# Reclaiming Overall Well-being: An Analysis of Individual- and Community-Level Characteristics Contributing to Well-being in Yukon First Nations

**Wilhelmina Stappers**

Ingenieurs Degree, Wageningen Agricultural University, The Netherlands, 1990

Thesis Submitted In Partial Fulfillment Of

The Requirements For The Degree Of

Master Of Science

in

Community Health Science

The University of Northern British Columbia

August 2007

## ABSTRACT

This collaborative study implemented a new conceptual framework for health research relevant to Yukon First Nations people and actively involved Yukon First Nations as partners into all steps of the research. Selected characteristics from the Yukon Adult RHS data-set (individual-level characteristics) and the ecological variable survey (community-level characteristics) underwent a sequence of bivariate and multivariate comparisons to explore associations with three outcome measures for overall well-being: *no depression*, *no suicidal thoughts* and *no suicide attempts*. Six individual-level characteristics were identified that had a significant association with the outcome measures: traditional foods; modern and traditional health care; emotional supports and loving relationships; spirituality; physical well-being; and socio-economic characteristics. The following community-level characteristics emerged as being significantly associated with the outcome measures: geographic characteristics; community control; community engagement; and cultural continuity. Limitations of the study, implications for practice and policy and recommendations for future research and summary comments are identified and discussed.

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# ABBREVIATIONS

| | |
|---|---|
| ACADRE | Aboriginal Capacity and Development Research Environment |
| AFN | Assembly of First Nations |
| CC | Chief and Council |
| CHR | Community Health Representative |
| CIHR | Canadian Institutes of Health Research |
| CYFN | Council of Yukon First Nations, prior to 1995 Council of Yukon Indians (CYI) |
| DAC | Dissemination Approval Committee, a CYFN committee, consisting of representatives (Elders and/or health professionals) from the different communities which partook in the RHS, was established to review and approve the use and dissemination of Yukon RHS findings. |
| FN | First Nation(s) |
| FNC | First Nations Centre |
| FNIGC | First Nations Information Governance Committee |
| FNIHB | First Nation and Inuit Health Branch |
| Health Commission | CYFN Health and Social Development Commission |
| IAPH | Institute of Aboriginal Peoples Health |
| KDFN | Kwanlin Dün First Nation |
| NNADAP | National Native Alcohol and Drug Abuse Program |
| NAHO | National Aboriginal Health Organization |
| NIHB | Non Insured Health Benefits |
| OCAP | Ownership, Control, Access and Possession |
| PSTA | Programs and Services Transfer Agreement |

| | |
|---|---|
| RHS | First Nations Regional Longitudinal Health Survey (undertaken by Canada's First Nations in 4 year cycles) |
| SPSS | Statistical Products and Service Solutions (Statistic Software) |
| WHO | World Health Organization |
| YG | Yukon Government |

## TERMINOLOGY

| | |
|---|---|
| Indigenous | This term will refer to all original peoples (and their descendants) who existed on their territories before invasion by colonizers. |
| Aboriginal | This is a collective name for all of the original peoples of Canada and their descendants. The *Constitution Act* of 1982 specifies that the Aboriginal Peoples in Canada consist of three groups – "Indians", Inuit and Métis. |
| "Indian" | This term indicates that an individual of First Nations ancestry is federally recognized by the Indian Act. Three categories apply to Indians in Canada: Status Indians, Non-Status Indians and Treaty Indians. The term *Indian* is in quotation marks because the term has offensive connotations, is ethnographically incorrect, and is not used by the people studied. Instead, the terms "First Nation" and "First Nations" are used. |
| "Indigenist" | Walters, Simoni, and Evans-Campbell (2002, p.S105) introduce the term *indigenist* perspective, which they describe as recognizing the colonized position of Indigenous people living as minority populations within a nation-state, while advocating for empowerment and sovereignty in a post-colonial world. |
| First Nation(s) | The term is used as a noun to replace the word *Indian*. The term describes an individual or group of individuals of a specific ethnic and political grouping. |
| First Nations | This term is also used as an adjective to describe people and their ethnicity/cultural identity. |
| Status | The term refers to an individual's legal status as an *Indian*, as defined by the *Indian Act.* |
| Non-Status | Non-Status *Indians* are people who are generally members of a First Nation but are not entitled to be registered under the *Indian Act*. This may be because their ancestors were never registered or because they lost their status under former provisions of the *Indian Act.* Non-Status Indians are not entitled to the same rights and benefits available to Status Indians. |

# ACKNOWLEDGEMENTS

I would first like to thank Chiefs and Councils of the Yukon First Nations, the Yukon First Nation Health and Social Development Commission, and the Council of Yukon First Nations Dissemination Approval Committee (DAC) for their permission to use the 2003 Yukon Regional Health Survey Data-set and the 2005 Yukon First Nations ecological survey data. I am very grateful to the members of DAC for reading through the numerous drafts and for sharing their personal knowledge, lived experiences, stories and humour with me, their commitment to ensure I included First Nations perspectives in a balanced way and involved them in all steps of the research. Without their direction, support and involvement this research would not have been possible. Regional and national RHS data-warriors also have provided great encouragement and support. I would like to especially thank Lori Duncan, Amanda Mudry, Leslie Hamson, Jane Gray, Brian Schnarch, Phat Ha, Leah Bartlett and Lyndsy Gracie.

I thank my thesis supervisors, Dr. Martha MacLeod and Dr. Josée Lavoie, for their prompt and detailed feedback on my draft chapters. I greatly appreciated Dr. MacLeod's act of taking me under her wing when the time to complete my thesis journey was running out and Dr. Lavoie's continued communication to keep me on track and informed of the next steps. I also thank my thesis committee member Margo Greenwood and my external examiner Dr. Naomi Adelson.

Sincere thanks to Mary Cheang of the Biostatistical Consulting Unit of the University of Manitoba for her statistical guidance and great patience in explaining the ABC's of stratified analysis and logistic regression, and to Dr. Kue Young and Dr. Sharon Bruce who facilitated my introduction into multivariate analysis. Special thanks go out to my very helpful library elves: Janice Linton, Lori Friesen, Laurie Prange, Mary Bertulli, Nancy Black and Nicole O'Connor. I'll never forget the kindness from Janice and Lori from the University of Manitoba Library, and Dr. Kathi Avery-Kinew from the Assembly of Manitoba Chiefs, who took me on tours around Winnipeg and treated me to dinner after I finished working with statistician Mrs. Cheang during my visit to Winnipeg.

My classmates and instructors have made my work towards this degree a pleasant experience. I enjoyed the classes we had together, especially listening to the many experiences and perspectives that were shared, many of which could not be found in books or articles.

My family and friends have been a great cheering committee along the way. Thank you also for taking me out for runs on the trails and for entertaining my children when I needed time to focus and write. Exceptional thanks to my husband, Dan, and our children Hannah and Ben, for your love, patience and silliness. A multi-lingual thank you to all:

Shâw níthän, Máhsin cho, Gùnèłchîsh, Gunałchîsh, Màhsi'choo, Mâhsi' cho, Tsin'įį choh,
Sógá sénlá', Hartelijk Dank, Kanimambo, Sokko Sokko!!

# DEDICATION

To the late Nancy Gordon-Van Fleet.

Nancy was a dedicated and talented RHS surveyor, who despite her battle with cancer completed a record number of surveys for the Yukon. Thank you, Nancy, for your hard and excellent work, your gentleness, your humour, your friendship and all you taught us. We never heard a complaint come from your lips. Your legacy will be remembered.

# CHAPTER ONE

# INTRODUCTION

## Personal Interest in the Study

Twenty years ago, as a young researcher posted to a remote mountain range in Northern Cameroon to conduct longitudinal health research amongst the Duupa nation, I first encountered the inherent conflict between externally imposed research methodology and the interests and culture of the population being studied. Before the local chiefs would give me permission to proceed I had to perform a task: make sorghum beer for them. Working with a keen local helper, I set about making the sorghum beer, which was then offered to the chiefs in a ceremony. This symbolic gesture also enabled us to gain the protection of the local spirits. With the consent of the chiefs and the protection of the spirits, we were then able to proceed with our research. Later, when I was working in Mozambique, I found that other community realities – such as belief in magical creatures (humans transformed into vampires and lions) and the everyday trauma of violence, disease and death – first had to be addressed before research could proceed.

I left Africa in 1997 and moved to Whitehorse, Yukon, where I conducted a community wellness study for the Kwanlin Dün First Nation (KDFN). During this work, I tried to use a rotating medicine wheel as a talking tool. The approach and idea were appreciated by the Elders council, but the dynamic wheel was not a feasible tool for conducting lengthy survey research. The people hired to conduct the survey clearly expressed that they were more comfortable with a structured questionnaire, so the use of the wheel was altered to accommodate local circumstances. It became a tool to facilitate discussion, rather than a means of indicating responses. In 2003, I started working as the research coordinator

and data analyst of the Yukon portion of the Canada-wide First Nations Regional Longitudinal Health Survey (commonly known as the Regional Health Survey or RHS, this abbreviation will be used throughout the text). The RHS made Canadian history by being the first National Population Health Survey under total First Nations jurisdiction and control. Through the RHS, comprehensive First Nations health information has been collected that is centered around holistic perspectives of health, serves the agendas of all First Nations, and is unique in its First Nations ownership of and involvement in every step of the research process.

My research experiences in Africa and Canada have clearly revealed to me the profound discrepancies between the worldviews and agendas of the academic world and those of indigenous communities in crisis, and also the need to involve and recognize community members as equal research partners. The strength, resilience, resourcefulness and wisdom of the indigenous people with whom I have worked are qualities not often recognized in the media or in research reports documenting health statistics. We are most often presented with negative statistics on health disparities, poverty and crime. This study takes a different approach by exploring selected Yukon RHS data from a positive perspective, a strength-based approach that takes into account the dynamic processes and factors contributing to overall health and well-being.[1] Because the strength-based approach to health involves a departure from current paradigms of health research, this study also involves a review of past and present health issues and status amongst Yukon First Nations people, a critical analysis of existing models of health and their applicability to Yukon First

[1] From now on the term "well-being" will be used when referring to a First Nation notion of holistic health. The term "health" will be used to indicate western perspectives of health, including perspectives from western-research paradigms such as the medical model.

Nations people, and a proposal for a new conceptual framework for health research relevant for Yukon First Nations people.

The study and this thesis document are the products of collaborative research: while I was the author of the final document, the study itself was directed by the Council of Yukon First Nations (CYFN) Dissemination Approval Committee (DAC) and First Nation Health & Social Development Commission (health commission). Both these bodies provided information and directed the research and analysis.

## Purpose of the Study

The purpose of this study was to analyze some of the multilevel factors and processes that enhance the overall well-being of Yukon First Nations people. Because the Yukon RHS report (CYFN, 2006, p.57-58, p.98) clearly identified depression and suicidal ideation as the most prevalent health conditions amongst Yukon First Nations people, I decided to use these outcomes as measures of overall well-being. A strength-based approach was employed, meaning that the analysis focused on the absence of depression, suicidal thoughts and suicide attempts. This exploratory study tested two research questions:

1) What specific individual-level characteristics can be identified that are associated with overall well-being?
2) What specific community level characteristics can be identified that are associated with overall well-being?

## Conceptual Framework

The conceptual framework in this study is informed by the following concepts and elements: determinants of health; resilience; resistance; *Indigenist* perspective[2]; community control; community engagement; cultural continuity; and Yukon First Nations people's holistic view of health, documentaries, and life stories. The contribution of these concepts to the conceptual framework is described in Chapters Two and Three.

The model used in this study predicts that overall well-being is associated with both individual- and community-level characteristics, and may be depicted as shown below in Figure 1.

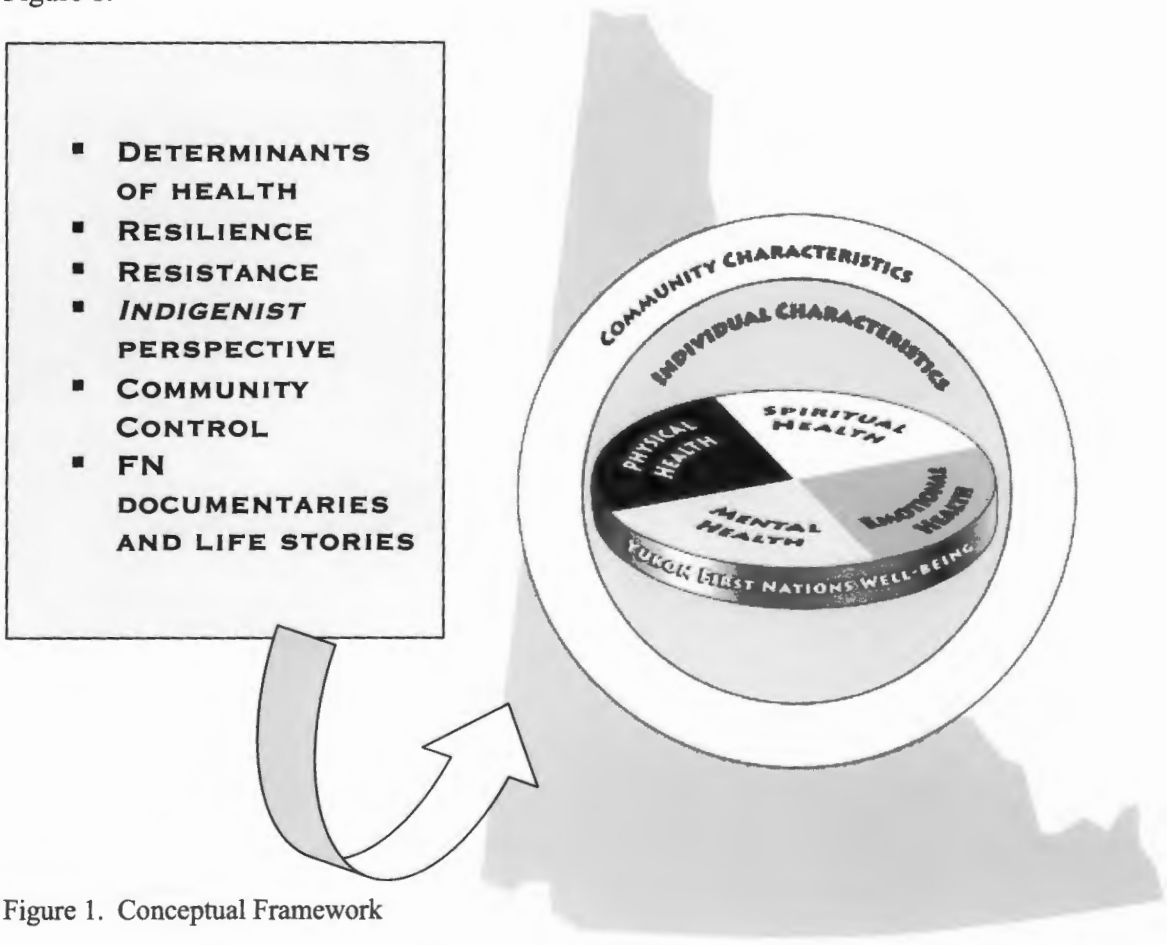


Figure 1. Conceptual Framework

[2] Described by Walters et al., (2002, p.S105), as recognizing the colonized position of Indigenous people living as minority populations within a nation-state, while advocating for empowerment and sovereignty in a post-colonial world.

Community- and individual-level characteristics influence one's overall well-being. These community- and individual-level characteristics do not operate in isolation, but in relation to the overall well-being of First Nations people. They may be seen as assets, or shields against risk factors emerging over time in the course of an individual's life. Likewise, risk and protective factors do not exist in isolation, but are part of the historical and political context of colonialism and the relationships between First Nations people and the dominant western culture of Canada, including the Yukon. This broader context is represented by the map of the Yukon shown as the backdrop of the framework.

## Scholarly, Community and Social Significance

The primary purpose of this research is to assist in increasing our knowledge of how holistic health can be maintained and improved in challenging and changing environments. A specific goal is to expand knowledge of the determinants or correlates of overall well-being. It is hoped that this may lead to the development of new ways to build supportive environments to help foster holistic health in Yukon First Nations communities. This is timely in an era in which First Nations are reclaiming control over their own affairs and making significant efforts to overcome past harms and injustices and to change the negative influences of the environments that they so often live in. The holistic approach and *Indigenist* perspective have been absent from previous research, resulting in research that is of little relevance to the needs of First Nations. A better understanding of the current individual, social and cultural context of well-being in the community may assist First Nations to secure necessary resources to improve well-being.

Secondary purposes of the research are to improve the use of existing research results and help develop capacity for First Nations health research in the Yukon. The Yukon RHS

Report was released in May, 2006, and provides information in over 30 areas, including: demographics, language, housing, health status and culture. Due to the amount of data and limited resources, no detailed multivariate analysis was done. Researchers from the Canadian Institutes of Health Research (CIHR), Institute of Aboriginal Peoples Health (IAPH) and the Aboriginal Capacity and Developmental Research Environment (ACADRE) Network have strongly recommended that additional multivariate analysis of RHS data be undertaken in order to derive maximum benefit from this major survey (First Nations Information Governance Committee [FNIGC], 2006). In keeping with the values, principles and goals of the RHS, including capacity-building in Yukon (CYFN, 2006, p.9, p.12), the Yukon RHS team have given their permission to proceed with the secondary data analysis of the Yukon data. In addition, by applying a strength-based and community-based approach toward better health and well-being, this study may serve as an example and learning experience for other researchers and health professionals working with Aboriginal health databases.

## Organization of Thesis

Chapter One introduces the study and the issues to be considered. It explains the rationale and purpose of the study. Chapter Two provides background on Yukon First Nations, with an initial examination of the health of Yukon First Nations pre- and post-contact. This chapter also examines how historic trauma combined with marginalization, discrimination, modern urban lifestyles and bureaucratic political practices have undermined the overall well-being of Yukon First Nations peoples (A Yukon First Nations definition of overall well-being is also provided in this chapter). Chapter Three contains a review of selected health research frameworks, and contains a critical analysis of their applicability to this study. The critical analysis resulted in a proposal for a new conceptual framework

specific to the study of the overall well-being of Yukon First Nations people. Chapter Four describes the study methodology, including permission and collaboration by First Nations and details of the survey sample. It concludes with a description of the data analysis, including the variables that were used. The fifth chapter presents the findings of the individual-level analysis and Chapter Six the community-level analysis. Finally, Chapter Seven presents my discussion of the findings, the usefulness of outcome measures, limitations of the study and implications for practice and policy. Recommendations for future research and summary comments close out the chapter.

# CHAPTER TWO

# YUKON CONTEXT

## Approaches to Aboriginal Health

Many studies have documented the disproportionate share of disease and mental illness sustained by Canadian Aboriginal people (Chaimowitz, 2000; Commission on the Future of Health Care in Canada, 2002; First Nations and Inuit Regional Health Survey National Steering Committee, 1999; FNIGC, 2005d; Kirmayer, 1994; Kirmayer, Brass, & Tait, 2000; MacMillan, MacMillan, Offord, & Dingle, 1996; Moffitt, 2004; Newbold, 1998; Standing Senate Committee on Social Affairs Science and Technology, 2006; Stephenson, Elliot, Foster, & Harris, 1995). The Royal Commission on Aboriginal Peoples [RCAP] produced a five volume report (1996) that linked this disproportionate share of disease and mental illness to decades of oppressive social policies and the inability of "mainstream" institutions to effect significant change. Adelson (2005), and Raphael (2004), have argued that historical, political, cultural, economic, societal, and community contexts all need to be considered when studying health inequalities in Canada's Aboriginal populations. Considering the many adversities Canada's Aboriginal peoples have faced, and continue to reckon with since the inception of colonization, it is unsurprising that assessments of Aboriginal health status are portrayed more negatively than such assessments of the average non-Aboriginal Canadian.

