their lives, whereas in our study 61% of suicide completers and 24% of the comparison group were diagnosed with major depressive disorder. Therefore, the rates in of major depressive disorder among Inuit in our study were higher than the national average.

Among those diagnosed with major psychiatric disorders prior to the last 6 months, we found significant differences in major depressive disorder and cannabis abuse or dependence between the suicide and the comparison groups. The number of individuals diagnosed with alcohol abuse or dependence prior to the last 6 months, however, did not substantially differ between the two groups<sup>d</sup>.



<sup>d</sup> There was still a relatively high number of individuals diagnosed with this disorder (44% of the suicide group and 38% of the comparison group) but there was no statistical difference between groups; therefore these results do not show that lifetime alcohol abuse or dependence is a risk factor for suicide in our study.

## Major Depressive Disorder (Major Depression)

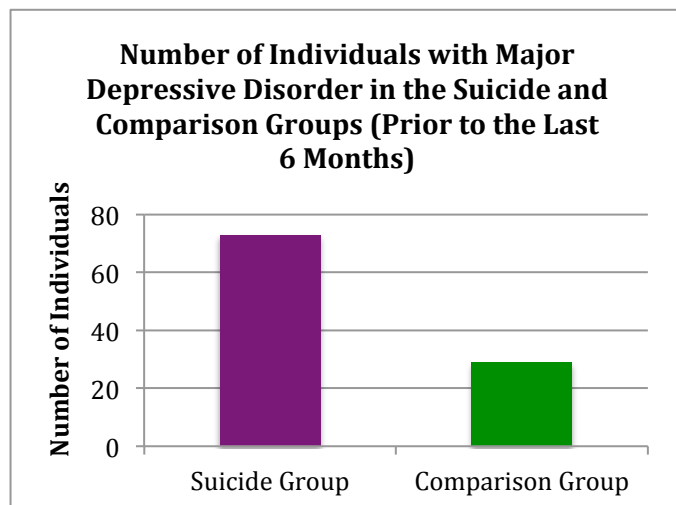


In the last 6 months, the suicide group was more likely to have major depressive disorder than the comparison group. 54.1% of the suicide group and 8.3% of the comparison group were diagnosed with major depressive disorder in the last 6 months of their lives.

This is consistent with previous studies

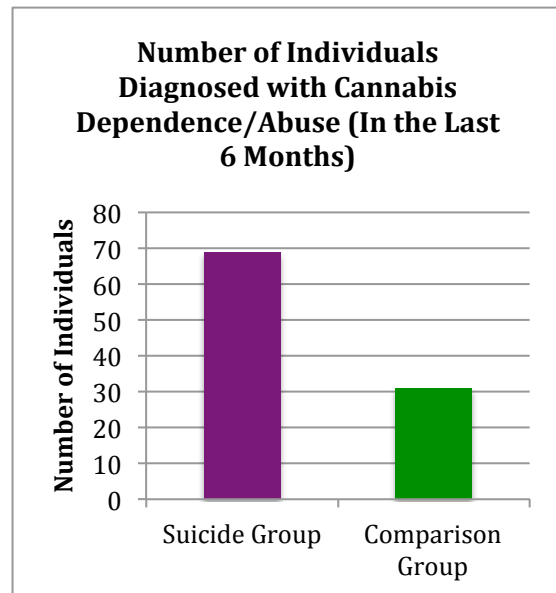
showing that major depressive disorder is associated with suicide<sup>17</sup>.

In addition to having major depressive disorder in the last 6 months, some individuals had major depressive disorder diagnosed prior to the past 6 months. 60.8% of the suicide group and 24.1% of the comparison group was diagnosed with major depressive disorder prior to the last 6 months.





## ***Cannabis Dependence or Abuse***

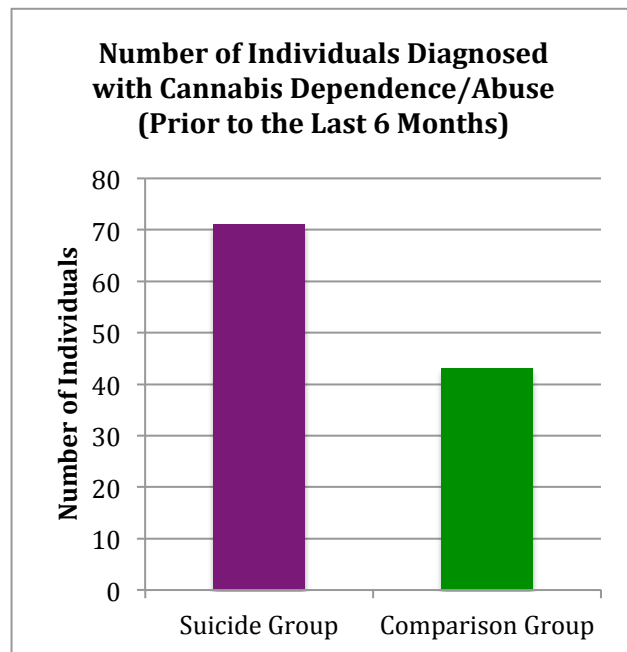


Each individual was assessed for cannabis dependence or abuse disorders. In the last 6 months, 57.5% of the suicide group and 25.8% of the comparison group was diagnosed with cannabis dependence or abuse. Therefore, the suicide group was more likely to have a current cannabis dependence or abuse disorder.

We then assessed the lifetime presence of cannabis dependence or abuse disorders (prior to the last 6 months). 59.1% of the

suicide group and 35.8% of the comparison group were diagnosed with cannabis abuse disorders prior to the last 6 months.

Since individuals in the suicide group were likely to also have a cannabis abuse or dependence disorder prior to the last six months, the cannabis dependence or abuse disorder in these individuals may have been present for a long period of time.



## ***Alcohol Dependence or Abuse***

Individuals were assessed for alcohol dependence or abuse disorders both in the last 6 months and prior to the last 6 months. The suicide group only notably differed from the comparison group in diagnoses of alcohol abuse or dependence in the last six months. 37.5% of suicide group and 17.5% of the comparison group had alcohol abuse or dependence. This indicates that alcohol abuse or dependence may be a more acute risk factor for suicide.