Lavallee and Clearsky (2006, p.5) argue that the impact of racism, oppression, colonization, and assimilation continue to implicitly derail a decolonized Aboriginal vision of health and perpetuate myths of Aboriginal inferiority. They claim that in order to move towards a decolonized and non-deficit framework, Aboriginal peoples must tell their stories

in their own ways, and speak out about the limitations of the colonial language and its predetermined thematic constructs. This study takes a similar approach. In this Chapter, contextual information related to the past and current realities of Yukon First Nations is provided, followed by a definition of health based upon Yukon First Nations people's view of overall well-being.

## History and Current Realities of Yukon First Nations

There are approximately 30,000 people in the Yukon, of whom about one quarter are of First Nations ancestry. Yukon First Nations people belong to two main Aboriginal linguistic groups: Athapaskan and Inland Tlingit. The Athapaskan-speaking group includes the Gwich'in, Hän, Kaska, Northern Tutchone, Southern Tutchone, Tagish and Upper Tanana. The second group, comprised of Inland Tlingit speakers, are descendents of Tlingit peoples who migrated from the Alaskan coast and gradually inhabited areas in the Southern Yukon. At present, there are fourteen Yukon First Nations,[3] speaking eight distinct languages. Appendix A contains a map of the Yukon showing the First Nations communities with their traditional territories. Each nation consists of fewer than 1,000 people, and most have fewer than 300 permanent residents (see Table 1). Yukon First Nations people are born into the clan system as members of either the wolf or crow (raven) moiety. Among the Tlingit, Tagish and Southern Tutchone, these clans are further subdivided. Although perhaps of less importance than in the past, the clan system indicates that Yukon First Nations people recognize common bonds with fellow moiety members from other villages and First Nations.

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[3] They are: Little Salmon/Carmacks First Nations, Selkirk First Nations, First Nations of Nacho Nyak, Dun, Kluane First Nations, Ta'an Kwach'an Council, Kwanlin Dun First Nations, Champagne and Aishihik First Nations, Teslin Tlingit Council, Carcross/Tagish First Nations, White River First Nations, Tr'ondëk Hwëch'in, Vuntut Gwitchin First Nations Ross River Dena Council and Liard First Nations.

They come together for ceremonies, celebrations and other important community events, especially potlatches (CYFN, 2006).

Table 1
*First Nations Community by Size Grouping and Distance from Whitehorse*

| Community size[a] | First Nations Community name | Distance from Whitehorse (km) |
|---|---|---|
| Medium | Kwanlin Dun First Nation | 0-36 |
| 300-1,499 | Champagne and Aishihik First Nation | 97-158 |
| | Ross River Dena Council | 360 |
| | Liard First Nation | 455 |
| Small | Ta'an Kwach'an Council | 0-48 |
| <300 | Carcross/Tagish First Nation | 74 |
| | Little Salmon/Carmacks First Nation | 177 |
| | Teslin Tlingit Council | 184 |
| | White River First Nation | 285 |
| | Selkirk First Nation | 285 |
| | First Nation of Nacho Nyak Dun | 407 |
| | Kluane First Nation | 457 |
| | Tr'ondëk Hwëch'in | 536 |
| | Vuntut Gwitchin First Nation | >1000, accessible only by air |

[a] These categories were defined using adjusted 2002 Indian Register counts (INAC).

Most communities are situated outside the urban centre of Whitehorse (see Table 1, above), in wilderness areas. The most remote community is accessible only by air. In contrast to other regions, First Nations people in the Yukon are not considered as being "on-reserve" or "off-reserve." Yukon First Nations are located on "land set aside"[4] and "settlement land."[5] The Yukon is unique within Canada with respect to the advanced stage of the development and implementation of comprehensive land claim settlements and self-government

[4] "Land Set Aside" refers to lands which are not Reserves under the Indian Act but which are noted in the property records as set aside for the use and benefit of Yukon First Nations (CYFN & YG, 1997, p.10).
[5] "Settlement land" refers to a parcel of land that Yukon First Nations will own and manage (CYFN &YG, 1997, p.11).

agreements. In 1989, after 16 years of negotiations, an agreement in principle - the Umbrella Final Agreement (UFA) - was reached, and the final document was signed in 1993. The UFA is a political or a policy document between the Government of Canada, Government of Yukon and Yukon First Nations as represented by the Council of Yukon Indians (CYI), [6] and is a common template for negotiating other First Nation Final Agreements in the Yukon. Each individual First Nation Final Agreement is a treaty recognized under section 35 of the Constitution Act (1982) and therefore takes precedence over other laws.

First Nation Final Agreements provide for the negotiation of Self-Government Agreements between the various First Nations and the governments of Canada and Yukon. At the time of writing, eleven of the fourteen First Nations in the Yukon Territory have signed First Nation Final Agreements and are now self-governing (Yukon Government [YG], 2006). Pursuant to their self-government agreements with Canada, self-governing Yukon First Nations may assume responsibility from Canada for the management and delivery of a range of programs and services in the areas of education, justice, heritage, health care, community development, social programs, civil and family matters and management of lands and community infrastructure (CYFN & YG, 1997). This is done through the negotiation of multi-year Program Service Transfer Agreements (PSTAs) which establish the funding a particular First Nation will receive on a yearly basis from the Treasury Board. Some benefits of taking over programs and services under a PSTA are that the particular First Nation can use the funds in a way that best suits the needs of the community, can retain surpluses and is no longer obliged to do onerous reporting.

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[6] The Council for Yukon Indians legally changed its name to Council of Yukon First Nations in 1995.

*Well-being in the Past*

Yukon First Nations people learned to adapt to their environment and survive the harsh northern climate through innovative methods and resourceful strategies. They enjoyed a hunting, fishing and gathering way of life, drawing upon the environment and its resources for sustenance, spirituality, a worldview, values and belief systems. They also developed sophisticated interconnected societies linked by an extensive network of trails and waterways (Mishler, 2004; Yukon Historical Museums Association, 1995). Interactions between First Nations were characterized by flexibility and openness, allowing them to acquire new knowledge and skills, rejecting those that were not useful and adopting or amending others to fit into their own patterns (CYFN, 2006; McClennan, 2001). Children were intensely parented by their families and extended families, taught strong gender roles, and raised to be responsible to their families, clans and communities. Spirituality was a deeply valued force that affected every aspect of traditional life. Food-gathering activities brought families together in sharing culture, spirituality and fun (CYFN, 2006; J. Allen, 1990; L. Allen, 2007). Humour, playfulness, storytelling, dancing and other cultural and spiritual expressions were strong elements in traditional society that helped people cope with the challenges of survival in physically harsh environments (CYFN, 2006; DAC 2006; McClennan, 2001).

Members of the DAC, a CYFN committee established to oversee the use and dissemination of the Yukon RHS results, provided their own information based on traditional knowledge and personal experience. They stated that Yukon First Nations people were remarkably well until much sickness came across the passes with the gold prospectors[7] and the building of the

[7] An estimated thirty thousand gold seekers made their way through the Chilkoot pass in 1898.

Alaska Highway[8] (DAC 2006a; 2007a). This is confirmed by historical accounts from the Hudson's Bay Company traders. Alexander Murray of Fort Murray is believed to have said around 1850 that the Tutchone people were "tough" or "hard" (McClennan, 2001, p.22). Another Hudson's Bay trader, W.H. Dall, wrote in 1877 about a Yukon Athapaskan group, "these people are bold and enterprising, great traders and of great intelligence" (McClennan, 2001, p.22). And, in 1890, Glave observed that "Yukon interior people are without exception the most peaceful people I have ever met in my life, as well as bright and intelligent and splendid physical specimens" (McClennan, 2001, p.23).

Halfway through the 20th century, the remarkable physical fitness and endurance of Vuntut Gwitchin in Old Crow were recognized through physiological investigations (Andersion, Bolstad, Loyning, & Irving, 1960; Hildes, Whaley, Whaley, & Irving, 1959) and an experimental ski program (Mouchet, 2000). In 1959, the Canadian Medical Association published a special article on Old Crow based on the observation that the residents of this community seemed "unusually healthy" (Hildes et al., p.837). In 1960, researchers from the Arctic Health Research Centre in Anchorage Alaska published the findings of their comparison between the fitness of healthy First Nations men in Old Crow and Norwegian champion athletes (Andersion et al., 1960). In the published results of the study, they concluded:

> It can be seen that the Indians' fitness for muscular work averages better than the fitness of men of sedentary habits in our own societies. The Indians do not have the level of fitness of champion athletes, who are believed to represent the highest

[8] The construction of the Alaska Highway started on March 10, 1942 and a truck route was completed by November 20, 1942. After the official opening much work remained to be done for the road to continue to bear traffic. Many permanent and seasonal workers were kept employed until 1964 (Corps of Royal Canadian Engineers, n.d.).

level of human physical endurance, but occupy a somewhat intermediate position. (p.648)

Although no accurate records exist of disease in pre-contact and early contact times, it is clear that contact brought epidemics of disease (smallpox, measles, tuberculosis,[9] meningitis and pneumonia), which caused great suffering and decimated several Yukon communities and nomadic settlements (McClennan, 2001, p.20, p.223). Many families lost relatives, especially children (Cruikshank, 1990). The picture that emerges from these accounts is that Yukon First Nations in pre-contact and early contact times enjoyed good health, until overwhelmed by rapid changes to the traditional way of living associated with the influx of thousands of people of non-First Nations descent through the Gold rush (1898) and the building of the Alaska Highway (1942-1945).

The effects of disease and erosion of traditional lifestyles were aggravated by the imposition of colonial and racist policies and cultural suppression, which contributed to the social and economic marginalization and political disempowerment of Canada's Aboriginal people (Adelson, 2005). One of the most destructive features of the colonization of Aboriginal People was the establishment of residential schools (Kelm, 1998; Milloy, 1999), which was extremely disruptive to the traditional way of living. The residential schools, which existed from 1903-1985, broke connections between the generations, destroyed the tradition of learning hands-on while making a living from the land, and enforced foreign language, foreign teaching and discipline regimes (CYFN, 2006). Children incarcerated in these schools were subjected to extremely harsh conditions, including hunger, brutal

[9] Testimony emphasized alleged experimental treatment of tuberculosis in designated Indian hospitals far from home causing premature death and - for those who lived - unnecessary suffering. Examples referred to drug experimentation leading to liver failure, insertion of ping pong balls or paraffin wax which later on have caused severe chronic pain as the inserted objects migrate through the body (DAC, 2007c; Yukon First Nations Health and Social Development Commission [Health Commission], 2007).

discipline, forced labour, sexual abuse, torture and even death (DAC 2007c; Kelm, 1998; Northern Native Broadcasting Yukon, 2001). As a result, generations of First Nations children have grown up estranged from their culture, adrift in the dominant society, and struggling with the memories of their incarceration. The damage was not only to the individual students - whole communities were torn apart. Extended families were broken up, as documented in the Yukon movies "*Our Spirit is very Strong*" (Northern Native Broadcasting Yukon, 2001) and "*One of Many*" (Pfohl, Katzke, Beranger, & Buttignol, 2006) and summarized in the statement by a Carcross First Nation member during court hearings in Whitehorse on October 16, 2006, "have you ever heard a whole village cry?"

*Current Challenges*

Yukon First Nations and their territories have become increasingly integrated into Canadian political structures and global economic systems. Traditional employment and livelihood activities such as trapping, hunting, fishing, gathering, woodcutting and trading have been replaced over time with cash-based economies (CYFN, 2006; Nadasdy, 2000). Now, significant contemporary challenges are posed by the transition from traditional governance structures to band councils controlled by Indian Affairs and, more recently, to new First Nations self-governments (which are still based on a federally-imposed, western style). Nadasky (2000) points out that participation in land claim negotiations and cooperative management initiatives has made it necessary for Yukon First Nations people to develop bureaucratic infrastructures in their communities and become bureaucrats themselves, helping undermine the very way of life that land claims and cooperative management initiatives were intended to protect.

Self-government brings significant challenges. The Federal Government has consistently maintained that Yukon First Nations can negotiate only in the interests of status Indians and the lands, programs, and services directed to them. As a result, self-government financing has been limited by Canada to fund program delivery only to status Indians. Furthermore, eligible funding does not reflect actual inflation rates or yearly population increases. As a result, taking over responsibility for programs brings the potential for further difficulties. Once a First Nation takes over jurisdiction, the Federal and Territorial Governments may no longer feel responsible for the area in question and the First Nation may be left to provide any and all services on a continual basis, with no assistance. For instance, contaminated water was recently discovered in wells owned by one First Nation. Because responsibility over water quality had been devolved to the particular First Nation, both the Territorial and Federal Governments have refused further assistance, despite the knowledge that the First Nation Government had neither the funds nor the capacity to resolve the problem by itself (L. Duncan, personal communication, June 12, 2007). Such jurisdictional complexities abound. As another example, hospital services, health promotion, home care and nursing all fall under the jurisdiction of the Territorial Government, but specific services for status First Nations people remain under the jurisdiction of Health Canada. At the time of writing (2007), ten out of eleven self-governing Yukon First Nations had reached PSTAs with Health Canada for the following health related programs/services: Brighter Futures, National Native Alcohol and Drug Abuse Program (NNADAP), Building Healthy Communities, Community Health Representatives, Health Careers, Health Liaison, Health Management and Support, Prenatal Care and Nutrition (R. Hartman, personal communication, May 16, 2007). Nursing is not amongst them because Yukon First Nations

have apparently decided that only once they have sufficient capacity, funding, and experience will they assume responsibility for the service, a process which takes an indefinite amount of time. Because of these factors, the self-governing First Nations with the longest self-governance experience in the Yukon are farther ahead with the implementation of programs and services set out in the Self-Government Agreements (L. Duncan, personal communication, June 13, 2007).

As Yukon First Nations have developed more contemporary administrative and economic structures, their citizens have necessarily adopted more sedentary work and lifestyle habits that accompany such changes, which in turn have eroded the physical health the past. At the same time, foreign highly-processed and nutritiously-inferior foods have displaced traditional diets, which consisted of wholesome foods (CYFN, 2006; Jaiko, 2006; KDFN, 2002). Like mainstream society, a range of other modern influences, such as alcohol, drugs, pop culture, computers, internet and satellite television, also challenge Yukon First Nations to find a sustainable balance between old and new (Brennan Rexer & Licht, 2006). More recently, climate change and its impacts in the Yukon have emerged as a great concern (Health Commission, 2006).

**Yukon First Nations Notion of Overall Well-being (Holistic View of Health)**

The recently released Yukon RHS research findings (CYFN, 2006) show that the most prevalent health conditions amongst Yukon respondents are prolonged feelings of sadness and depression (38%), followed by suicidal thoughts (36%). How depression and suicidal ideation are viewed by contemporary academic researchers and by Yukon First Nations people brings us to the divergence between two conceptual orientations. In the literature, depression and suicide are commonly characterized as mental health problems

(Advisory Group on Suicide Prevention, n.d.; Corrado & Cohen, 2003; Manson, 2003). However, First Nations people, including First Nations people in the Yukon, see these problems as important indicators of overall un-wellness, as they believe that in order for individuals to be well, they must maintain in holistic balance with the synergistic components of physical, mental, spiritual, and emotional well-being (CYFN, 2006; Dissemination Approval Committee [DAC], 2006a; KDFN, 2002; Peters & Demerais, 1997; Van Uchelen, Davidson, Quresette, Brasfield, & Demerais, 1997). Well-being is also tied to the land, the spiritual laws that govern the land, and the relationships between animal, plant and human life that exist together in collective balance. This notion of well-being is relational and interconnected (CYFN, 2006; DAC, 2005; KDFN, 2002). Thus we have an epistemological divide: the academic view of discrete mental health problems, and the First Nations view of elements within an overall sense of well-being. Cultural and historical background, therefore, have a profound influence upon how either health or well-being is perceived.

Lalonde (2005), has stated that because Aboriginal and non-Aboriginal communities have different views of health, research projects that focus upon Aboriginal people must begin with serious efforts to engage Aboriginal people in defining the meaning of health. The present study has followed that approach. The DAC, consisting of representatives (Elders and/or health professionals) from the different communities which partook in the RHS, and of which I am a member, was established to review and approve the use and dissemination of Yukon RHS findings. In February 2006, the DAC developed a vision of holistic well-being grounded in the cultural values and beliefs of Yukon First Nations people to guide the interpretation of Yukon RHS data (CYFN, 2006). The overall vision, presented in the center

of the Wheel shown in Appendix B, is to "Achieve Overall Wellness."[10] Each quadrant of the Wheel highlights one theme of the vision. Although all areas are interconnected and may overlap in some way, themes are organized according to their best match with the four well-being components. Together with spiritual, emotional and physical health, mental health is an interconnected component of holistic well-being, as displayed in the wheel. It is also important to note the dynamism in this view of well-being, as Elder Clara Van Bibber explained, "I have to work hard at it [achieving overall well-being] every day," (Clara [Sis] Van Bibber in Northern Native Broadcasting Yukon, 2001).

Although there is an astonishing diversity that exists within Canada's Aboriginal groups, one commonality is this concept of interconnected and holistic well-being. Canada's First Peoples do not make the distinctions between physical, mental, emotional, and spiritual well-being that are embodied in dominant western views of mental and physical health (Adelson, 1991; CYFN, 2006; KDFN, 2002; Peters & Demerais, 1997; Smylie, 2001; Van Uchelen et al., 1997). Western health care systems tend to focus on pathology, emphasizing diagnosis and treatment of symptoms by specialized practitioners. Under this paradigm, mental health is conceptualized as a distinct aspect of personal experience, in accord with individualistic cultural values and standardized criteria (Peters & Demarais, 1997). In the First Nations holistic view, mental health is inseparable from the other facets of individual and collective well-being (Van Uchelen et al., 1997). The holistic way in which Yukon First Nations people view well-being underscores the importance of supporting resources that address multiple aspects of well-being, rather than focusing solely on mental health in

[10] Although the word wellness is used in the graphic, the rest of the document it came from (CYFN, 2006) uses the word well-being when referring to the concept of interconnected and holistic health and well-being. For consistency and clarity I'll therefore continue to use the word well-being when referring to First Nations notions of health.

isolation from other aspects of well-being. The Yukon First Nations view of well-being addresses the whole person in context.

## Summary Comments

The cumulative intergenerational effect of historic trauma combined with the contemporary experience of being marginalized and discriminated against in the dominant society, and having to balance traditional lifestyles with modern urban influences and bureaucratic political practices, puts strains on individuals, families and communities. This effect is intensified in First Nations communities, which are tightly knit and often isolated (Brennan Rexer & Licht, 2006; DAC, 2006d, 2007; Nadasdy, 2000). Today, Yukon First Nations are working to implement a wellness model to health status improvement, based on a cultural and holistic approach that pays attention to the positive and has a focus on the promotion and preservation of well-being (AFN Yukon Office, 2005; CYFN, 2006; KDFN 2002). An exploration of the characteristics that seem related to overall well-being, as described above, would therefore fit with this philosophy and strengthen the momentum that currently exists.

# CHAPTER THREE

# CONCEPTUAL APPROACHES TO UNDERSTANDING INDIGENOUS PEOPLES' HEALTH

Social, economic, cultural and political inequities have resulted in First Nations people in Canada bearing a disproportionate burden of ill-health and social suffering. The disparities are a reflection of systemic, societal and individual characteristics. Reducing the disparities is therefore not an easy task, as many of these characteristics and their relationships with one another are complex and generally beyond the control of individuals. This chapter reviews the applicability of three conceptual approaches to understanding Indigenous Peoples' health: the determinants of health framework; the concept of resilience; and an *Indigenist* stress-coping model. It then moves to a consideration of the applicability of these models and concepts to the study of the overall well-being of Yukon First Nations people. The chapter concludes with a proposal for a new conceptual framework for health research specific to Yukon First Nations people, one which includes a more holistic, dynamic understanding of the characteristics and processes that affect and define overall well-being.

## Determinants of Health

Internationally, nationally, and locally, there has been a shift in western thinking about how health is defined. It is now commonly accepted that improvements in health status and well-being will not come from improved medical knowledge, lifestyle behaviours, health services and programs alone, but also through increased control over the social, economic and political determinants of health. A determinant of health is a factor known to influence one or more aspects of health (Health Canada, 1998). One of the first widely accepted reports offering a determinant of health framework was the Lalonde report (Lalonde, 1974). This

report identified the key health determinants as lifestyle, environment, human biology, and health services. Since then, a growing number of initiatives have supported and at the same time revised or expanded upon the health determinants identified in the Lalonde report. The 1986 Ottawa Charter for Health promotion (World Health Organization [WHO], 1986) identified the prerequisites for health as peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity. In 1992, Dahlgren and Whitehead (1992; 1998) formulated a rainbow model of health determinants with 5 arches. Their five main determinants can be summarized as: (1) age, sex & hereditary factors; (2) individual lifestyle factors; (3) social & community differences; (4) living and working conditions; and (5) general socio-economic, cultural and environmental conditions. In 2001, Health Canada recognized the following eleven determinants of health: income, income distribution and social status, social support networks, education, employment and working conditions, social environments, physical environments, healthy child development, personal health practices, individual capacity and coping skills, biology, genetic endowment and health services (Chomik, 2001). At a "Social Determinants of Health" Conference in 2002, nine determinants were singled out as relevant for Canadians: income inequality, social inclusion and exclusion, employment and job security, working conditions, contribution of the social economy, early childhood care, education, food security and housing (Edwards, 2002).

The models described above have many similarities, but differ in the level of detail employed in breaking the factors down into categories. They do seem to agree on the importance of the following determinant choices: human biology (age, sex and hereditary factors); individual lifestyle factors; employment (including job security and working conditions); early child development; (access to) health services; support networks;

education; food security; housing; socio-economic status, social inclusion; and physical environment. Although these models include the broader determinants of health, Canadian First Nations have argued that they have not sufficiently taken into account the negative health impact of colonialism and assimilation and are culturally limited in their definition of well-being (AFN & Social Development Secretariat, 2005). This argument is persuasive. For the determinant of health model to be applicable to First Nations people, it must include their historical and present realities, and acknowledge a holistic definition of well-being that expands to include all stressors and protective factors related to well-being (AFN Yukon Office, 2005; AFN, 2006). For example, it must take into account the multigenerational effects of trauma, especially as they relate to the residential school experience. The AFN introduced a First Nations-specific model in 2005 with the following key characteristics: community at its core; the mental, spiritual, emotional, physical, economic, social, environmental and cultural health components of the medicine wheel; the four cycles of the lifespan (child, youth, adult, elder); the fiscal, human rights, capacity and jurisdictional dimensions of First Nation self-government; fourteen key health determinant areas and the three relations components of bonding, linkages and bridging. The fourteen health determinants in the AFN model are: environmental stewardship, social services, justice, gender, life long learning, languages/heritage/culture, urban/rural, lands/resources, economic development, employment, health care, on/away from reserve, housing and self-determination (AFN, 2005b).

The AFN approach is the most comprehensive of the determinants of health models, and includes consideration of many different areas that have an impact on overall well-being. However, it too does not fit well with the strength-based approach of the present study.

Because it is somewhat static, the AFN model does not take into account the dynamism of individual and collective efforts to improve well-being. One attempt to capture the effect of these efforts has been the development of the concept of resilience. An examination of the literature on resilience is set out below.

## Concepts of Resilience

Resilience research has become a popular field of social scientific inquiry in the last three decades. The terminology and science of risk and resilience emerged from a handful of pioneering psychologists, most notably Norman Garmezy (1971; 1987, 1993), Emmy Werner (1995; 2004) and Michael Rutter (1985; 1987; 1993). These researchers were interested in the experiences of children who develop well in the context of significant adversity. Subsequent resilience research has influenced the dominant deficit models that characterized earlier research about human development in the face of disadvantage and adversity by providing a focus on the health promotion tenets of protective and risk factors (Cicchetti, 2003; Gerrard, Kulig, & Nowatzki, 2004; Luthar & Zigler, 1991). Most of the literature reviewed provided definitions of resilience within a Western perspective. Only one indigenous perspective of resilience was found. A summary of these concepts follows in the next two sections.

### *Western Definitions of Resilience*

According to Masten (2001), resilience is an inference about a person's life that requires two fundamental judgments: (1) that a person is "doing okay" and (2) that there is or has been significant adversity (Masten & Powell, 2003). Forms of adversity, also named *risk dynamics* or *barriers*, are the negative influences an individual is exposed to in the environment he/she grows up or lives in, such as violence, parents using drugs (including

alcohol), multiple losses and lack of support networks. Many kinds of risks or adversity have been studied in resilience studies (Garmezy, 1993; Leipert & Reutter, 2005; Luthar, 2003; National Aboriginal Health Organization [NAHO], 2006). Early studies of risk often focused attention on one risk factor; however, it was soon apparent that risk factors more typically co-occur with other risk factors and usually encompass a sequence of stressful experiences (Luthar, 2003; Masten & Powell, 2003; Rutter, 1993). Cumulative risk can be studied by aggregating information about stressful life experiences or risk indicators. Risk factors are usually categorized according to whether they originate within the individual, the family or the wider socio-physical environment. These characteristics are reflected in the various definitions of resilience encountered in the literature, briefly summarized below.

Resilience has been described as a "capacity" (Demos, 1989; Gerrard et al., 2004), a "process" (Luthar, 2003), "a combination of qualities and process" (Strand & Peacock, 2003) and as an "interactive model" (Leadbeater et al., 2004; Mangham, McGrath, Reid, & Stewart, 1996). Although early research perceived resilience almost exclusively as a capacity or set of qualities an individual has or lacks (Luthar, 2003), several researchers have begun to examine resilience at different collective levels: family (Vandergriff-Avery, Anderson, & Braun, 2004; Walsh, 2002), neighbourhood (Breton, 2001), community (Kulig, 2000) and ethnic group (Angell, 2000; Riecken, Scott, & Tanaka, 2006). This shift of focus from the individual to the collective indicates a growing awareness that factors beyond an individual's own make-up and immediate experience affect an individual's resilience in the face of challenge. For the purposes of the present study, therefore, it was decided to consider characteristics operating on both individual and community levels.

Gerrard, Kulig and Nowatzki (2004) define resilience as the capacity of individuals not only to survive adversity, but also to thrive in the face of it, thereby enhancing their health. Demos (1989) makes the observation that the capacity to bounce back requires the ability to see the difficulty as a problem that can be worked on, overcome, changed, endured or resolved in some way. In a recent comprehensive collection of essays on knowledge and thought concerning resilience and vulnerability, resilience is defined as "a dynamic developmental process reflecting evidence of positive adaptation despite significant life adversity" (Luthar, 2003). Strand & Peacock (2003) describe resilience as "a set of qualities that foster a process of successful adaptation despite risk and adversity." Mangham et al., (1996) present a composite definition: they conclude that resilience is "the capability of individuals and systems (families, groups and communities) to cope successfully in the face of significant adversity or risk. This capability develops and changes over time, is enhanced by protective factors within the individual/system and the environment, and contributes to the maintenance or enhancement of health" (Mangham et al., 1996).

Similarly, Leadbeater, Schellenbach, Maton, and Dodgen (2004) propose a definition of resilience that is best perceived as "a process that involves multiple factors interacting over time, from which occasionally precipitates success in a particular developmental domain or function." Leadbeater et al., (2004) further explain the building and maintenance of positive, adaptive functioning as a product of protective processes that inevitably fluctuate across an individual's or family's life span and across a community's history. Both Mangham et al., (1996) and Leadbeater et al., (2004) suggest that resilience may be particularly important during times of transition, when stresses tend to accumulate. Individual, family or community capacity to deal with these challenges is dependent on a storehouse of protective

processes. Leadbeater et al., (2004) suggest that the principles that characterize the development of individual competencies also apply to families and communities. Like individuals, families and their communities have strengths and resources that can sustain or promote their adaptive functioning in the face of adversities. Research has also shown that families and communities must be seen as unique entities with unique responses to the perturbations of time and its environmental, economic, social and political influences. For example, the lifecycle stage of a family may significantly influence its capacity to respond to stressful events (Leadbeater et al., 2004). Breton (2001) notes that a neighbourhood's resilience is dependent on social and physical capital, including neighbour networks, active voluntary associations, stable local organizations, public and corporate policies that affect resources, and social or physical infrastructure. With regard to community resilience, communities economically poor, but rich in social capital, may be better able to respond to community-level adversities than communities with fragmented interest groups (Kawachi & Subramanian, 2006). Porter (2000) hypothesizes that public celebrations contribute to community resilience by engaging youth in positive and creative ways and by contributing to a sense of place, self and community. Kulig (2000, p. 375) defines community resiliency as "the ability of a community to not only respond to adversity but in so doing reach a higher level of functioning." She identifies "three components: (1) interactions experienced as a collective unit; (2) expression of a sense of community; and (3) community action"(p. 380). This concept of community resiliency may at its surface appear dynamic, but the dynamism operates within a narrow timeframe (it is viewed as the aggregate strength at a given time), and in a narrow focus (it is applied to an immediate local crisis, as opposed to the community' historical and ongoing relationship with the dominant society).

*Indigenous Definitions of Resilience*

HeavyRunner & Sebastian Morris (2006) introduce the concept of cultural resilience, which they define as the innate capacity for spiritual, mental, emotional and physical well-being through traditional Aboriginal processes. They and others (Blackstock & Trocmé, 2004; Dion Stout & Kipling, 2003; Harris & McFarland, 2000) posit that Aboriginal people traditionally cultivated resilience through their teachings, and advocate for a revival of the ways traditional cultures fostered the development of long-term resilience. They highlight the following ten core values central to cultural resilience: spirituality, child-rearing/extended family, veneration of age/wisdom/tradition, respect for nature, generosity and sharing, cooperation/group harmony, autonomy/respect for others, composure/patience, relativity of time, and non-verbal communication (HeavyRunner & Sebastian Morris, 2006).

Strand and Peacock (2003) hold that in Indigenous cultures, resilience was developed by building self-esteem through paying attention to four areas: belonging, mastery, independence and generosity. "Belonging" meant feeling well cared for by community members from the time you were born until you passed away. "Mastery" was achieving spiritual, mental, emotional and physical well-being. "Independence" referred to individual freedom and practicing appropriate self-management. "Generosity" was the core value of giving to others and giving back to the community.

The Aboriginal Healing Foundation also underscores the important roles traditional cultural practices have played in fostering resilience. In its report on resilience and the residential school legacy, the Aboriginal Healing Foundation documented the success traditional practices have had in fostering resilience through building a holistic health and healing ethos, self-reliance, survival skills, pride, self-esteem, strong sense of identity and

commitment to fulfill community needs and expectations. The beneficial effects of similar themes of cultural pride, strong identities, economic independence and control over resources are also well documented by others (Chandler & Lalonde, 1998; Cruikshank, 1990; Kirmayer et al., 2000; Riecken et al., 2006).

The documentary film *Our Spirits Are Very Strong* (Northern Native Broadcasting Yukon, 2001) investigates the impact of the Yukon residential school legacy on survivors, their families and communities. It highlights the role of resilience in Yukon First Nations Communities:

> Our people have gone through a lot in the past 100 years or so but we are still here. We are very strong survivors. Our spirits are very strong because of the teachings that have been passed on to us. We are the caretakers of the spiritual aspect of our beings, and we have the tools to keep our spirits strong—although through our traumas we are feeling very negative and down, our spirits will still be strong. There is a lot of support out there in our First Nations communities and in the community at large. Don't give up. Reach out, and there will be someone there to take your hand. (Clara [Sis] Van Bibber in Northern Native Broadcasting, 2001)
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> ***
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> Survivors are the people who went through something really traumatic, something really awful in their lives, but instead of letting it destroy us we use it to help us become stronger. (Geraldine James in Northern Native Broadcasting, 2001)
>
> ***
>
> We store all that grief. We can't be free people if we don't get it out. (Frances Carlick in Northern Native Broadcasting, 2001)

In the film, three brave Yukon First Nations women explain how they have overcome past adversity and become stronger people. They reveal that positive childhood memories, dreams and visions of a better future helped them start and stay on their healing journeys. To do so, they needed to acknowledge their history, accept what had happened to them, and reclaim their heritage. They also point to skills and qualities that they needed to acquire, such as self care and self respect, learning the tools to live sober, expression of grief and emotions, traditional crafts, traditional language and traditional teachings. Importantly, they mentioned that they had also received assistance from loving and caring family members. Being able to see themselves again as beautiful and dignified women, they were able to reach out to others and be role models and brave advocates for positive change in their communities. They embody a process-oriented approach to overall well-being that includes cultural resilience (Heavy Runner and Sebastian Morris, 2003); resistance (Adelson, 2000); and dynamism. It involves personal as well as community characteristics interacting in a dynamic process. "*Having the tools to keep our spirits strong*" (Clara [Sis] Van Bibber in Northern Native Broadcasting, 2001), seems to also involve a time continuum from ancestors to present that is absent from western-dominated notions of health, which focus on the immediate present.

Other examinations of the life histories of female Yukon First Nations elders who faced many adverse experiences confirm the protective influences of a happy and nurturing early childhood, and further identify the importance of having visionary parents or grandparents who were able to prepare their offspring for future transitions, experiencing diverse cultural lifestyles, and traveling long distances early on in life, as characteristics that enhance resilience (Cruikshank, 1990; Williams, 2005). Again, this appears to be an interactive, dynamic process that carries on through time.

Through these stories it becomes clear that the Yukon First Nations concept of well-being, which features interactions and connections with others, has some resemblance to the definitions of resilience provided by Mangham et al., (1996) and Leadbeater et al., (2004) who see resilience as a dynamic and interactive concept, influenced by barriers to, and enhancers of, resilience. Protective dynamics seem to be a key feature of the Western and Indigenous resilience concepts described above. Protective dynamics relate to the buffering capacity of influences which provide a shield as well as a pool of resources to effectively deal with adversity (Dell, Dell, & Hopkins, 2005; Leadbeater et al., 2004; Werner, 1995). The protective factors that surfaced during the literature review are presented in the next section.

*Protective Factors: A Feature of Resilience*

Mangham et al., (1996) define protective factors as those which are linked to positive adjustment or lack of pathology. Protective factors operate at different levels: individual, family, and environmental/community. These do not appear to be discrete categories that are easily isolated from one another. Instead, the factors are linked together, some operating at one level and other related factors at another. Although the Western and Indigenous notions of resilience differ from each other, they both identify protective factors as important influences in dealing with adversity.

Dell et al., (2005) identified the individual's spiritual self and the availability of community support for the individual as important protective factors for Aboriginal people. In their empirical study of the role of resilience in residential holistic treatment for inhalant abuse, they found that attachment to a Creator and expression of spirituality through ceremonies and practices are significant factors in building resilience. This observation is

strongly supported by the testimonies of the Yukon First Nations people who contributed artwork to the Yukon RHS. They indicated that they saw their artistic creations as powerful spiritual acts that greatly assisted them to heal from experienced losses and trauma (CYFN, 2006). Thus an individual-level factor (attachment to the Creator) is linked with a community-level factor (ceremonies), both having a role in an integrated effect upon well-being. This interconnectedness is consistent with a view of well-being as process-oriented, integrated and dynamic.

The term enculturation[11], may capture some of the factors mentioned above. In contrast to a focus on individual factors, the acknowledgement of enculturation takes into account community-level factors, which would include the worldviews expressed by the DAC members that are based on culture and tradition. This construct has also been identified as an important factor for well-being (Angell, 2000; Cruikshank, 1990; Harris & McFarland, 2000; Stone et al., 2006; Walters & Simoni, 2002; Walters et al., 2002; Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996). Elders in the DAC drew from their spiritual beliefs, sense of humour, acceptance of life, understanding of their own teachings, knowledge of their personal and clan history, belief in the importance of respect, unity and sharing, and pride of who they were to overcome difficult circumstances (DAC, 2005; 2006a; 2006b; 2006c; 2006d). All of these factors are inter-related, each having meaning through its association with other factors.

Williams (2005) and others (Angell, 2000; Brady, 1995; House, Stiffman, & Brown, 2006; Zimmerman et al., 1996) further suggest that the ability to develop and maintain a bi-cultural identity is a contributor to well-being. Those who were able to develop clear bi-

[11] Defined by Stone, Whitbeck, Chen, Johnson, & Olson (2006, p.237) as "the degree an individual is embedded in his or her cultural traditions as evidenced by traditional practices, traditional language, traditional spirituality and cultural identity".

cultural identities found ways to comfortably fit in their own Aboriginal community and in the dominant Euro-Canadian society, and be successful in achieving their ambitions. The beneficial effects of multiple intimate relationships (being a parent, partner and friend) have also been noted (Cruikshank, 1990; Mangham et al., 1996; Nichol, 2000).

More recently, research in this area suggests that the risk of depression and suicidal ideation are significantly lower among frequent lake-fish consumers compared with more infrequent consumers (Sontrop & Campbell, 2006; Tanskanen et al., 2001a, 2001b; Volker & Jade, 2006). Consumption of fish appears to operate at individual, family and community levels. At an individual level, fish is an important dietary source of ω3 polyunsaturated fatty acids in the human diet, and it is hypothesized that the frequent consumption of fish could lead to a high intake of ω3 polyunsaturated fatty acids, thus decreasing the risk of depression and suicidal ideation. Apparently, trials with ω3 fatty acid supplements have demonstrated a significant reduction in episodes of severe mania and depression (Peet, 2003; Tanskanen et al., 2001a; Volker & Jade, 2006). But it is not only the nutritional qualities of fish that are beneficial: harvesting country foods like fish also plays important social, cultural and spiritual roles and provides physical activity and economic benefits (CYFN, 2006; KDFN, 2002; Receveur, Kassi, Chan, Berti, & Kuhnlein, 1998; Van Oostdam et al., 2005). These aspects of fish consumption operate at the family level (participation of family members and economic and nutritional benefits) and community level (social, cultural and spiritual benefits of a traditional activity, including the preservation of knowledge from generation to generation). In addition to the benefits to physical well-being, the aspects of fish consumption also relate to mental, emotional and spiritual well-being. Thus, a simple activity

like harvesting food from the land fits well within the dynamic, integrated, process-oriented concept of holistic well-being.