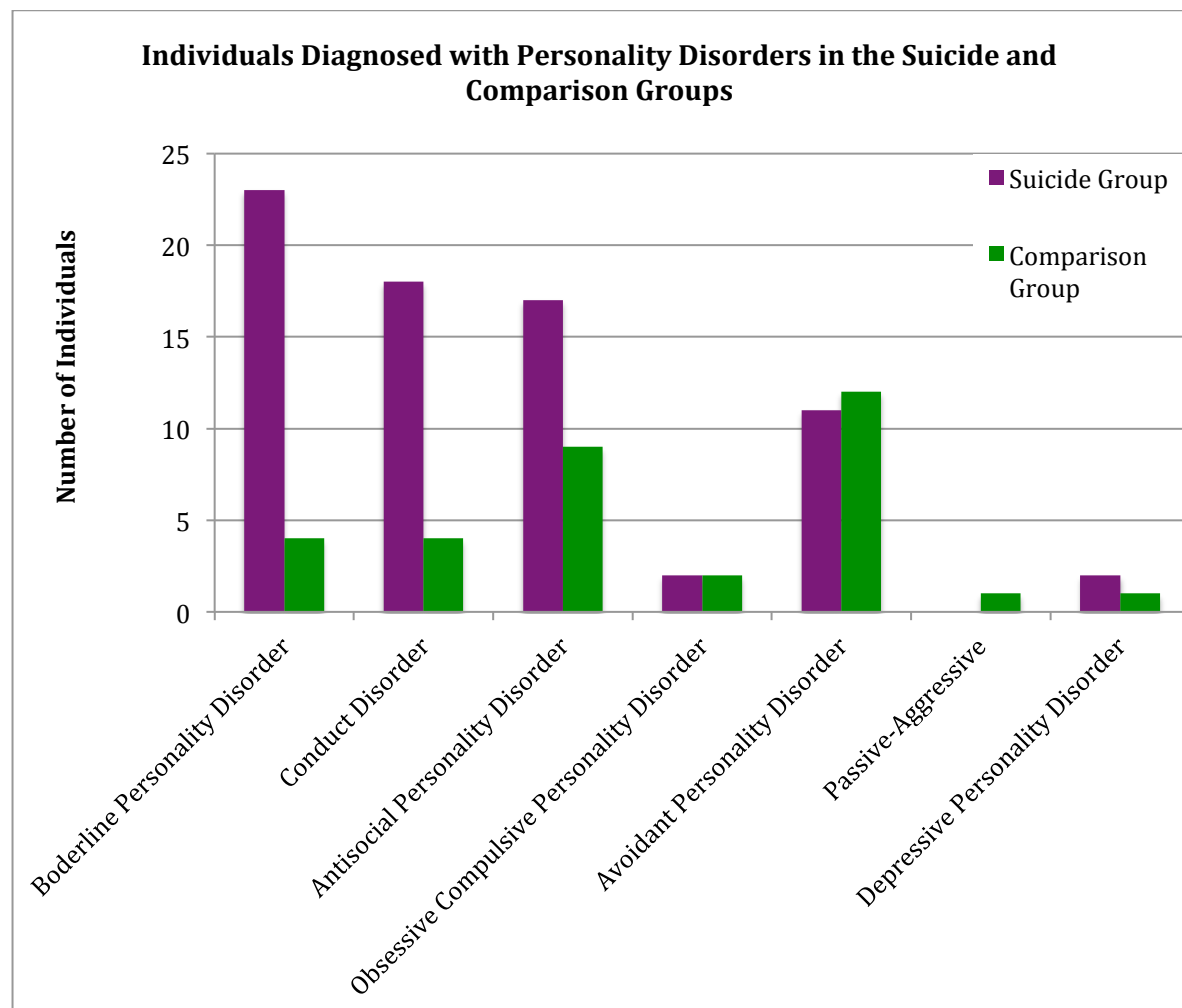


While no studies to date have examined overall Canadian drug and alcohol abuse and dependence rates, the results from the American 2011 National Survey on Drug Use and Health<sup>60</sup> found that 6.5% of individuals over the age of 12 years old have had an alcohol abuse or dependence disorder at some point in their lives. These rates are lower than those of either the suicide group (37.5%) or the comparison group (17%) on alcohol abuse or dependence disorders.

Similarly, the American rate for cannabis abuse and dependence was 1.6% of individuals over 12 years old. This rate is lower than both the suicide group (59.1%) and the comparison group (35.8%). Therefore, both alcohol and cannabis abuse and dependence disorder rates are higher among Inuit in our study than national American rates<sup>60</sup>.

## Personality Disorders

Personality disorders are characterized by difficulties interacting with and relating to other people to such an extent that it has a significant impact on the individual's life. These are severe and persistent disorders that may interact with major psychiatric illnesses. Specifically we found a significant difference between the suicide group and the comparison groups in borderline personality disorder, conduct disorder, and antisocial personality disorder; such that the suicide group was more likely to have these disorders than the comparison group.