Eagerness to learn and success in pursuing education have also been mentioned as protective factors (Cruikshank, 1990; Kirkness, 1999; Nichol, 2000; Pharris, Resnick, & Blum, 1997; Strickland, Walsh, & Cooper, 2006; Williams, 2005). Again, these related factors operate at multiple levels. Being able to make detailed observations, to understand where you were and what was happening in your surroundings, and to apply knowledge to find food, medicine and shelter were important skills linked to health and survival in Yukon First Nations people's nomadic past. Thus, the individual's ability to learn how to survive (individual-level factor) ensured both family and community survival as well (family and community-level factors). There is an enormous difference between traditional First Nations ways of learning and European-based strategies, with their emphasis on written language, non-nomadic life skills and discipline (CYFN, 2006). In the Yukon context, the residential school experience has strongly emerged as a negative influence on the individual's perception of well-being. Looking at the broader context of education, it would seem that the resoundingly negative experience of residential school would have a profound effect upon further interests in pursuing education. However, this does not appear to have been investigated. In general, it seems that the important role education can play in the creation of knowledge, the development of skills, and enhancement of resilience continues to be recognized today, as is illustrated in the RHS report by a Yukon elder speaking about the importance of education, "hard times are always around and one day it's [they're] going to come back. Also, kids got to stay in school, continue in their education, for the community," (CYFN, 2006, p.8). Once again, education is seen as a protective factor, not just at an

individual level, but also at a community level. Furthermore, it is part of a continuum linking past experience to future expectations.

Some factors are more easily categorized as operating at the community level. Self government has been identified as a powerful protective factor in community healing (Chandler & Lalonde, 1998; Erickson, 2005; Warry, 2000). According to research on First Nations youth suicide in British Columbia, communities with self-government, control of land, band-controlled schools, community-controlled health services, cultural facilities and control of police and fire services are significantly less at risk (Chandler & Lalonde, 1998). Lalonde (2005) proposes three domains of Aboriginal community measures: community control, community engagement and cultural continuity. The community control domain refers to efforts that Aboriginal communities have made toward self-government. Lalonde (2005, p.23) identifies four especially promising measures of community control: (1) provision of education; (2) provision of health services; (3) provision of child and family services and (4) provision of police and fire services. As noted in Chapter One, at the time of writing this thesis, (July, 2007) ten of eleven self-governing First Nations have taken over responsibility for some health services. Education, child and family services, and police/fire services are not currently part of any transfer of jurisdiction. While this study cannot include all four measures of community control suggested by Lalonde, it can include provision of health services. Lalonde's community engagement domain evaluates efforts to engage people in various aspects of community life. Measures pertaining to this domain are inter- and intra-community programs, programs specifically directed at specific age groups, opportunities for interchange across generations, involvement of youth and elders in community decision-making, and in - service provision. The cultural continuity domain focuses on Aboriginal

culture and on efforts to preserve and promote a sense of cultural belonging within the community. While Lalonde's analysis remains at the community level, it would seem quite unlikely for the effect of these factors to remain at that level. Rather, the domains Lalonde describes – control, engagement and continuity – all must involve engagement of individuals, whether collectively or individually. For instance, Lalonde identifies programs aimed at specific age groups. By logical inference, these groups and the individuals within them both would be affected, and thus the factor (the program) would operate at more than one level. Furthermore, the actions of those within or targeted by the program would likely have some influence upon the delivery or continuity of the program, meaning that the relationship would be mutually influential, and not just one-way. This process of influence and integration is entirely consistent with a notion of well-being that itself is integrated, process-oriented, dynamic and holistic.

## An Indigenist Stress-coping Model

Walters et al., (2002) propose a stress-coping model for American Indians and Alaska Natives that uses an *Indigenist perspective*: a perspective which recognizes the colonized position of Indigenous people living as minority populations within a nation-state and which advocates for empowerment and sovereignty in a post-colonial world. They posit that associations between culture-specific traumatic life stressors and adverse health outcomes are moderated by cultural factors that function as buffers, strengthening psychological and emotional health, decreasing substance use, and mitigating the effects of traumatic stressors. What they name *buffers* seem identical to what are named *protective factors* in the resilience models examined above. Walters et al., (2002, p. S106) identified the following cultural

buffers: family/community, spiritual coping, traditional healing practices, identity attitudes and enculturation.

Walters et al., (2002, p. S107) describe *culture-specific traumatic life stressors* as those stressors related to historical trauma[12] and cumulative trauma.[13] What they name *stressors* is in the resilience literature most commonly referred to as *adversity*. With these two features (stressors and buffers) the stress-coping model developed by Walters et al., closely resembles the resilience concept. The three health outcomes their study focused on are: (1) HIV risk & morbidity; (2) alcohol/drug use & dependence and (3) depression, post-traumatic stress disorder & anxiety. Therefore, like the present study, Walters et al., place more of an emphasis on the spiritual, emotional and mental dimensions of well-being, but they approach these dimensions from the "problem" side, whereas the present study uses the "positive" side.

The work of Adelson (2000) brings in the notion of resistance. Resistance is more active than resilience, which connotes survival by avoiding or responding to outward pressure or control. Resistance can include positive action, whereas it is not clear that resilience, as discussed in the literature, can. In discussing the Cree concept of health, Adelson (2000, footnote p.9) speaks of "a larger strategy of cultural assertion and resistance in a dynamic balancing of power between the State, the disenfranchised group, and the individual." This idea of health expands on previous health concepts to include such processes as negotiating land claim settlements and self government agreements, and also

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[12] Brave Heart (2003, p. 7) defines historical trauma as the "cumulative emotional and psychological wounding, over the lifespan and across generations, emanating from massive group trauma experiences" The construct of historical trauma is used to describe the suffering of various ethnic groups, for example Aboriginal people subject to colonialism, decedents of Holocaust survivors, descendents of a legacy of slavery or war trauma, descendents of the Japanese-American interment camps during the second World War, and descendents of the Khmer Rouge violence in Cambodia (Bar-On et al., 1998).

[13] A series of traumatic life events and experiences (Walters et al., 2002, p. S109).

more immediate resistance activities as the National Day of Action.[14] In addition, the RHS itself is an example of a research initiative driven by resistance to the dominant epidemiological discourse on Aboriginal health in Canada.

**Summary Comments: Community- and Individual-Level Characteristics Supporting Well-being**

The frameworks/models and concepts reviewed above all offer interesting perspectives but none of them seems to have a perfect fit with the strength-based approach of the present study which uses a Yukon First Nations definition of well-being. A more appropriate model would be one that acknowledges that despite historic trauma and current-day challenges, Yukon First Nations people are working towards the achievement of overall well-being. This model would be based on an understanding of health as a dynamic relationship between characteristics and processes, and is consistent with the concept of a healing journey.[15] This approach is strength-based and dynamic, and incorporates an element of strength, resistance, and resilience. However, the immediate difficulty with importing the idea of resilience into a dynamic concept of well-being is that, for the most part, resilience has been described in terms of personal capacity. As such, it is neither dynamic (it is described more as a characteristic than a process) nor environmental (it is more an individual or group capacity than a product of cultural interaction and practices). While Heavy Runner and Sebastian Morris speak of cultural resilience, they still define it as innate. Furthermore, resilience is not perceived as contextual: it does not take into account the historical relationship between Aboriginal peoples as a suppressed minority and the white population

[14] On June 29, 2007, Yukon First Nations joined the National Day of Action called for by the AFN. The National Day of Action is an opportunity for First Nations and Canadians to stand together in spirit of unity to support a better life for all First Nations Peoples (AFN, 2007).

[15] Defined by Struthers & Eschiti (2004, p.14) as "the process of bringing aspects of one's body-mind-spirit to a deeper level of inner knowing that leads toward integration and balance."

as the dominant majority. Kulig's (2000) concept of community resiliency does not adequately address the process of developing resilience along a historical continuum and within an environment of cultural, political and ethnic conflict. Adelson comes closest to presenting a model that would apply to the present study, but her cultural resistance model does not appear to adequately take into account the day to day realities of individuals. The *Indigenist* stress coping model does a better job at this, by including the day to day realities of colonized individuals, but lacks adequate inclusion of community characteristics related to cultural resistance.

The focus of this study is the identification of characteristics related to the capacity of individuals and communities to resist and overcome challenges to well-being. Thus, a hybrid approach combining both the *Indigenist* stress-coping model and the cultural resistance model would be more appropriate. It would consider protective factors and risk factors from within an *Indigenist* perspective that recognizes the interrelated roles of individual and community characteristics on influencing well-being. The markers selected from the Yukon RHS data – absence of depression, suicidal thoughts and suicide attempts – do not themselves describe well-being. However, by working within the comprehensive definition of well-being identified in Chapter Two, this study will examine the characteristics that contribute to well-being. This approach partially overlaps with the AFN determinant of health framework, but the difference lies in its dynamic nature and the recognition that people and communities play active roles in developing their own visions of well-being and in deciding what steps they need to take to achieve it. It involves a continuum of relationships and connections with other people, spanning the past, present and future.

# CHAPTER FOUR

# METHODOLOGY

This study examined data collected through the Yukon RHS from 2002-2005. This chapter sets out how First Nation permission and collaboration were acquired, provides relevant background on survey methodology and details of the survey sample, and clarifies research roles. It concludes with a description of the data analysis, including the variables that were used.

## Aboriginal Health Research and Ethics

Historically, research in and on Aboriginal populations has been conducted by non-Indigenous academics. Often, their research focused on questions that had only peripheral relevance to communities, and were built on frameworks and methodologies grounded exclusively on western thinking. The studies often benefited the academic community more than the Aboriginal communities that were researched, and even brought harm and stigmatization to those communities (Davis & Reid, 1999). As a member of New Zealand's Māori, Smith (1999) concludes that on a global scale, research has perpetuated the subjugation, oppression and colonization of Indigenous communities, and simultaneously devastated them. She advocates for research that is valuable, accountable and empowering to the Indigenous people involved and that reflects their worldview. In addition, research involving Indigenous peoples must draw from the constructs of decolonization, healing transformation and mobilization.

In Canada, the RHS experience (Harvard Project on American Indian Economic Development, 2006; Schnarch, 2004, 2005) and the report of the Indigenous Peoples' Health Research Centre on the Ethics of Research Involving Indigenous Peoples (Ermine, Sinclair,

& Jeffery, 2004) have greatly contributed to the strides made in Aboriginal research ethics and in providing guidance towards the decolonization of the research process. The RHS Code of research ethics policy statement clearly outlines the values and motivations that underpin the RHS to this day:

> It is acknowledged and respected that the right of self-determination of the First Nations and Inuit peoples includes the jurisdiction to make decisions about research in their communities. The benefits to the communities, to each region and to the national effort should be strengthened by the research. Research should facilitate the First Nations and Inuit communities in learning more about the health and well-being of their peoples, taking control and management of their health information and to assist in the promotion of healthy lifestyles, practices and effective program planning. (FNIGC, 2005a, p.3)

In addition, at the core of the RHS are the First Nations principles of Ownership, Control, Access and Possession, which are commonly known as the OCAP principles. *Ownership* means First Nations own their community information, the same way an individual owns one's personal information. *Control* refers to First Nations' right to control all aspects of research. *Access* is the right of First Nations to manage and allow access to their collective information. *Possession* is the mechanism by which ownership can be asserted and protected (Schnarch, 2004; FNIGC, 2005).

The *Ethics of Research Involving Indigenous Peoples* Report reinforces these points in the following recommendations:

> In recognition of Indigenous jurisdiction, research agreements need to be negotiated and formalized with authorities of various Indigenous jurisdictions before any research is conducted with their people.
>
> Empowerment, capacity building and other benefits must become central features of any research endeavour.
>
> Indigenous peoples must exercise control over all research conducted within their territories or which uses their peoples as subjects. (Ermine et al., 2004, p.8)

The idea for this research arose through my work as the RHS data-analyst for CYFN. The scope of that work only involved a descriptive analysis of the data. I realized that in order to obtain useful information about the determinants or correlates of overall well-being, a more comprehensive analysis was required. This would involve a detailed multivariate analysis of the outcomes of highest prevalence. However, this analysis could not be undertaken within the scope of my work, due to limited finances, capacity and time. These constraints meant that this research - even though it was relevant to my work as the RHS data-analyst and helped build research capacity, - had to be undertaken in such a way that it was clearly separate from work activity. As a student, I reached an agreement with nine First Nations, the Health Commission and the DAC to do research under clearly defined conditions reflecting the above principles.[16] Details of this agreement are described in the following section.

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[16] At the time this agreement was reached the recently published CIHR Guidelines for Health Research Involving Aboriginal Peoples (CIHR, 2007) were not existent. However, all of the guidelines suggested by CIHR are incorporated into the research process and methodology of the present study.

**First Nation Permission, Involvement and Ethical Considerations**

As the RHS data-set is not a publicly accessible database, I worked with the Health Commission to develop an agreement that defined the conditions under which I may work with the Yukon RHS data for my thesis. This arrangement respected the OCAP principles, supported my research, and is expected to produce useful information for Yukon First Nations. The conditions that are part of this agreement are:

1. Thesis request approved by Health Commission,[17] DAC,[18] and the Chiefs and Councils of participating First Nations.[19]
2. Development of key research questions and concepts together with the Health Commission and the researcher's University Supervisory Committee.
3. Thesis paper reviewed by the DAC and sent to Health Commission and Chiefs and Councils of participating First Nations for review and information.
4. Presentation of thesis research results to Health Commission and Chiefs and Councils of participating First Nations.[20]
5. Application of OCAP principles.
6. Development of other RHS products based on the same analyses when requested.

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[17] The Health Commission consists of 14 health directors (one from every Yukon First Nations), the CYFN director of Health and Social Development, the CYFN director of Health Partnerships, one elder and the director of the Kaska Tribal Council. The Health Commission meets 7 times per year to discuss issues that affect the health of Yukon First Nations. Health Commission approved the request for this study on December 6, 2005. In consecutive meetings Health Commission was updated about its progress.

[18] The DAC was established after approval from CYFN leadership on February 22, 2005. In consecutive meetings the DAC —consisting of Elders and health professionals — developed a vision of holistic well-being which forms the Yukon cultural framework, and assisted with the culturally informed interpretation of the Yukon RHS data. In addition the committee reviews and approves the dissemination of Yukon RHS findings. The DAC met three times to discus matters related to this thesis.

[19] By February 7, 2007 permission from all nine Chiefs and Councils had arrived.

[20] The presentation of thesis results to DAC and Health Commission were scheduled for June 7 and June 13, 2007. Presentations to Chief and Councils of participating First Nations took place in the fall of 2007.

In addition to these conditions, to preserve the confidentiality of the sensitive information contained in the Yukon RHS data-set, the names of the participating communities have been kept confidential. As part of my work for the Yukon RHS, I have also signed a declaration of secrecy, in which I have agreed to not disclose any information without permission of the DAC (see Appendix C).

The proposal for this study was submitted to and approved by the UNBC Ethics Review Board (see Appendix D). Detailed documentation regarding communication with Yukon First Nations was submitted to the UNBC Ethics Review Board to demonstrate that the necessary Yukon First Nation approvals had been granted. In order to protect the confidentiality and anonymity of the communities involved, the individual Yukon First Nation approvals are not presented in this report.

In keeping with OCAP and Yukon RHS protocol, communication with Chiefs and Councils of the participating First Nations, DAC and Health Commission proceeded in advance of UNBC Ethics Review Board approval. This was a necessary first step , since First Nation approval and support for this study and use of the 2003 RHS Adult data-set and 2005 ecological survey data had to be obtained before any discussion with UNBC.

To keep this project transparent, a diary including chronological accounts of events, copies of approval forms, minutes, emails and tapes of meetings have been kept to provide an auditable trail. Dates of significant events are summarized in Table 2.

Table 2
*Chronological Account of Events Related to Yukon First Nation Thesis Involvement*

| | CYFN Leadership | CYFN Health Commission | Chiefs & Councils | DAC |
|---|---|---|---|---|
| Thesis proposal request | Oct. 16, 2005 | Oct. 16, 2005 | Feb. 1, 2006 | Jan. 16, 2006 |
| Thesis proposal approval | Referred issue to Chief and Councils | Dec. 6, 2006 | Feb. 15, 2006 – Feb. 7, 2007 | Mar. 31, 2006 |
| Updates | | Feb. 2, 2006<br>Oct. 10, 2006<br>Feb. 3, 2007 | Kept informed by health commissioners. | Feb. 21, 2006<br>Nov. 6, 2006<br>Jan. 22, 2007<br>Mar. 16, 2007 |
| Presentation & discussion of findings | | Jun. 13, 2007 | Kept informed by health commissioners. | June 7, 2007 |
| Thesis presentation[a] | | Jun.13, 2007 | Fall 2007 | Jun.7, 2007 |

[a] All First Nation partners will receive original copy when thesis is approved by UNBC

## Roles of the DAC

The commitment to respect Yukon First Nation RHS protocols, including OCAP, meant that the DAC was my most direct research partner. The DAC was appointed by Yukon First Nation leadership to oversee the use and dissemination of Yukon RHS data. An important role was to assist with the culturally-informed interpretation of the Yukon RHS data. In this role, DAC members were both researchers and informants: they took on research tasks (advising on the methodology, engaging in analysis, and validating community context), and also provided Yukon First Nation context information. The DAC's first contribution was the development of a vision of holistic well-being, which was included in the cultural framework of the present study but also served to guide other publications based on Yukon RHS data. In addition, the DAC reviewed and approved the dissemination of Yukon RHS findings, ensured that the principles of OCAP were applied, and reviewed and approved this thesis document.

## RHS Background and Survey Methodology

The RHS is a national First Nations population health survey under the total control and governance of Canadian First Nations.[21] The First Nations Centre at the National Aboriginal Health Organization (NAHO) fulfilled the role of national "data steward" for the national RHS 2002/03 Questionnaire,[22] but the RHS itself is governed by the FNIGC, an independent committee comprised of First Nations regional health officials from the 10 participating regions[23] across the country, which guides and directs the RHS process.

As part of the national RHS, the Yukon RHS used questions developed nationally (see Table 3, items 1-4). These questionnaires enabled consistent data collection from First Nations across the country. Individual level information was collected through Questionnaires 1-3 and community level information through Questionnaire 4.

Table 3
*Description of Yukon RHS Data-Set*

| Item# | Description | Number of questions |
|---|---|---|
| 1 | Adult RHS National Questionnaire (FNIGC, 2002b) | 103 |
| 2 | Youth RHS National Questionnaire (FNIGC, 2002a) | 90 |
| 3 | Child RHS National Questionnaire (FNIGC, 2002c) | 70 |
| 4 | National Ecological Variable Survey (FNIGC, 2005c). | 90 |

The individual-level questionnaires (Items 1-3, Table 3) were administered by trained First Nations interviewers using a customized Computer Assisted Personal Interviewing

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[21] The First Nations and Inuit Regional Longitudinal Health Survey (generally known as "RHS") was first implemented in 1997 and involved First Nations from 8 regions (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia) and the Inuit Peoples of Northern Quebec and Labrador. The second wave of the RHS which took place in 2002 & 2003 involved 10 regions as the Yukon and Northwest Territories joined the RHS. The Inuit of Northern Quebec and Labrador withdrew from the RHS 2002-03 in favour of an Inuit specific process. Therefore RHS 2002-03 stands for First Nations Regional Longitudinal Health Survey.

[22] The years 2002 and 2003 refer to the time period during which the data-collection for the three individual-level national questionnaires (items 1-3 in Table 3.1) took place.

[23] Yukon, British Columbia, Alberta, Northwest Territories, Saskatchewan, Manitoba, Quebec, Ontario, New Brunswick/Prince Edward Island and Nova Scotia/Newfoundland.

(CAPI) tool on laptop computers. This data was encrypted and uploaded directly from the communities to a secure server in Ontario. Some surveys were completed on paper and the data was subsequently entered by hand. All of the age-specific RHS national questionnaires were "cleaned" by the NAHO First Nations Centre (FNC) at the National Aboriginal Health Organization (NAHO). The three Yukon databases were then sent to CYFN for analysis. CYFN is the data-steward for the Yukon First Nations data, but the Yukon community data itself is owned by the individual participating Yukon First Nations.

The ecological variable survey (item 4, Table 3), which was a national RHS questionnaire developed in May 2005 for communities that participated in the 2002-03 RHS, served to collect contextual data on community characteristics influencing First Nations health. The ecological variable surveys were filled out on paper by knowledgeable community resource people and the community level information contained in these surveys was subsequently merged with the adult data-set (item 1). The community level information provided through the ecological survey is examined in Chapter Six.

**Survey Sample**

The RHS fills a gap left by large national population-based surveys, which have been limited in their representation of First Nations peoples. This is especially true for the territories, including the Yukon. Previous national surveys have not adequately represented the Yukon: the territory has been excluded from surveys;[24] the Aboriginal population sample has either been too small or has failed to include rural communities or non-registered First

[24] National Longitudinal Survey of Children and Youth (Statistics Canada, 2006).

Nations members;[25] or the sample has been inclusive of everyone of First Nations, Inuit, and Métis ancestry without distinguishing who belonged to which Aboriginal group.[26]

A total of 9 out of 14 First Nations (9 communities) participated in the Yukon portion of the RHS. Of the participating First Nations, five had reached land claim settlements and self-government agreements before the survey took place; some as early as 1993, the others 4-5 years after. Three others had signed memoranda of understanding with the Canadian government in 2002, but had not yet proceeded with ratification. One of the participating First Nations has no memorandum of understanding in place and is also working independently from CYFN. Seven of the eight existing language groups were represented in the Yukon RHS, and the sample represented 26% of the First Nations people living in Yukon communities, including the Yukon capital.

Each survey participant completed a detailed personal information and consent form. Only those with properly documented consent were included in the Yukon RHS data-sets. For the multivariate analysis in this study, only the Yukon portion of the National individual level adult dataset (Item 1, Table 3) has been examined. The Yukon portion of the National individual level adult dataset contains over a thousand variables; with close to seven hundred individual records, it is the largest data-set in the Yukon RHS. It is therefore the best data-set for further examination, as the other two data-sets are, from a statistical perspective, too small in size for stratified analysis.

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[25] Canadian Community Health Survey and National Population Health Survey (V. Dale, personal communication, April 19, 2006; Tambay & Catlin, 1995; Statistics Canada, 1995).
[26] Canadian Community Health Survey (V. Dale, personal communication, April 19, 2006) and National Population Health Survey (Statistics Canada 2006).

## Outcome Measures

Chandler and Lalonde (1998) used suicide statistics as a marker for wellness in their study of First Nations communities in British Columbia. The present study examined Yukon suicide statistics to assess whether their inclusion as a possible outcome measure would be feasible. Yukon's Chief Coroner provided territorial suicide statistics for 2000 – 2005, which revealed 35 suicides for that period, 31 male and 4 female, coming from seven communities, although half occurred in the capital, Whitehorse (S. Hanley. Personal Communication. April 20, 2007). Due to the low numbers and the lack of ethnicity information these statistics were not useful for use as an outcome measure in this study.

As noted in Chapter One, the purpose of this study was to analyze some of the multilevel characteristics that enhance the overall well-being of Yukon First Nations people. Absence of depression, suicidal thoughts and suicide attempts were chosen as outcome measures for overall well-being. By reviewing the RHS questionnaire, it was possible to select a set of questions that specifically addressed these outcomes:

1. During the past 12 months, was there ever a time when you felt sad, blue or depressed for 2 weeks or more in a row?

2a. Have you ever thought of committing suicide: as a child (under 12 years of age)?

2b. Have you ever thought of committing suicide: as an adolescent (12-17 years of age)?

2c. Have you ever thought of committing suicide: as an adult (18 years of age and older)?

2d. Have you ever thought of committing suicide: during the past year?

3a. Have you ever attempted suicide: as a child (under 12 years of age)?

3b. Have you ever attempted suicide: as an adolescent (12-17 years of age)?

3c. Have you ever attempted suicide: as an adult (18 years of age and older)?

3d. Have you ever attempted suicide: during the past year?

A stratified frequency analysis of the nine outcome measures revealed that the outcomes for questions 2a-2d and 3a-3d consisted of several strata with zero cells or too few numbers (less than 5%), which made these variables inadequate for a stratified analysis. In order to have sufficient numbers in the strata, the "suicidal thoughts" (2a-2d) and "suicide attempts" (3a-3d) outcomes were therefore aggregated into two outcome measures, "any thoughts of suicide during the respondent's life" and "any attempts to commit suicide during the respondent's life." Because the analysis focused on the absence of depression, suicidal thoughts and suicide attempts, the outcome measures "any thoughts of suicide during the respondent's life," "any attempts to commit suicide during the respondent's life" and "depression" were therefore recoded into "absence of condition" outcomes (see Table 4). Because the study would look at rates of these outcome measures, I decided to try to avoid as much confusion as possible by referring to the outcomes as *no suicidal thoughts*, *no suicide attempts* and *no depression*. That way I could avoid referring, for example, to "highest rate of absence of suicidal thoughts" and instead refer to "highest rate of no suicidal thoughts." The two concepts are not any different, but the use of this terminology made the analysis much easier. To further simplify things, and to cut down on verbiage in the analysis, I combined the *no suicidal thoughts* outcome and the *no suicide attempts* outcome into an aggregate *non-suicide* outcome where appropriate.

Table 4
*Outcome Measures Used in Present Study*

| Outcome | Description of Outcome | Coding |
|---|---|---|
| No Depression | No instances of feeling "sad, blue or depressed" for two consecutive weeks within the past year | 0=no (feelings of recent prolonged depression occurred)<br>1=yes (feelings of recent prolonged depression were absent) |
| No Suicidal Thoughts | No thoughts of suicide during various parts of the respondent's life | 0=no (suicidal thoughts occurred during life)<br>1=yes (suicidal thoughts during life were absent) |
| No Suicide attempts | No attempts to commit suicide during various parts of the respondent's life | 0=no (one or more suicide attempt occurred during life)<br>1=yes (suicide attempts during life were absent) |

## Individual-Level Characteristics

The literature reviewed in Chapter Three identified a number of individual-level characteristics that enhance overall well-being and are protective against negative outcomes such as depression, suicidal thoughts and suicide attempts. The individual-level characteristics in the Yukon RHS adult data-set most similar to the factors identified in the literature were selected as predictors (independent variables) for this study. They were examined to identify which specific individual-level characteristics are associated with the *no depression*, *no suicidal thoughts* and *no suicide attempts* outcomes. These characteristics were recoded as dichotomous variables, as summarized in Table 5. For ease of presentation and analysis they are categorized into the following domains: Demographics; Culture/Tradition; Spirituality; Emotional health; Physical health; Perceived availability of support; Emotional supports used; Racism; Residential school; and Socio-economic context.

Table 5
*Individual-level Characteristics*

| Domain | Individual Characteristic | Coding |
|---|---|---|
| Demographics | Gender | 0=Male 1=Female |
| | Age | 0=50+yrs 1=17-49 yrs (<50yrs) |
| Culture/Tradition | Understands/speaks one or more Yukon First Nations language | 0=Speaks English only<br>1=Understands Yukon language(s) |
| | Believes traditional cultural events in life are important | 0=Not very/not important<br>1=Very/somewhat important |
| | Eats land-based animals | 0=No 1=Yes |
| | Eats fish | 0=No 1=Yes |
| | Shares traditional food with others | 0=never,<br>1=Sometimes/Often |
| | Uses traditional medicine | 0=No 1=Yes |
| | Consulted with a traditional healer | 0=never 1=sometime in past |
| Spirituality | Believes traditional spirituality in one's life is | 0=Not very/not important<br>1=Very/somewhat important |
| | Achieves spiritual balance | 0=Some/almost none of the time<br>1=All/most of the time |
| | Believes religion in one's life is | 0=Not very/not important<br>1=Very/somewhat important |
| Emotional health | Achieves emotional balance | 0=Some/almost none of the time<br>1=All/most of the time |
| Physical health | Achieves physical balance | 0=Some/almost none of the time<br>1=All/most of the time |
| | Has a chronic condition | 0=No 1=Yes |

| Table 5 *continued* Domain | Individual Characteristic | Coding |
|---|---|---|
| Perceived availability of support | Has someone you can count on to listen to you talk when you need to | 0=Almost none/some of the time 1=All/most of the time |
| | Has someone who can take you to the doctor when that is needed | 0=Almost none/some of the time 1=All/most of the time |
| | Has someone who shows you love and affection | 0=Almost none/some of the time 1=All/most of the time |
| | Has someone who can give you a break from your daily routines | 0=Almost none/some of the time 1=All/most of the time |
| | Has someone to do something enjoyable with | 0=Almost none/some of the time 1=All/most of the time |
| Emotional supports used | Friend | 0=No 1=Yes |
| | Immediate family member | 0=No 1=Yes |
| | Another family member | 0=No 1=Yes |
| | Traditional healer | 0=No 1=Yes |
| | Family doctor | 0=No 1=Yes |
| | Psychiatrist | 0=No 1=Yes |
| | CHR | 0=No 1=Yes |
| | Nurse | 0=No 1=Yes |
| | Counsellor | 0=No 1=Yes |
| | Psychologist | 0=No 1=Yes |
| | Social worker | 0=No 1=Yes |
| | Crisis line worker | 0=No 1=Yes |
| Racism | Experienced racism in past year | 0=No 1=Yes |
| Residential school | Participant attended residential school | 0=No 1=Yes |
| | Parents attended residential school | 0=No 1=Yes |
| | Grandparents attended residential school | 0=No 1=Yes |
| Socio-economic context | Education completed | 0=lower than High school 1=High school or more |
| | Currently working for pay | 0=No 1=Yes |

## Community-level Characteristics

Specific community-level characteristics were also examined in this study because it was hypothesized that they influence overall well-being as measured by the rates of the *no depression*, *no suicidal thoughts* and *no suicide attempts* outcomes in the communities. The community-level characteristics examined for their relationship with the outcome measures are shown in Table 6. They are categorized in the following domains: Geographic characteristics; Community control; Community engagement; and Cultural continuity.

Table 6
*Community-level Characteristics*

| Domain | Characteristic | Coding |
|---|---|---|
| Community | First Nation | Coded as 0-8 |
| Geographic Characteristics | Community size | 0=Small (under 300 community population)<br>1=Medium (300-1,499 community population) |
| | Town/settlement[a] | 0=settlement<br>1=city or town |
| | Geographic isolation | 0=Isolated (no road access)<br>1=Semi-isolated (road access greater than 90 km to hospital services)<br>2=Non-isolated (road access less than 90 km to hospital services) |

| Table 6 *continued* Domain | Characteristic | Coding |
|---|---|---|
| Community Control | Land claim agreement | 0=Had no agreement during survey period,<br>1=Had an agreement in implementation during survey period |
| | Self-government experience | 0=Had no long-term self government experience during survey period<br>1=Had 10 years or more of self-government experience during survey period |
| | PSTA agreements reached | 0=Had no PSTAs & was not negotiating<br>1=Was negotiating PSTAs<br>2=Had PSTAs in implementation |
| | Average time FN citizens use income support | < 1 year<br>> 4 years |
| Community Engagement | N of nutritional programs FN offers | Actual number |
| | FN has community tv or radio station | 0=No, 1=Yes |
| | FN has adult education program | 0=No, 1=Yes |
| | FN has Headstart & preschool in community | 0=No, 1=Yes |
| | FN has transition home | 0=No, 1=Yes |
| | FN offers alcohol & drug counselling | 0=No, 1=Yes |
| | FN offers alcohol & drug treatment | 0=No, 1=Yes |
| | FN has alcohol & drug treatment facility | 0=No, 1=Yes |
| | FN offers diabetes management | 0=No, 1=Yes |

| Table 6 *continued* Domain | Characteristic | Coding |
|---|---|---|
| Community Engagement | FN offers HIV/AIDS prevention/awareness | 0=No, 1=Yes |
| | FN offers FASD assessment & diagnosis | 0=No, 1=Yes |
| | FN offers suicide prevention | 0=No, 1=Yes |
| | FN offers mental health counselling | 0=No, 1=Yes |
| | FN offers mental health treatment | 0=No, 1=Yes |
| | FN offers smoking cessation | 0=No, 1=Yes |
| | Number of recreation facilities | Actual number |
| | FN has youth centre | 0=No, 1=Yes |
| | FN has youth committee/council | 0=No, 1=Yes |
| | FN has youth employment centre | 0=No, 1=Yes |
| | FN has regular youth events | 0=No, 1=Yes |
| | FN has youth mentoring program | 0=No, 1=Yes |
| | CC receive input from youth | 0=No, 1=Yes |
| | CC receive input from women | 0=No, 1=Yes |
| | FN offers suicide prevention | 0=No, 1=Yes |
| | FN offers mental health counselling | 0=No, 1=Yes |
| | FN offers mental health treatment | 0=No, 1=Yes |
| | FN offers smoking cessation | 0=No, 1=Yes |
| | N of recreation facilities FN has | Actual number |
| | FN has youth centre | 0=No, 1=Yes |
| | FN has youth committee/council | 0=No, 1=Yes |
| | FN has youth employment centre | 0=No, 1=Yes |
| | FN has regular youth events | 0=No, 1=Yes |
| | FN has youth mentoring program | 0=No, 1=Yes |
| | CC receive input from youth | 0=No, 1=Yes |
| | CC receive input from women | 0=No, 1=Yes |

| Table 6 *continued* Domain | Characteristic | Coding |
|---|---|---|
| Cultural Continuity | FN has traditional justice program | 0=No, 1=Yes |
| | FN has traditional healers | 0=No, 1=Visiting 2x/yr<br>2=Stationed in community |
| | FN has elders council | 0=No, 1=Yes |
| | No. of traditional country foods available for harvesting in FN's territory | Actual number |
| | FN has adult language classes | 0=No, 1=Yes |
| | FN has language immersion in school/daycare | 0=No, 1=Yes |
| | FN has language teacher training | 0=No, 1=Yes |
| | FN has employee language policy | 0=No, 1=Yes |
| | FN has traditional ceremonies | 0=No, 1=Yes |
| | FN has workshops on community history | 0=No, 1=Yes |
| | FN possesses a cultural centre | 0=No, 1=Yes |

[a] Communities are coded according the 2001 Census geographical classification (Statistics Canada, 2001)

## Data Analysis

The evolution of the theory that health disparities result from factors operating at multiple levels has paralleled the development of statistical techniques of multilevel modeling. Multilevel studies have the ability to simultaneously assess the associations of individual and community level characteristics with individual health status. In order to conduct a multilevel analysis, individual level data nested within communities and a dataset comprised of community level variables are both required. The Yukon RHS data collected through the individual questionnaires provides the individual data nested within communities. The characteristics of communities are provided through the ecological survey. However, with only 9 communities – including communities with very small populations –

the sample size at the individual (N=673) and community levels (N=9) was insufficient to perform a multilevel analysis. In general, multilevel studies require large samples at both the individual- and community-levels to produce accurate parameter estimates (Diez Roux, 2000; Goldstein, 1999).

Because the multilevel approach was not feasible, I decided – in consultation with a statistician from the University of Manitoba – to control for the effect of community on individual-level characteristics through a stratified analysis (Mantel-Haenszel). Selected individual-level characteristics from the Yukon Adult RHS Data-set (Yukon portion of the National Questionnaire) underwent a sequence of bivariate and multivariate comparisons to explore associations with the outcome measures (no depression, no suicidal thoughts and no suicide attempts). According to Hosmer and Lemeshow (2000), any variable with a bivariate test p-value $< 0.25$ is a candidate for a multivariable model along with all variables of known clinical importance. Logistic modeling (stepwise backward conditional logistic regression) was used to assess the unique contribution of the predictors identified in the literature that fitted the above parameters. Logistic regression analysis is the most popular regression technique available for modeling dichotomous dependent variables (Kleinbaum, Kupper, Muller, & Nizam, 1988). The logistic regression was conducted after the bivariate and stratified analysis described above, and consisted of the following steps: (a) selection of characteristics for multivariate analysis; (b) building of the preliminary model; (c) assessment of the preliminary model's adequacy and fit; (d) creation of the final model; (e) assessment of the preliminary model's adequacy and fit; (f) adoption of the final model. The statistical software SPSS version 13.0 was used for all statistical analyses. The results were then presented to and discussed with Health Commission and DAC. The meetings were taped

and detailed notes of received feedback were made. The feedback and comments were later reviewed and included in the discussion in Chapter Seven. The analysis of the individual-level data is presented in Chapter Five, the community-level data in Chapter Six.

**Summary Comments**

The ethical procedures that were followed in this study are congruent with current national and regional Aboriginal research ethics protocols and processes. In addition, the supervision and input from the DAC has ensured that the methodology is consistent with Yukon First Nations cultural requirements. This in turn has meant that the study was conducted in a way approved by and therefore acceptable to the population being studied. They owned the process, instead of it being dictated to them. In Cameroon, my work had to be adjusted to take local traditions into account. In this study, my work was directed by the people being studied, and they set the ground rules. In my review of previous studies, it became apparent that the populations being studied were merely that - they were not actively involved in the development, oversight and management of the studies, nor were they the owners of the data collected. Finally, their cultural framework was not the perspective applied in interpreting the data and reporting the conclusions drawn. By applying the OCAP principles, and working under the supervision of the DAC, I was conducting the study for the First Nations and the communities studied. At the same time, I was able to maintain a level of scientific rigour and integrity that met my requirements as a researcher. In sum, the relationship became one of partnership, with the ownership of the results resting where it should - in control of the people being studied.

# CHAPTER FIVE

# THE ROLE OF INDIVIDUAL CHARACTERISTICS

This chapter sets out the analysis of the individual characteristics that might protect the well-being of Yukon First Nations people (measured by the outcome measures *no depression*, *no suicidal thoughts* and *no suicide attempts*). First, the rates of *no depression*, *no suicidal thoughts* and *no suicide attempts* in the overall sample (all communities taken together) were identified. Next, the existence of significant differences in these rates per community was assessed. The analysis then focused on the most common correlates of these outcomes in the adult data-set of the Yukon RHS.