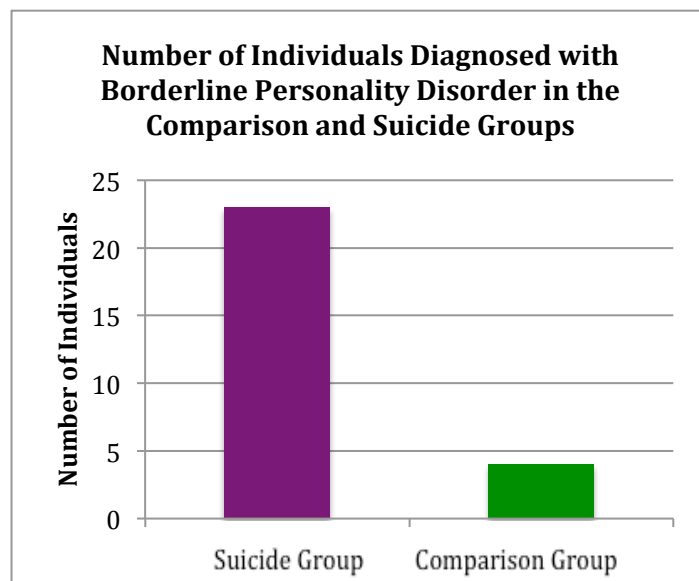
Participants were also screened for passive aggressive disorder, obsessive-compulsive personality disorder, depressive disorder and avoidant personality disorder in

some individuals. These disorders were only rarely diagnosed (less than twelve people per group maximum) and the rates of these disorders did not notably differ between the suicide and comparison groups.

Those diagnosed with personality disorders were also likely to have another mental disorder, especially among the suicide group. 89% of the suicide group and 29% of the comparison group had more than one mental disorder.

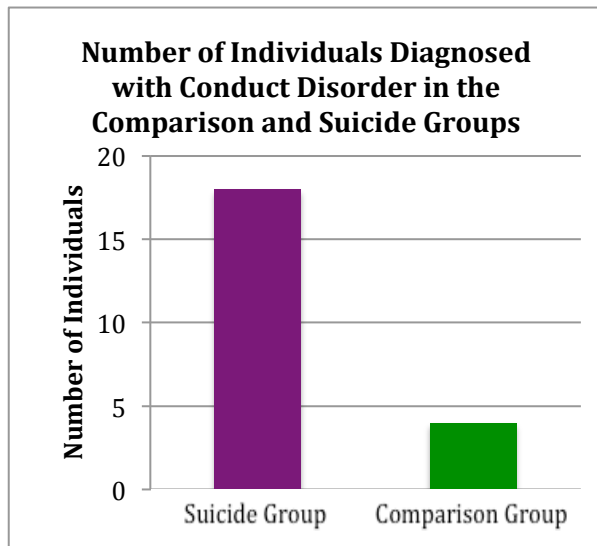
### ***Borderline Personality Disorder***

Borderline personality disorder is characterized by a prolonged disturbance of behavioural and interpersonal functioning marked by unusual variability and severity of moods (ex. extreme depression or inappropriately extreme anger). Other characteristics such as impulsivity in self-damaging behaviours (reckless driving, substance use), persistent feelings of emptiness or boredom, and frantic efforts to



avoid abandonment are also common. Those diagnosed with borderline personality disorder often have disturbances and uncertainties regarding their identity (values, sexual-orientation, goals, and desired friends<sup>37</sup>). These characteristics may secondarily affect how the person thinks and interacts with others<sup>44</sup>. 19.2% of the suicide group and 3% of the comparison group were diagnosed with borderline personality disorder.

## Conduct Disorder



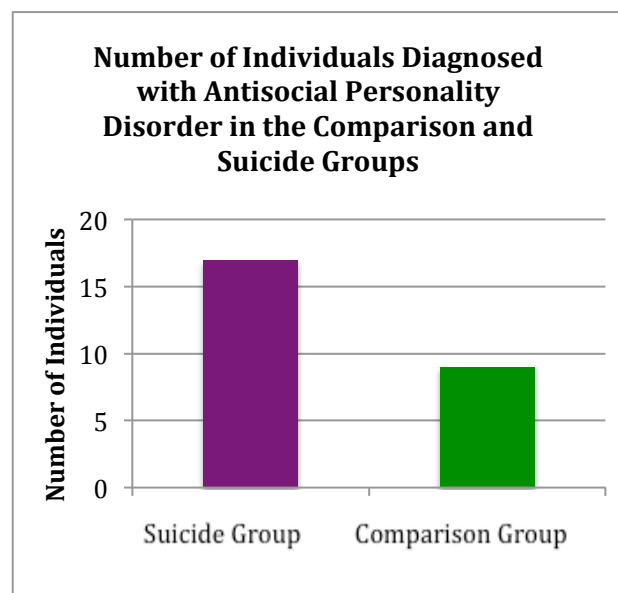
Conduct disorder is characterized by a prolonged pattern of behaviour that seriously violates age-appropriate norms and rules at young ages (late childhood/early adolescence)<sup>46</sup>.