## Rates of "No Depression", "No Suicidal Thoughts" and "No Suicide Attempts" in Overall Sample

A review of the entire sample of 9 communities, taken as a whole, revealed much similarity between the rates of adults who reported *no depression* (64.3%) and *no suicidal thoughts* (63.9%). The rate of adults who reported that *no suicide attempts* (82.2%) is understandably higher than the other two outcome measures, as community members who have successfully committed suicide are no longer around to participate in surveys. It may also be suggested that it is more common to merely think about suicide than to actually try to commit it. A gender breakdown for the three outcome measures revealed that slightly more men than women reported *no depression, no suicidal thoughts* and *no suicide attempts.* However, the differences in rates were small. Only for the *no suicidal thoughts* outcome measure was this difference significant, even then it was borderline ($X^2(1, N=607) = 4.055$, $p=0.044$). These statistics are shown in Figure 2.

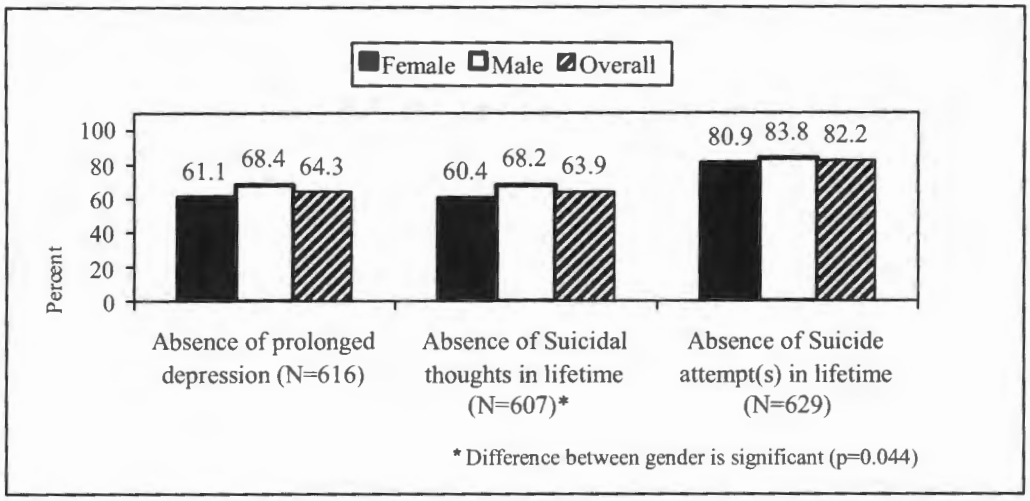


Figure 2. Rates of "No Depression", "No Suicidal Thoughts" and "No Suicide Attempts" in Yukon RHS adult data-set (All 9 communities Taken Together)

## Rates of "No Depression", "No Suicidal Thoughts" and "No Suicide Attempts" by Community

The rates by community were examined to explore whether the communities varied from each other in relation to the rates of adult RHS respondents reporting *no depression*, *no suicidal thoughts* or *no suicide attempts* (see Table 7).

Table 7
*Rates of "No Depression", "No Suicidal thoughts" and "No Suicide Attempts" by Community*

| First Nation | No Depression | No Suicidal thoughts | No Suicide attempts |
|---|---|---|---|
| Community 0 | 56.8% | 53.4% | 78.9% |
| Community 1 | 65.1% | 56.9% | 75.4% |
| Community 2 | 75.0% | 64.7% | 76.5% |
| Community 3 | 75.0% | 64.5% | 81.3% |
| Community 4 | 68.5% | 67.6% | 85.3% |
| Community 5 | 67.3% | 53.2% | 68.6% |
| Community 6 | 55.6% | 72.9% | 92.2% |
| Community 7 | 69.8% | 88.1% | 98.4% |
| Community 8 | 63.4% | 71.8% | 84.1% |
| Overall total | 64.3% | 63.9% | 82.2% |

The Chi-square tests performed with the First Nations community variable revealed that the rates for both the *no suicidal thoughts* and *no suicide attempts* varied significantly by First Nations community ($X^2(8,N=607)=30.905$, $p<0.001$ and $X^2(8,N=629)=25.116$, $p=0.001$). No significant differences were found for the rate of *no depression* amongst the First Nations communities ($X^2(8, N=616) = 11.273$, ns.).

Since these tests indicated that the rates of *no suicidal thoughts* and *no suicide attempts* both vary by community, a stratified analysis was used for these two outcomes to control for community. For the *no depression* outcome measure, no stratification was needed as the rate was similar over the strata. Modeling for this outcome measure was therefore undertaken with all the communities taken together, as set out in the following section.

**Analysis of "No Depression"**

The search for characteristics that might protect Yukon First Nations adults from depression began with a systematic bivariate analysis of all 40 individual-level characteristics chosen in Chapter Four (see Table 5). The Chi-square statistic, significant at $p<0.05$, was used to identify the individual-level characteristics associated with the *no depression* outcome measure. The bivariate analysis results of these 40 cross-tabulations are summarized in Table 8, which also shows all p-values between 0.05 and 0.25. According to Hosmer and Lemeshow (2000), any variable whose bivariate test has a p-value < 0.25 should be considered for a multivariable model. The results showed that only six characteristics displayed no significant association with the *no depression* outcome measure. The remaining thirty-four characteristics had p-values below 0.25, and therefore were considered for further analysis.

With so many characteristics left for consideration, further narrowing down needed to be done in order to keep only those characteristics with the strongest associations with the outcome measure. Logistic regressions were performed per domain ("domain analysis") to narrow down the selection of characteristics. The characteristics per domain whose bivariate test had a p-value < 0.25 were selected for the domain analysis (see the variables in Table 8 with the notation "Domain analysis"). The domains consisting of only one characteristic with a p-value < 0.25 were marked "preliminary model," indicating that these characteristics were automatically selected for further modeling without the need to perform the domain analysis.

Table 8
*Summary of Bivariate Test Results for Association with "No Depression"*

| Domain | No depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| **Demographics** | | | | |
| Gender | | 3.523 | 0.061 | Domain analysis |
| Male | 184(68.4) | | | |
| Female | 212(61.1) | | | |
| Age | | 1.683 | 0.195 | Domain analysis |
| <50 yrs | 289(62.8) | | | |
| ≥50 yrs | 105(68.6) | | | |
| **Cultural practices** | | | | Not included in further |
| Speaks Yukon language | | 0.883 | >0.25 | analysis |
| Speaks English only | 219(66) | | | |
| Speaks Yukon language(s) | 177(62.3) | | | |
| Eats land based animals | | 10.816 | 0.001 | Domain analysis |
| Not at all or irregular | 101(54.6) | | | |
| Often | 295(68.4) | | | |
| Eats fish | | 3.558 | 0.059 | Domain analysis |
| Not at all or irregular | 26(72.2) | | | |
| Often | 365(64) | | | |

| Table 8 *continued* Domain | No depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| Shares traditional food | | 0.992 | >0.25 | Not included in further |
| Never | 26(72.2) | | | analysis |
| Often/sometimes | 365(64.0) | | | |
| Believes traditional cultural | | 0.735 | 0.25 | Not included in further |
| events are | 31(70.5) | | | analysis |
| Not/Not very important | 356(64) | | | |
| (Very) important | | 0.882 | >0.25 | Not included in further |
| Uses traditional medicine | 160(66.9) | | | analysis |
| No | 232(63.2) | | | |
| Yes | | 15.499 | <0.001 | Domain analysis |
| Consulted a healer | 261(70.5) | | | |
| No, never | 88(53) | | | |
| Yes, in past | | | | |
| **Physical** | | | | |
| Has a chronic condition | | 6.467 | <0.05 | Domain analysis |
| No | 197(69.6) | | | |
| Yes | 199(59.8) | | | |
| Achieves physical balance | | 24.355 | <0.001 | Domain analysis |
| Almost none/some of the time | 117(51.8) | | | |
| Almost all/most of the time | 279(71.5) | | | |
| **Emotional** | | | | |
| Achieves emotional balance | | 17.397 | <0.001 | Preliminary model |
| Almost none/some of the time | 122(53.7) | | | |
| Almost all/most of the time | 274(70.4) | | | |
| **Mental** | | 27.779 | <0.001 | |
| Achieves Mental balance | 89(48.6) | | | Preliminary model |
| Almost none/some of the time | 307(70.9) | | | |
| Almost all/most of the time | | | | |

| Table 8 *continued* Domain | Absence of depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| **Spiritual** | | | | |
| Believes traditional spirituality is | | 4.63 | <0.05 | Domain analysis |
| Not/not very important | 60(75) | | | |
| Somewhat/very important | 318(62.6) | | | |
| Believes religion is | | 11.258 | 0.001 | Domain analysis |
| Not/not very important | 140(73.7) | | | |
| Somewhat/very important | 238(59.5) | | | |
| Achieves spiritual balance | | 13.509 | 0.001 | Domain analysis |
| Almost none/some of the time | 118(54.6) | | | |
| Almost all/most of the time | 278(69.5) | | | |
| **Racism** | | 7.545 | <0.001 | Preliminary model |
| Has experienced racism | 260(72.8) | | | |
| Has not experienced racism | 106(51) | | | |
| **Available support** | | | | |
| Has someone who listens | | 17.273 | <0.001 | Domain analysis |
| Almost none/some of the time | 76(55.9) | | | |
| Almost all/most of the time | 295(65.3) | | | |
| Has someone who will provide transport to the doctor | | 26.989 | <0.001 | Domain analysis |
| Almost none/some of the time | 60 (45.8) | | | |
| Almost all/most of the time | 327(70.3) | | | |
| Is loved by someone | | 37.351 | <0.001 | Domain analysis |
| Almost none/some of the time | 33 (36.3) | | | |
| Almost all/most of the time | 352(69.6) | | | |
| Has someone who provides a break from daily routines | | 11.232 | 0.001 | Domain analysis |
| Almost none/some of the time | 162 (57.7) | | | |
| Almost all/most of the time | 221(70.8) | | | |

| Table 8 *continued* Domain | No depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| Has someone to confide in | | 8.676 | <0.01 | Domain analysis |
| Almost none/some of the time | 101 (55.8) | | | |
| Almost all/most of the time | 283(68.4) | | | |
| Has someone to have fun with | | 25.672 | <0.001 | Domain analysis |
| Almost none/some of the time | 53 (44.5) | | | |
| Almost all/most of the time | 333(69.4) | | | |
| **Used support** | | | | |
| Friend | | 18.248 | <0.001 | Domain analysis |
| No | 197(73.8) | | | |
| Yes | 194(57.1) | | | |
| Immediate family | | 7.466 | <0.01 | Domain analysis |
| No | 192(70.1) | | | |
| Yes | 199(59.4) | | | |
| Other family | | 13.218 | <0.001 | Domain analysis |
| No | 235(70.6) | | | |
| Yes | 155(56.4) | | | |
| Traditional healer | | 8.391 | <0.01 | Domain analysis |
| No | 353 (66.2) | | | |
| Yes | 34(48.6) | | | |
| Family doctor | | 15.697 | <0.001 | Domain analysis |
| No | 313 (68.6) | | | |
| Yes | 75(50.7) | | | |
| Psychiatrist | | 11.741 | 0.001 | Domain analysis |
| No | 378 (65.7) | | | |
| Yes | 10(34.5) | | | |
| CHR | | 5.345 | <0.01 | Domain analysis |
| No | 356 (65.6) | | | |
| Yes | 32(50.8) | | | |

| Table 8 *continued* Domain | No depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| **Used Support** | | | | |
| Nurse | 329 (67.1) | 9.259 | <0.01 | Domain analysis |
| No | 61(52.1) | | | |
| Yes | | | | |
| Counsellor | 339(68.1) | 17.793 | <0.001 | Domain analysis |
| No | 52(46.8) | | | |
| Yes | | | | |
| Psychologist | 386(65.6) | 15.442 | <0.001 | Domain analysis |
| No | 5(23.8) | | | |
| Yes | | | | |
| Social worker | 371(66.7) | 16.608 | <0.001 | Domain analysis |
| No | 21(38.9) | | | |
| Yes | | | | |
| Crisis line worker | 388(64.8%) | 5.175 | >0.25 | Not included in further |
| No | 3(30%) | | | analysis |
| Yes | | | | |
| **Residential school** | | | | |
| Respondent went | | 5.004 | <0.05 | Domain analysis |
| No | 299 (66.7) | | | |
| Yes | 94(57) | | | |
| Parent(s) went | | 1.202 | >0.25 | Not included in further |
| No | 184(66.7) | | | analysis |
| Yes | 178(62.2) | | | |
| Grandparents went | | 7.585 | <0.01 | Domain analysis |
| No | 275 (68.9) | | | |
| Yes | 40(52.6) | | | |

| Table 8 *continued* Domain | No depression | Pearson Chi-square results | | Selection decision |
|---|---|---|---|---|
| Independent variables | N(group%) | $X^2$value | p-value | |
| **Socio-economic** | | | | |
| Completed education | | 4.799 | <0.05 | Domain analysis |
| Lower than high school | 121 (71.2) | | | |
| High school or higher | 274(61.7) | | | |
| Employment | | 2.426 | 0.119 | Domain analysis |
| Works for pay | 206 (61.3) | | | |
| Is not working for pay | 184(67.4) | | | |

Table 9 summarizes the results of the domain analysis (eight logistic regressions) that was performed to select the *individual-level characteristics* per domain that had the strongest associations with *no depression*. The results show that of the thirty-one characteristics that underwent domain analysis, seventeen remained in the selection for further analysis, which consisted of stepwise backwards logistic regression.[27]

[27] Hosmer and Lemeshow (2000, p.116) recommend stepwise logistic regression when the outcome being studied is relatively new and the important covariates may not be known and associations with the outcome not well understood. Field (2005, p. 227) believes that the backward method is preferable to the forward as it is less likely to exclude predictors involved in suppressor effects, which occur when a predictor has a significant effect, but only when another variable is held constant. In backwards logistic regression the model begins with all predictors included. The computer then tests whether any of these predictors can be removed from the model without having a substantial effect on how well the model fits the observed data.

Table 9
*Summary of Domain Analysis for "No Depression"*

| Domain | Beta Coeff. | Standard error | p-value | Odds Ratio | 95% CI Lower-Upper |
|---|---|---|---|---|---|
| **Demographics** | | | | | |
| Gender | -0.342 | 0.2 | <0.05 | 0.71 | 0.51-0.99 |
| **Cultural practices** | | | | | |
| Eats land-based animals | 0 754 | 0.2 | <0.001 | 2.13 | 1.44-3.15 |
| Consulted traditional healers | -0.852 | 0.2 | <0.001 | 0.43 | 0.29-0.63 |
| **Physical** | | | | | |
| Has a chronic condition | -0.388 | 0.2 | <0.05 | 0.68 | 0.48-0.95 |
| Achieves physical balance | 0.829 | 0.2 | <0.001 | 2.29 | 1.63-3.23 |
| **Spiritual** | | | | | |
| Believes traditional spirituality is important | -0.575 | 0.3 | <0.1 | 0.56 | 0.31-1.01 |
| Believes religion is important | -0.628 | 0.2 | <0.01 | 0.53 | 0.35-0.81 |
| Achieves spiritual balance | 0.907 | 0.2 | <0.001 | 2.48 | 1.70-3.62 |
| **Available support** | | | | | |
| Has someone who will provide transport to the doctor | 0.695 | 0.2 | <0.01 | 2.00 | 1.29-3.11 |
| Is loved by someone | 0.096 | 0.3 | <0.001 | 2.99 | 1.80-4.99 |
| **Used support** | | | | | |
| Friend | -0.588 | 0.2 | <0.05 | 0.56 | 0.39-0.80 |
| Counsellor | -0.497 | 0.2 | <0.1 | 0.61 | 0.38-0.98 |
| Psychologist | -0.975 | 0.6 | <0.1 | 0.38 | 0.12-1.15 |
| Social worker | -0.602 | 3.1 | <0.1 | 0.55 | 0.28-1.07 |
| **Residential school** | | | | | |
| Grandparents went | -0.713 | 0.3 | <0.05 | 0.49 | 0.30-0.81 |
| **Education** | | | | | |
| Completed education | -0.548 | 0.2 | <0.01 | 0.58 | 0.39-0.86 |
| Has paid employment | 0.386 | 0.2 | <0.05 | 1.47 | 1.04-2.08 |

The three significant single-variable domains in Table 8 ("emotional," "mental," and "racism") were also included in the creation of a preliminary final regression model. Twenty individual-level characteristics were therefore entered in the first step of the logistic regression to build the preliminary final model. Table 10 summarizes the results of the stepwise backwards logistic regression that was performed by showing the first step and the last step of the regression. The logistic regression consisted of 10 steps. After each step of the regression, the least fitting characteristic was removed from the selection, which started out with twenty characteristics. A total of eleven characteristics remained after the last step of the backwards regression, as shown in Table 10.

Table 10
*Summary of Backwards Logistic Regression "No Depression" Model*

| | Model with all potential predictors Initial logistic model | | | | Model with most significant predictors Parsimonious model | | | |
|---|---|---|---|---|---|---|---|---|
| Individual-level Characteristics | B.Coeff (S.E) | p-value | OR | 95% CI Low-Up | B.Coeff (S.E) | p-value | OR | 95% CI Low-Up |
| **Demographics** | | | | | | | | |
| Gender | .147(.3) | .62 | 1.16 | .65-2.07 | | | | |
| **Cultural practices** | | | | | | | | |
| Eats land based animals | .79(.3) | .012 | 2.20 | 1.19-4.07 | .829(.3) | .006 | 2.29 | 1.28-4.12 |
| Consulted a healer | -.41(.3) | .194 | 0.66 | 0.35-1.23 | -.57(.3) | .049 | 0.56 | 0.32-1.00 |
| **Physical** | | | | | | | | |
| Has chronic condition | -.63(.3) | .029 | 0.53 | 0.30-0.94 | -.63(.3) | .022 | 0.53 | 0.31-0.91 |
| Achieves phys.balance | .795(.4) | .032 | 2.21 | 1.07-4.57 | .629(.3) | .022 | 1.88 | 1.10-3.21 |
| **Emotional** | | | | | | | | |
| Achieves Emotional balance | -.67(.4) | .132 | 0.51 | 0.22-1.22 | | | | |
| **Mental** | | | | | | | | |
| Achieves Mental balance | .490(.5) | .295 | 1.63 | 0.65-4.08 | | | | |

| Table 10 *continued* | Model with all potential predictors Initial logistic model[a] | | | | Model with most significant predictors Parsimonious model[b] | | | |
|---|---|---|---|---|---|---|---|---|
| **Spiritual** | | | | | | | | |
| Importance traditional spirituality | -.40(.5) | .426 | 0.67 | 0.25-1.79 | | | | |
| Importance religion | -.71(.3) | .031 | 0.49 | 0.26-0.94 | -.83(.3) | .008 | 0.44 | 0.24-0.81 |
| Achieves spiritual balance | -.09(.4) | .814 | 0.91 | 0.42-1.97 | | | | |
| Experienced **Racism** | -.79(.3) | .01 | 0.45 | 0.25-0.83 | -.79(.3) | .007 | 0.46 | 0.26-0.81 |
| **Available support** | | | | | | | | |
| Has someone for transport to doctor | .749(.4) | .033 | 2.12 | 1.06-4.21 | .83(.3) | .011 | 2.28 | 1.20-4.33 |
| Is loved by someone | 1.34(.4) | .001 | 3.84 | 1.73-8.52 | 1.2(.4) | .002 | 3.40 | 1.57-7.38 |
| **Used support** | | | | | | | | |
| Friend | -.69(.3) | .031 | 0.51 | 0.28-0.94 | -.81(.3) | .004 | 0.44 | 0.26-0.77 |
| Counsellor | -.40(.4) | .289 | 0.67 | 0.32-1.40 | | | | |
| Psychologist | -1.4(.8) | .087 | 0.24 | 0.05-1.23 | -1.7(.7) | .022 | 0.18 | 0.04-0.78 |
| Social worker | -.37(.5) | .428 | 0.69 | 0.27-1.73 | | | | |
| **Residential school** | | | | | | | | |
| Grandparents went | -.39(.4) | .303 | 0.67 | 0.32-1.42 | | | | |
| **Education** | | | | | | | | |
| Completed education | .04(.4) | .915 | 1.04 | 0.52-2.07 | | | | |
| Has paid employment | .66(.3) | .03 | 1.93 | 1.07-3.48 | 0.67(0.3) | .017 | 1.94 | 1.12-3.36 |

*Note.* N included=352. Missing cases=47.7%

[a] $X^2(20)=102.33$, $p<0.001$, $R^2_{CS}=0.252$, $R^2_N=0.35$ [b] $X^2(20)=94.20$, $p<0.001$, $R^2_{CS}=0.235$, $R^2_N=0.326$

These eleven characteristics were entered in a new regression after controlling for "communities" to produce a final model (see Table 11). The model in Table 11 with all eleven characteristics was statistically significant, $X^2(19, N=452) = 127.68$, $p<0.000$, indicating that the characteristics as a set reliably predicted *no depression*. The Cox & Snell R-square ($R^2_{CS}=0.246$) and the Nagelkerke R-square ($R^2_N=0.34$) suggested that between 24.6% and 34% of the variability in depression is explained by this set of characteristics.

Table 11
*"No Depression" Model, after Controlling for Communities*

| Individual-level Characteristic | B(S.E.) | p-value. | Odds Ratio | 95.0% C.I. for Odds Ratio | |
|---|---|---|---|---|---|
| Eats land-based animals | .767(.276) | .005 | 2.15 | 1.26 | 3.70 |
| Consulted a traditional healer | -.784(.263) | .003 | 0.46 | .273 | .765 |
| Has a chronic condition | -.535(.243) | .028 | 0.59 | .363 | .943 |
| Achieves physical balance | .805(.243) | .001 | 2.24 | 1.388 | 3.602 |
| Believes religion is important | -.662(.276) | .016 | 0.52 | .301 | .885 |
| Experienced racism | -.759(.265) | .004 | 0.47 | .279 | .786 |
| Has someone for transport to doctor | .735(.290) | .011 | 2.09 | 1.180 | 3.682 |
| Is loved by someone | 1.217(.351) | .001 | 3.38 | 1.698 | 6.713 |
| Has paid employment | .580(.254) | .022 | 1.79 | 1.086 | 2.938 |
| Used a friend for support | -.788(.251) | .002 | 0.46 | .278 | .744 |
| Used a psychologist for support | -1.950(.735) | .008 | 0.14 | .034 | .601 |

*Note.* N included in analysis=452, Missing cases=32.8%, $X^2(19)=127.68$, $p<0.000$, $R^2_{CS}=0.246$, $R^2_N=0.34$

However, because the characteristics "experienced racism" and "works for pay" were included, the number of missing cases is also quite high (32.8%). Another regression was therefore conducted without the "experienced racism" and "working for pay" characteristics which reduced the number of missing cases to 27.2%. As shown in Table 12, this model was also significant, $X^2(17, N=490)=131.41$, $p<0.001$, and had between 23.5% ($R^2_{CS}=0.235$) and 32.5% ($R^2_N=0.325$) of its variability explained by the nine characteristics in the model.

Table 12
*"No Depression" Final Model after Controlling for Communities*

| Individual-level Characteristic | B(S.E.) | p-value. | Odds Ratio | 95.0% C.I. for Odds Ratio | |
|---|---|---|---|---|---|
| Eats land-based animals | .697(.257) | .007 | 2.01 | 1.212 | 3.325 |
| Consulted a traditional healer | -.885(.243) | .000 | 0.41 | .256 | .665 |
| Has a chronic condition | -.650(.231) | .005 | 0.52 | .332 | .821 |
| Achieves physical balance | .808(.232) | .000 | 2.24 | 1.425 | 3.533 |
| Believes religion is important | -.728(.259) | .005 | 0.48 | .291 | .803 |
| Has someone for transport to doctor | .746(.275) | .007 | 2.11 | 1.228 | 3.616 |
| Is loved by someone | 1.335(.331) | .000 | 3.80 | 1.988 | 7.266 |
| Used a friend for support | -.727(.235) | .002 | 0.48 | .305 | .765 |
| Used a psychologist for support | -1.792(.655) | .006 | 0.17 | .046 | .602 |

*Note.* N included in analysis= 490, Missing cases=27.2%, $X^2(17)=131.41$, $p<0.000$, $R^2_{CS}=0.235$, $R^2_N=0.325$

The next step in the analysis was to verify the model's adequacy and fit. The Hosmer and Lemeshow test was used for this assessment. The results of this analysis suggest that with a non significant Chi-square ($X^2(8, N=490) = 7.937$, $p=0.440$), the model fits our data. Finally, a test for collinearity revealed that there is no issue of collinearity[28] between the predictor values as the results for the collinearity statistics all fell within the normal range (see Appendix E). These tests confirmed that the model shown in Table 12 produced a list of characteristics that accurately predict the *no depression outcome*. The results show that of the nine characteristics that had a significant association with *no depression*, four showed a positive association, suggesting that these characteristics are more common in the no *depression* population: (1) "eats land-based animals," (2) "achieves physical balance," (3) "has someone who can provide transport to a doctor," and (4) "is loved by someone." More

[28] A positive test result for collinearity indicates dependency between certain independent variables in the regression model, which results in the model becoming biased. When two independent variables are highly correlated with each other it becomes unclear which one predicts the outcome in the regression.

precisely, these results indicate that respondents who did not feel depressed were twice as likely to eat land-based animals regularly, to feel in physical balance almost all or most of the time and to believe that they have someone who can take them to the doctor in time of need compared to those who reported depression. Respondents without depression were close to four times more likely to have someone in their life who shows them love and affection. In contrast, several characteristics were inversely associated with the *no depression* outcome, indicating these are less common amongst those who are not depressed. Respondents who were not depressed were less likely to have had consultations with psychologists, to have consulted with traditional healers or to have relied on friends for emotional and mental support. The respondents without depression also had lower odds of being diagnosed with at least one chronic condition and of strongly believing in the importance of religion. The model with higher numbers of missing cases also pointed to "experiences of racism" and "having no paid work" as significant risk factors for the presence of depression.

**Analysis of "No Suicidal Thoughts"**

A bivariate stratified analysis was used to identify all the characteristics that were associated with the *no suicidal thoughts* outcome measure. The Mantel-Haenszel $X^2$ was used as an overall test for association as it accumulates the information contained in each stratum while controlling for confounding. A summary of the resulting forty cross tabulations is presented in Table 13.

Table 13
*Stratified Analysis for "No Suicidal Thoughts"*

| Individual-level Characteristics | $X^2_{MH}$ statistic | p-value | Selection decision |
|---|---|---|---|
| **Demographics** | | | |
| Gender | 4.302 | <.05 | Preliminary model |
| Age(<50 or 50+ yrs) | 26.524 | <.0001 | Preliminary model |
| **Cultural practices** | | | |
| Speaks Yukon language | .000 | >0.25 | Not included in further analysis |
| Believes traditional culture is important | .913 | >0.25 | Not included in further analysis |
| Eats land-based animals | .053 | >0.25 | Not included in further analysis |
| Eats fish | 1.284 | >0.25 | Not included in further analysis |
| Shares traditional food | 2.320 | .128 | Domain analysis |
| Uses traditional medicine | 2.573 | .109 | Domain analysis |
| Consulted a healer | 22.680 | <.001 | Domain analysis |
| **Physical** | | | |
| Has a chronic condition | .014 | >0.25 | Not included in further analysis |
| Achieves physical balance | 11.222 | .001 | Preliminary model |
| Achieves Emotional balance | 22.610 | <.001 | Preliminary model |
| Achieves Mental balance | 10.733 | .001 | Preliminary model |
| **Spiritual** | | | |
| Achieves spiritual balance | 7.948 | <.01 | Domain analysis |
| Believes traditional spirituality important | 2.240 | .134 | Domain analysis |
| Believes religion is important | 1.317 | >0.25 | Not included in further analysis |
| **Racism** | 25.117 | <.001 | Preliminary model |
| Experienced Racism | | | |
| **Available support** | | | |
| Has someone who listens | 2.377 | .123 | Domain analysis |
| Has someone to provide transport to the doctor | 5.206 | <.05 | Domain analysis |
| Is loved by someone | 8.990 | <.01 | Domain analysis |
| Has someone who provides a break | 2.407 | .121 | Domain analysis |
| Has someone to confide in | 1.228 | >0.25 | Not included in further analysis |
| Has someone to have fun with | 12.798 | <.001 | Domain analysis |

| Table 13 *continued* Individual-level Characteristics | $X^2_{MH}$ statistic | p-value | Selection decision |
|---|---|---|---|
| **Used supports** | | | |
| Friend | 32.102 | <.001 | Domain analysis |
| Family | 13.933 | <.001 | Domain analysis |
| Other family | 16.880 | <.001 | Domain analysis |
| Traditional healer | 7.210 | <.01 | Domain analysis |
| Doctor | 8.917 | <.01 | Domain analysis |
| Psychiatrist | 8.771 | <.01 | Domain analysis |
| Community Health Representative | 14.152 | <.001 | Domain analysis |
| Nurse | 8.711 | <.01 | Domain analysis |
| Counsellor | 13.547 | <.001 | Domain analysis |
| Psychologist | 4.575 | <.05 | Domain analysis |
| Social worker | 3.839 | .05 | Domain analysis |
| Crisis line worker | 1.001 | >0.25 | Not included in further analysis |
| **Residential school** | | | Not included in further analysis |
| Respondent went | 1.067 | >0.25 | Domain analysis |
| Parents went | 6.684 | .01 | Domain analysis |
| Grandparents went | 16.343 | <.001 | |

Another portion of the bivariate analysis was a test of homogeneity of odds ratios (Breslow-Day). The odds ratios for most variables were homogeneous between the strata but there were a few exceptions. The Breslow-Day test statistic was significant for a few characteristics, indicating that for those predictors the proportions for some communities could be in opposite directions as compared to other communities. This warranted caution with the interpretation. The characteristics in question were "achieving physical balance," "has someone to provide transport to the doctor," "has someone to do fun things with," "has used immediate family for emotional support," and "level of completed education" (see Table 14).

Table 14
*Community Variation in Effect of Specific Characteristics*

| Community | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| Achieve physical balance | More likely | More likely | More likely* | More likely* | More likely* | Less likely | More likely | More likely | Less likely |
| Has some-one who can take you to the doctor | Less likely | More likely | More likely | More likely* | More likely* | More likely* | Less likely | More likely | More likely |
| Has some-one to have fun with | More likely | More likely | More likely | More likely* | More likely* | More likely* | More likely | More likely* | Less likely |
| Used immediate family for support | Less likely | More likely | Less likely | Less likely* | More likely | Less likely* | Less likely | Less likely | Less likely |
| Has at least high school | Less likely | Less likely | Less likely | Less likely* | Less likely* | More likely | Less likely | Less likely*[a] | Less likely*[a] |

*Note.* Shaded cells show opposite effects. * $p<0.05$.
a. Zero cells were present.

A closer look at these differences revealed that indeed the effect would be opposite for one or two communities (shaded cells in Table 14). The "achieving physical balance" characteristic is an example. In seven of the communities, respondents without suicidal thoughts more often felt that they achieved physical balance, as compared to the participants who had reported suicidal thoughts. In two communities, however, the relationship was reversed. The inversion of proportions between the communities that showed these opposite effects were small and not statistically significant. Also the bivariate relationship across most communities remained relatively the same. Given the small sizes of the differences and the lack of a clear pattern between them, these characteristics were kept for further analysis.

The thirty-one characteristics in Table 13 were considered for further analysis as they had p-values below 0.25. Logistic regressions were performed per domain to find the characteristics that had the strongest associations with the *no suicidal thoughts* outcome. Table 15 summarizes how the selection of variables in the different domains was narrowed down through six logistic regressions.

Table 15
*Summary of Domain Variables Selection for "No Suicidal Thoughts"*

| Domain | Beta Coeff. | Standard error | p-value | Odds Ratio | 95% CI Lower-Upper |
|---|---|---|---|---|---|
| **Cultural practices** | | | | | |
| Shares traditional food | -.904 | .5 | <.001 | .41 | .14-1.15 |
| Consulted a healer | -.939 | .2 | <.001 | .39 | .26-.59 |
| **Spiritual** | | | | | |
| Believes traditional spirituality is important | -.617 | .3 | <.01 | .54 | .31-.94 |
| Achieves spiritual balance | .660 | .2 | .001 | 1.94 | 1.32-2.84 |
| **Available Support** | | | | | |
| Is loved by someone | .492 | .3 | <.01 | 1.64 | .97-2.77 |
| Has someone to have fun with | .566 | .2 | <.05 | 1.76 | 1.09-2.84 |
| **Used support** | | | | | |
| Friend | -.980 | .2 | <.001 | .38 | .26-.55 |
| Psychiatrist | -.811 | .5 | <.01 | .44 | .18-1.10 |
| Community Health Representative | -.896 | .3 | <.01 | .41 | .22-.78 |
| **Residential school** | | | | | |
| Grandparents went | -1.094 | .3 | <.001 | | .20-.58 |
| **Socio-economic** | | | | | |
| Completed education | -.765 | .2 | .001 | .47 | .30-.72 |
| Paid employment | -.392 | .2 | <.05 | .68 | .46-.98 |

Next, the twelve characteristics shown in Table 15 together with the six in Table 13 labelled "preliminary model" underwent a stepwise backwards logistic regression. Table 16 presents a summary of this analysis by showing the first and last step of the backwards logistic regression. The regression consisted of 10 steps, with eighteen characteristics being included in the first step of the regression, and nine remaining in the last.

Table 16

*Backwards Regression Summary for "No Suicidal Thoughts" Model*

| Individual-level Characteristics | B(SE) | p-value | OR | 95% CI | B(SE) | p-value | OR | 95% CI |
|---|---|---|---|---|---|---|---|---|
| **Demographics** | | | | | | | | |
| Gender | -.123(.3) | .685 | .89 | .49-1.60 | | | | |
| Age (<50 or 50+) | -.708(.4) | .049 | .49 | .24-.99 | -.669(.3) | .044 | .51 | .27-.98 |
| **Cultural practices** | | | | | | | | |
| Shares traditional food | -1.38(.8) | .085 | .25 | .05-1.21 | | | | |
| Consulted a healer | -.722(.3) | .024 | .49 | .26-.91 | -.705(.3) | .012 | .49 | .29-.86 |
| **Spiritual** | | | | | | | | |
| Believes traditional spirituality=important | .281(.5) | .543 | 1.33 | .54-3.28 | | | | |
| Spiritual balance | -.395(.4) | .326 | .67 | .31-1.48 | | | | |
| **Physical** | | | | | | | | |
| Physical balance | .555(.4) | .163 | 1.74 | .80-3.80 | | | | |
| **Emotional** | | | | | | | | |
| Emotional balance | .775(.4) | .073 | 2.17 | .93-5.06 | .848(.3) | .002 | 2.34 | 1.35-4.0 |
| **Mental** | -.276(.5) | .555 | .76 | .30-1.90 | | | | |
| Mental balance | | | | | | | | |
| **Racism** | | | | | | | | |
| Experienced Racism | -.431(.3) | .158 | .65 | .36-1.18 | -.609(.3) | .029 | .54 | .32-.94 |
| **Available Support** | | | | | | | | |
| Is loved by someone | 1.162(.5) | .014 | 3.20 | 1.27-8.1 | 1.306(.4) | .001 | 3.69 | 1.72-7.9 |
| Has someone to have fun with | 0.312(.4) | .440 | 1.37 | .62-3.02 | | | | |
| **Used Support** | | | | | | | | |
| Friend | -.723(.3) | .021 | .49 | .26-.90 | -.888(.3) | .002 | .41 | .24-.72 |
| Psychiatrist | -.691(.6) | .272 | .50 | .15-1.72 | | | | |
| CHR | -.807(.5) | .077 | .45 | .18-1.09 | -.984(.4) | .018 | .37 | .17-.84 |
| **Residential school** | | | | | | | | |
| Grandparents went | -.873(.4) | .023 | .42 | .20-.89 | -1.003(.3) | .003 | .37 | .19-.72 |
| **Socio-economic** | | | | | | | | |
| Completed education | -.588(.4) | .129 | .56 | .26-1.19 | | | | |
| Paid employment | -.725(.3) | .024 | .48 | .26-.91 | -.642(.3) | .019 | .53 | .31-.90 |

*Note.* N included in analysis=355, missing cases=47.3%.

[a] $X^2(26)=127.55$, $p<0.001$, $R^2_{CS}=0.302$, $R^2_N=0.415$. [b] $X^2(9)=106.64$, $p<0.001$, $R^2_{CS}=0.259$, $R^2_N=0.357$

The nine remaining characteristics were entered in a new logistic regression that controlled for communities, the results of which are shown in Table 17. This model was statistically significant ($X^2(9, N=373)=125.7$, $p<0.001$), but because the characteristic "grandparents went to residential school" was included, the number of missing cases is also very high (44.6%).

Table 17
*"No Suicidal Thoughts" Model, after Controlling for Communities*

| Individual-level Characteristic | B | S.E. | p-value | Odds ratio | 95.0% CI for Odds ratio | |
|---|---|---|---|---|---|---|
| Age | -.793 | .340 | .020 | .453 | .232 | .882 |
| Consulted healer | -.839 | .289 | .004 | .432 | .246 | .761 |
| In emotional balance | .674 | .281 | .016 | 1.962 | 1.132 | 3.401 |
| Experienced racism | -.456 | .291 | .117 | .634 | .358 | 1.122 |
| Is loved by someone | 1.293 | .395 | .001 | 3.645 | 1.682 | 7.899 |
| Used a Friend for support | -.843 | .289 | .003 | .430 | .244 | .757 |
| Used a CHR for support | -1.033 | .430 | .016 | .356 | .153 | .826 |
| Grandparents went to residential school | -.819 | .362 | .024 | .441 | .217 | .896 |
| Has paid employment | -.785 | .292 | .007 | .456 | .258 | .808 |

*Note*. N included in analysis=373, Missing cases=44.6%, $X^2(17)=125.7$, $p<0.001$, $R^2_{CS}=0.286$, $R^2_N=0.394$

The same analysis was therefore performed without including "grandparents attending residential school". The model's significance stayed the same ($X^2(17, N=468)=136.89$, $p<0.001$), but the missing cases improved to 30.5%. Further exclusion of "racism" led to the best model with the highest number of valid cases included: 500 and 25.7% missing. This model is presented in Table 18.