For example, adolescents diagnosed with conduct disorder are often physically aggressive towards people or animals, emotionally abusive towards people, or force others to engage in behaviours they

are unwilling to engage in (ex. forced sexual activity). Those diagnosed are also likely to steal or destroy others' property and pathologically lie<sup>55</sup>. 15% of the suicide group and 3% of the comparison group had conduct disorder.

## Antisocial Personality Disorder

Antisocial personality disorder is similar to conduct disorder, it is characterized by a pervasive pattern of behaviour that violates the rights of others and defies rules and norms<sup>2, 43</sup>. For example, those diagnosed with antisocial personality disorder exhibit a complete disregard for others (their feelings, property, or needs), egocentricity, impulsivity (failure to plan for the future, failure to keep a job or stay in school), irritability,



aggression towards others and/or animals, repeated lying, manipulation of others for own

pleasure, inability to form meaningful relationships and an overall antisocial disposition<sup>37</sup>. Those diagnosed often commit crimes and are unaffected by the resulting punishment. Similarly, those diagnosed display no remorse or guilt for their actions. Antisocial personality disorder begins in early adolescence and continues into adulthood<sup>37</sup>. Therefore, antisocial personality disorder can only be diagnosed in adults by assessing their behaviour from childhood<sup>2</sup>. 14.2% of the suicide group and 7.5% of the comparison group had antisocial personality disorder.

## Psychiatric Care

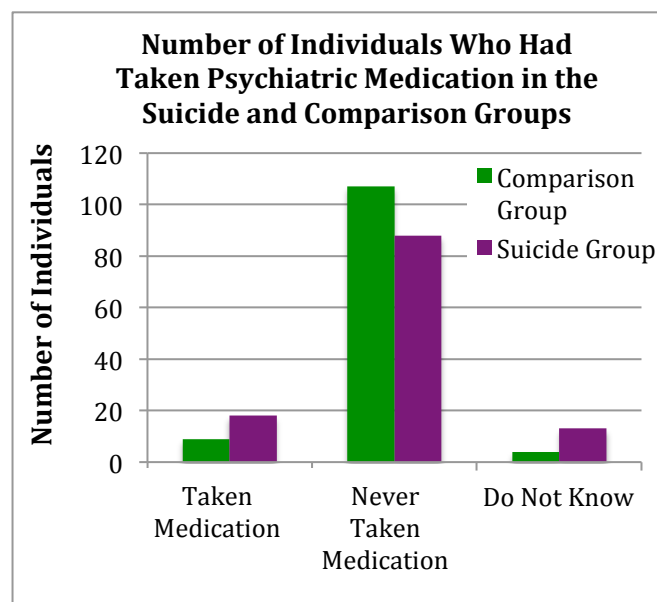
In this study, we wanted to find out what sort of mental health care individuals received when they needed it during their life. This information was gathered by asking the informants about each individual's history and by checking the individual's medical records when permission was granted at the health centers or regional hospitals.

The informants were asked whether the individuals had been hospitalized for psychiatric reasons, or if they had been on psychiatric medication at any point during their lives. The following pages chart the answers to those questions.

In general, medication for psychiatric problems is prescribed when the health professional considers that someone is under severe emotional stress. Also, the health professional must believe that the stress is causing that person significant suffering and impairment.

Hospitalization for psychiatric problems is usually recommended when someone is at immediate risk of harming himself/herself or others (i.e., suicidal ideation, aggressive thoughts, symptoms of withdrawal from drugs, or severe depression).

### Psychiatric Medication

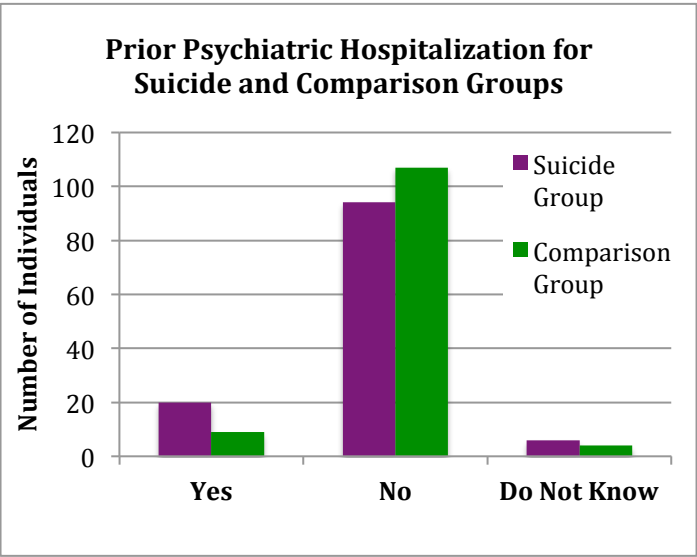


Among those individuals who died by suicide, 17.8% had been on some kind of psychiatric medication in the past. Among the comparison group, 7.8% had taken psychiatric medication. The individuals who died by suicide were more likely to have used psychiatric medication than those in the comparison group (1.5 times more likely). However, 82.2% of the

suicide group had never taken medication for a mental illness.

**Psychiatric Hospitalization**

Psychiatric hospitalization occurs when someone is under great distress and the health professional believes that placing the person under intense assistance and



observation is necessary. Being hospitalized usually indicates that someone is facing a very difficult situation and his or her mental state is altered by it.

Among those who committed suicide, 17% were hospitalized before passing away. In the comparison group, 7.5% had been hospitalized. These figures

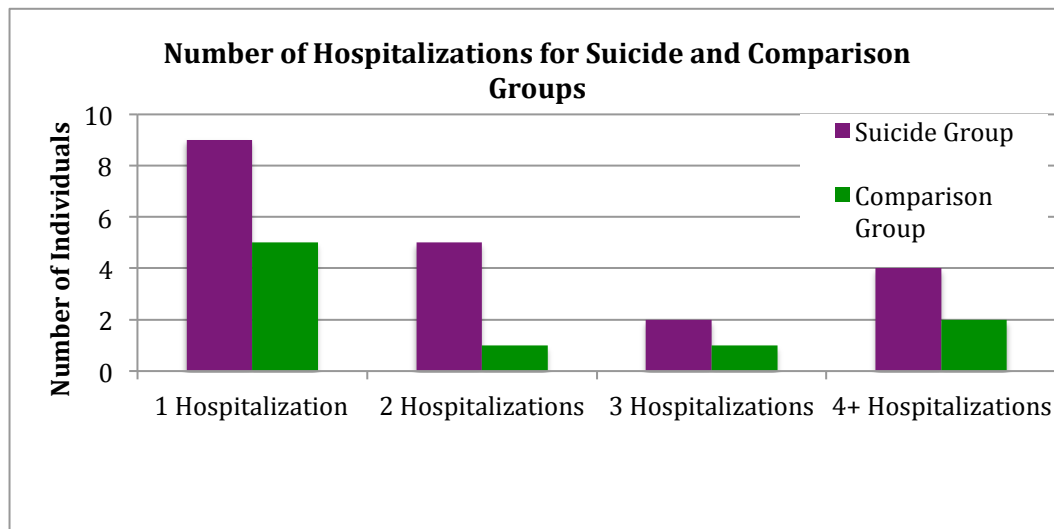
corroborate the fact that those who ended up committing suicide presented signs of important mental suffering (or disorder) prior to the act. The hospitalizations may have occurred long before the act, or immediately before.



## Number of Hospitalizations

This graph represents how many times the suicide and comparison groups were hospitalized for psychiatric reasons. It is important to highlight that these individuals were seen by a health care professional and, therefore, were prescribed hospitalization or medication by that health professional.

7.5% of the suicide group was only hospitalized once. However, 9.1% was hospitalized more than once, which indicates that the problem was present and enduring for a longer period of time. 4.1% of the comparison group was hospitalized once, and 3.3% were hospitalized more than once.



## Limitations

This study has limitations that are inherent in the psychological autopsy methodology. Even though this approach is considered to be one of the most valid and reliable, some informants may not have been able to provide the necessary information because it pertained to inner feelings which may not have been well communicated to the researcher. This may contribute to underreporting of some diagnostic criteria. An overestimation of symptoms that were not deemed significant prior to the suicide may also occur as an attempt to construct meaning of the death. Finally, the mental state of the informant was not formally assessed, and it could also have played a role in their responses. Nevertheless, the same approach was used for all informants during the interviews, which minimizes the occurrence of systematic bias.

The utilization of standardized instruments (that were adapted when possible) has both advantages and disadvantages. It ensures that results are reliable and accurate since those instruments have been tested and shown to have satisfactory measurement properties. On the other hand, using standardized instruments may limit the comprehensiveness of the study given that instruments focus on known characteristics and could potentially overlook other important factors.

Finally, this study aimed to identify risk and protective factors for deaths by suicide. It was not able to scientifically explore the causes of the high rates of mental health disorders, childhood adversities or impulsive-aggressive behaviors. These mental health symptoms are determined by multiple factors, and not one single cause.

## Conclusion

*The Qaujivalliani inuusirijauvalauqtunik suicide follow-back study findings reinforce the conclusions of the Partners in the Nunavut Suicide Prevention Strategy which were:*

1. The rapid increase in suicidal behaviour in recent decades, especially among young people, is probably the result of a change in the intensity of social determinants – among them the intergenerational transmission of historical trauma and its results (increased rates of emotional, physical, and sexual abuse, violence, substance abuse, etc.).
2. Since difficult life experiences are associated with the onset of mental disorders (particularly if substance abuse is included in the definition of “mental disorder”), it is reasonable to deduce that there are elevated rates of mental disorders in Nunavut society<sup>48</sup>.

*It is important to note that while an individual may have one or more risk factors for suicide occurring in their life, this does not predispose them to suicide. The same can be said for protective factors; having a number of protective factors present in one’s life does not guarantee that they will not be at risk for suicide. The report indicates that the risk factors of unemployment, childhood maltreatment, sexual abuse, impulsiveness, aggression, current and lifetime diagnoses of major depressive disorder, alcohol abuse or dependence and current or past cannabis abuse or dependence are risk factors for Inuit suicide in Nunavut. As such, there is an urgent need to provide better quality mental health care, counselling and substance abuse services for Inuit in Nunavut.*

*Without those who participated in the study we would not have the data to guide future policy and program decisions, or to accurately identify the risk factors for Inuit suicide in Nunavut. We recognize how difficult an issue suicide is to talk about in Nunavut, therefore we wish to acknowledge the courage and willingness of Nunavummiut who participated in the Qaujivalliani inuusirijauvalauqtunik suicide follow-back study. The*

*personal stories and information that you provided were instrumental in capturing an accurate reflection of lives that have been lived. We will honour your participation by using the information that you provided to address the identified risk and protective factors specific to Inuit of Nunavut.*

*It is our hope that this report will assist in achieving the vision of the Nunavut Suicide Prevention Strategy, which is “a Nunavut in which suicide is de-normalized, where the rate of suicide is the same as the rate for Canada as a whole – or lower. This will be a Nunavut in which children and youth grow up in a safer and more nurturing environment, and in which people are able to live healthy, productive lives because they have the skills needed to overcome challenges, make positive choices, and enter into constructive relationships. This will also be a Nunavut in which families, communities, and governments work together to provide a wide-reaching and culturally appropriate range of services for those in need”<sup>48</sup>.*

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