Table 18
*Best Final "No Suicidal Thoughts" Model with Least Missing Cases, after Controlling for Communities*

| Individual-level Characteristic | B | S.E. | p-value | Odds ratio | 95.0% CI for Odds ratio | |
|---|---|---|---|---|---|---|
| Age (<50 yrs) | -.971 | .282 | .001 | .379 | .218 | .658 |
| Consulted healer | -.870 | .233 | .000 | .419 | .266 | .661 |
| Achieved emotional balance | .773 | .227 | .001 | 2.165 | 1.386 | 3.382 |
| Is loved by someone | .843 | .301 | .005 | 2.324 | 1.289 | 4.189 |
| Used friend for support | -.840 | .233 | .000 | .432 | .273 | .682 |
| Used CHR for support | -1.197 | .360 | .001 | .302 | .149 | .612 |
| Has paid employment | -.796 | .233 | .001 | .451 | .286 | .713 |

*Note.* N included in analysis=500, Missing cases:25.7% , $X^2(17)=141.04$, $p<0.001$, $R^2_{CS}=0.246$ $R^2_N=0.337$.

The Hosmer and Lemeshow test was used to assess the model's adequacy and fit. The resulting $X^2=8.399(8)$, which is not significant ($p=0.395$), suggests that our model fits our data. Finally, a test for collinearity revealed that there is no issue of collinearity between the predictor values, as none had high proportions on the same small eigenvalues, and they all had VIF values smaller than 10 and tolerances greater than 0.8 (see Appendix E).

These findings reveal that for respondents without suicidal thoughts, it is more common, with odds just over two, to "have achieved emotional balance" and "to be loved by someone." Also, more respondents without suicidal thoughts were at least 50 years of age and not working for pay. Respondents without suicidal thoughts were less likely to have consulted with Community Health Representatives and traditional healers or to have used friends for emotional support. The two models with higher numbers of missing cases also pointed to "experienced racism" and "grandparents went to residential school" as significant risk factors for the presence of suicidal thinking.

### Analysis of "No Suicide Attempts"

As with the no *suicidal thoughts* analysis, the selection of characteristics for the *no suicide attempts* model began with a Mantel-Haenszel stratified analysis. Forty characteristics were cross-tabulated with the *no suicide attempts* outcome to look for significant associations. The results are presented in Table 19.

Table 19
*Summary of Stratified Analysis for "No Suicide Attempts" Model*

| Individual-level Characteristics | $\chi^2_{MH}$ statistic | .....p-value | Selection decision |
|---|---|---|---|
| **Demographics** | | | |
| Gender | 1.038 | >0.25 | No further analysis |
| Age (<50) | 8.840 | <0.01 | Preliminary model |
| **Cultural practices** | | | |
| Speaks Yukon language | 0.073 | >0.25 | No further analysis |
| Believes traditional culture is important | 0.015 | >0.25 | No further analysis |
| Eats land-based animals | 5.036 | <0.05 | Domain analysis |
| Eats fish | 8.354 | <0.01 | Domain analysis |
| Shares traditional food | 1.008 | >0.25 | No further analysis |
| Uses traditional medicine | 0.232 | >0.25 | No further analysis |
| Consulted with healer | 7.127 | <0.01 | Domain analysis |
| **Physical** | | | |
| Has chronic condition | 5.395 | <0.05 | Domain analysis |
| Achieves physical balance | 6.646 | 0.01 | Domain analysis |
| **Emotional** | | | |
| Achieves emotional balance | 14.125 | <0.0001 | Preliminary model |
| **Mental** | 8.626 | <0.01 | Preliminary model |
| Achieves mental balance | | | |
| **Spirituality** | | | |
| Achieves spiritual balance | 5.242 | <0.05 | Preliminary model |
| Believes traditional spirituality is important | 0.000 | >0.25 | No further analysis |
| Believes religion is important | 1.086 | >0.25 | No further analysis |
| **Racism** | | | |
| Experienced racism | 11.404 | 0.001 | Preliminary model |

| Table 19 *continued* Individual-level Characteristics | $\chi^2_{MH}$ statistic | .....p-value | Selection decision |
|---|---|---|---|
| **Available support** | | | |
| Has someone who listens | 11.361 | 0.001 | Domain analysis |
| Has someone for transport to doctor | 4.819 | <0.05 | Domain analysis |
| Is loved by someone | 5.160 | <0.05 | Domain analysis |
| Has someone who provides a break from daily routines | 1.112 | >0.25 | No further analysis |
| Has someone to confide in | 2.759 | 0.097 | Domain analysis |
| Has someone to have fun with | 9.278 | <0.01 | Domain analysis |
| **Use of supports** | | | |
| Friend | 7.456 | <0.01 | Domain analysis |
| Family | 1.345 | >0.25 | No further analysis |
| Other family | 4.128 | <0.05 | Domain analysis |
| Traditional healer | 1.140 | >0.25 | No further analysis |
| Doctor | 3.389 | 0.066 | Domain analysis |
| Psychiatrist | 9.621 | <0.01 | Domain analysis |
| CHR | 7.046 | <0.01 | Domain analysis |
| Nurse | 9.464 | <0.01 | Domain analysis |
| Counsellor | 20.852 | <0.001 | Domain analysis |
| Psychologist | 6.420 | <0.05 | Domain analysis |
| Social worker | 0.673 | >0.25 | No further analysis |
| Crisis line worker | 0.350 | >0.25 | No further analysis |
| **Residential school** | | | |
| Respondent went | 5.202 | <0.05 | Domain analysis |
| Parents went | 2.430 | 0.119 | Domain analysis |
| Grandparents went | 2.204 | 0.138 | Domain analysis |
| **Socio-economic** | | | |
| Completed education | 4.655 | <0.05 | Domain analysis |
| Paid Employment | 2.175 | 0.140 | Domain analysis |

Furthermore, the Breslow-Day test of homogeneity of odds ratios between the strata was used to verify whether the odds ratios for most characteristics were homogeneous between the strata. The Breslow-Day statistic identified four individual-level characteristics with significant p-values for the homogeneity of odds-ratios test, meaning that for those predictors the proportions for some communities could be in opposite directions as compared to other communities. The variables flagged for their differences between communities were "Age", "Using traditional healers" and "Using social workers" and "Having grandparents who went to residential school" (see Table 20). For the last three variables in Table 20, three to four communities demonstrated opposite effects. Which communities had opposite effects differed by variable and no clear pattern could be seen. Several of the communities had zero cells for the variables in question, which may have explained some of the differences. However very few differences were significant, and by controlling for age and community in the analysis, the effect of these differences could be minimized.

Table 20
*Community Variation in Effect of Specific Individual-level Characteristics*

| Community | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| < 50 yrs | Less likely | Less likely* | Less likely[a] | Less likely | Less likely | More likely | Less likely | More likely[a] | Less likely* |
| Used healer for support | More likely | More likely | Less likely*[a] | Less likely* | More likely[a] | More likely | More likely[a] | Less likely[a] | Less likely |
| Used social worker for support | More likely | More likely[a] | Less likely[a] | Less likely*[a] | Less likely | Less likely | More likely[a] | More likely[a] | Less likely |
| Had grand-parents in residential school | More likely | Less likely | Less likely | Less likely | Same | More likely[a] | Less likely* | More likely[a] | Less likely* |

*Note.* Shaded cells show opposite effects. * $p<0.05$.
a. Zero cells were present.

As before, the bivariate analysis identified the characteristics that should be considered for further analysis. For the absence of suicide attempts outcome, twenty-eight

characteristics qualified (characteristics in Table 19 labelled preliminary model or domain analysis). Table 21 summarizes the results of the logistic regressions that were performed to narrow down the selection of characteristics in the domains to those that had the strongest associations with *no suicide attempts* outcome.

Table 21
*Summary of Individual-level Characteristics Selected for "No Suicide Attempts" Model*

| Individual-level Characteristics | Beta Coeff | Standard error | p-value | Odds Ratio | 95% CI Lower-Upper |
|---|---|---|---|---|---|
| **Cultural practices** | | | | | |
| Eats land-based animals | 0.603 | 0.3 | <0.05 | 1.83 | 1.04-3.21 |
| Eats fish | 0.552 | 0.3 | <0.05 | 1.74 | 1.01-2.99 |
| Consulted healers | -0.841 | 0.3 | 0.001 | 0.43 | 0.26-0.71 |
| **Physical** | | | | | |
| Has a chronic condition | -0.473 | 0.2 | <0.05 | 0.62 | 0.40-0.97 |
| Achieves physical balance | 0.550 | 0.2 | <0.05 | 1.73 | 1.13-2.67 |
| **Support available** | | | | | |
| Has someone who listens | 0.853 | 0.2 | <0.001 | 2.35 | 1.48-3.73 |
| **Used support** | | | | | |
| Friend | -0.458 | 0.2 | <0.1 | 0.63 | 0.39-1.02 |
| Counsellor | -0.817 | 0.5 | <0.1 | 0.44 | 0.18-1.07 |
| Psychologist | -0.926 | 0.3 | 0.001 | 0.40 | 0.23-0.67 |
| **Residential school** | | | | | |
| Respondent went | -.549 | 0.3 | <0.05 | 0.58 | 0.34-0.99 |
| Grandparents went | -.599 | 0.3 | <0.1 | 0.55 | 0.30-1.02 |
| **Socio-economic** | | | | | |
| Completed education | -0.569 | 0.3 | <0.05 | 0.57 | 0.33-0.96 |

The twelve characteristics that remained after the domain analysis (Table 19), plus the single domain characteristics "achieves mental, emotional and spiritual balance," and "experienced racism," that were significantly associated with the *no suicide attempts* outcome (Table 18), then underwent a stepwise backward logistic regression in order to

identify the most accurate predictors for the final model. The results of this regression are summarized in Table 22. The stepwise backwards regression started with seventeen characteristics and consisted of twelve steps. As shown in Table 22, five characteristics remained after the last step.

Table 22
*Individual-level Characteristics Selected for Final "No Suicide Attempts" Model*

| | Model with all potential predictors Initial logistic model[a] | | | | Model with most significant predictors Parsimonious logistic model[b] | | | |
|---|---|---|---|---|---|---|---|---|
| Individual-level Characteristics | B(SE) | p-value | OR | 95% CI | B(SE) | p-value | OR | 95% CI |
| **Demographics** | | | | | | | | |
| Age(<50) | -1.059(.5) | .030 | .347 | .13-.90 | -.778(.4) | .067 | .459 | .20-1.06 |
| **Cultural practices** | | | | | | | | |
| Eats land-based animals | .273(.4) | .497 | 1.31 | .60-2.89 | | | | |
| Eats fish | .705(.4) | .062 | 2.02 | .97-4.24 | .645(.3) | .056 | 1.91 | .98-3.70 |
| Consulted a healer | -.763(.4) | .051 | .47 | .22-1.00 | -.984(.3) | .004 | .37 | .19-.73 |
| **Physical** | | | | | | | | |
| Has chronic condition | -.479(.4) | .201 | .62 | .30-1.29 | | | | |
| Physical balance | .482(.5) | .292 | 1.62 | .66-3.97 | | | | |
| **Emotional** | | | | | | | | |
| Emotional balance | -.115(.5) | .809 | .89 | .35-2.26 | | | | |
| **Mental** | .66(.5) | .896 | 1.07 | .40-2.88 | | | | |
| Mental balance | | | | | | | | |
| **Spiritual** | | | | | | | | |
| Spiritual balance | -.245(.5) | .592 | .78 | .32-1.92 | | | | |
| **Racism** | | | | | | | | |
| Experienced racism | -.187(.4) | .623 | .83 | .39-1.75 | | | | |
| **Available Support** | | | | | | | | |
| Has someone who listens | .687(.4) | .074 | 1.99 | .94-4.22 | .848(.4) | .017 | 2.33 | 1.16-4.69 |
| **Used Support** | | | | | | | | |
| Friend | -.618(.4) | .117 | .54 | .25-1.17 | | | | |
| Psychiatrist | -1.551(.7) | .018 | .21 | .59-.77 | -1.31(.6) | .036 | .27 | .08-.92 |
| Counsellor | -.886(.4) | .024 | .41 | .19-.89 | -1.27(.4) | .000 | .28 | .14-.56 |
| **Residential school** | | | | | | | | |
| Respondent went | -.769(.4) | .049 | .46 | .22-.99 | | | | |
| Grandparents went | -.403(.4) | .357 | .67 | .28-1.57 | | | | |
| **Socio-economic** | | | | | | | | |
| Completed education | .017(.5) | .971 | 1.02 | .41-2.55 | | | | |

*Note.* N Included in analysis=374, Missing cases=44.4%

[a] $X^2(25)=75.046$, $p<0.001$, $R^2_{CS}=0.182$, $R^2_N=0.315$. [b] $X^2(14)=63.773$, $p<0.001$, $R^2_{CS}=0.157$, $R^2_N=0.271$.

The five characteristics that still showed a significant association with the outcome at the end of the regression were entered into the final model, which controlled for communities and is shown in Table 23.

Table 23
*Final "No Suicide Attempts" Model, after Controlling for Communities*

| Individual-level Characteristic | B | p-value | Odds Ratio | 95.0% C.I. for Odds Ratio | |
|---|---|---|---|---|---|
| Age (≥ 50 yrs) | -.697(.3) | .046 | 2.008 | 1.013 | 3.984 |
| Eats fish | .757(.3) | .007 | 2.132 | 1.236 | 3.679 |
| Consulted healer | -.742(.3) | .007 | .476 | .279 | .813 |
| Has someone who listens | .832(.3) | .003 | 2.297 | 1.325 | 3.981 |
| Used a Psychiatrist | -1.074(.5) | .030 | .342 | .130 | .899 |
| Used a Counsellor | -1.018(.3) | .001 | .361 | .202 | .645 |

*Note.* N included in analysis=514, Missing cases=23.6%, $X^2(14)=82.15$, $p<0.001$, $R^2_{CS}=0.148$, $R^2_N=0.244$

The Hosmer and Lemeshow test statistic for adequacy and fit was $X^2=9.034(8)$, which was not significant ($p=0.339$), suggesting that Table 23 accurately predicts the *no suicide attempts* outcome. Also, the test for collinearity did not show any evidence of collinearity (see Appendix E), indicating that none of the characteristics in Table 23 are highly correlated with each other. We can therefore conclude with confidence that according to these findings, respondents who have never attempted suicide in their lives are twice as likely to be 50 years of age or older, to eat fish regularly (odds 2.1), and to have someone who will listen to them when they need to talk (odds 2.3). In contrast, consultations with traditional healers, psychiatrists or counsellors are much more commonplace for the respondents who indicated they had tried to commit suicide at some point in their lives. This finding is not surprising as it may show that these respondents acted on their recognition that

for their healing to advance they had to reach out to someone with expertise in the mental and emotional health field.

## Summary Comments

A summary of the findings presented in this chapter is shown in Table 24. The table presents only those individual-level characteristics that are statistically significant predictors for the *no depression*, *no suicidal thoughts* and *no suicide attempts* outcomes and the direction of the association. From it we can see that each of the outcomes is predicted by different characteristics, although there are a few similarities. For example, respondents who indicated no feelings of depression, had no suicidal thoughts, and had never attempted suicide all were much less likely to have consulted with traditional healers. At first, this finding might appear surprising. However, it may indicate that those individuals who do identify depression, suicidal thoughts or suicide attempts have reached out for help from traditional healers. In addition, those without depression and suicidal thoughts were more likely to have someone who showed them love and affection.

Table 24
*Summary of Predictors for Outcome Measures*

| Individual-level Characteristics | "No Depression" | "No Suicidal Thoughts" | "No Suicide Attempts" |
|---|---|---|---|
| Eats land-based animals | Positively associated | | |
| Eats fish | | | Positively associated |
| Consulted a healer | Negatively associated | Negatively associated | Negatively associated |
| Has a chronic condition | Negatively associated | | |
| Achieves physical balance | Positively associated | | |
| Achieves emotional balance | | Positively associated | |
| Believes in the importance of religion | Negatively associated | | |

| Table 24 *continued* Individual-level Characteristics | "No Depression" | "No Suicidal Thoughts" | "No Suicide Attempts" |
|---|---|---|---|
| Has someone who can provide transport to the doctor | Positively associated | | |
| Is loved by someone | Positively associated | Positively associated | |
| Has someone who listens | | | Positively associated |
| Used a friend(s) for emotional and mental support | Negatively associated | Negatively associated | |
| Used a psychologist for emotional or mental support | Negatively associated | | |
| Used a CHR for emotional or mental support | | Negatively associated | |
| Used a Psychiatrist for emotional or mental support | | | Negatively associated |
| Used a Counsellor for emotional or mental support | | | Negatively associated |
| Age | | Positively associated for >50 | Positively associated for >50 |
| Paid employment | | Negatively associated | |

These findings seem to point to the important roles different forms of support play in maintaining well-being. These results are consistent with the literature, and will be discussed in detail in Chapter Seven. The next chapter examines whether there are community differences that have an impact on the outcome measures.

# CHAPTER SIX

# COMMUNITY CHARACTERISTICS: THE EFFECT OF SOCIAL, CULTURAL AND POLITICAL ENVIRONMENT

The analyses of individual-level characteristics discussed in Chapter Five revealed that the rates of respondents reporting no suicidal thoughts or suicide attempts varied by community, whereas the rate of those reporting no depression did not. The next step, therefore, was to identify the community-level characteristics that distinguish one community from another. The community-level information examined in this chapter came from the ecological variable survey (item 4 in Table 3, p.46). In this chapter, the results of that analysis are discussed, commencing with the two *Non-Suicide Outcomes* (*No Suicidal Thoughts* and *No Suicide Attempts*).

## Differences in Non-Suicide Outcomes by Community Characteristics

First, the community-level characteristics set out in Table 6 pertaining to the domains geographic characteristics, community control, community engagement and cultural continuity were examined. To investigate the influence of these characteristics on the *non suicide outcomes*, Chi-square tests were performed using the adult data-set with the community variables aggregated into the community-level characteristic categories (Table 25). As shown in Table 25, the Chi-square tests performed with several community-level characteristics revealed significant differences between the two *non suicide* outcomes. Non-significant community-level characteristics can be viewed in Appendix F.

For the *geographic domain*, differences were found for the *no suicidal thoughts* outcome only: respondents who lived in small[29] settlements[30] and more isolated[31]

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[29] Population size smaller than 300 residents

[30] The Census 2001 standard geographical classification terms were used (Statistics Canada, 2001).

communities had a higher rate of *no suicidal thoughts* compared to those residing in medium-sized, more urban and non-isolated communities ($X^2(1,607)=9.582$, p= 0.002; $X^2(1,607)=7.228$, p=0.007; p=0.002; $X^2(2,607)=15.186$, p=0.001).

Table 25
*Chi-Square Results for Absence of Suicidal Thoughts and Absence of Suicide Attempts and Selected Community Variables*

| Community-level characteristic by domain | No Suicidal thoughts | $X^2$ value | p-value | No Suicide Attempts | $X^2$ value | p-value |
|---|---|---|---|---|---|---|
| **Geographic characteristics** | | | | | | |
| Community size | | 9.582 | 0.002 | | 1.965 | 0.161 |
| Small | 68.7% | | | 83.9% | | |
| Medium | 56.4% | | | 79.5% | | |
| Town/settlement | | 7.228 | 0.007 | | 0.582 | 0.445 |
| Settlement | 68.2% | | | 83.2% | | |
| Town/City | 57.6% | | | 80.8% | | |
| Geographic isolation | | 15.186 | 0.001 | | 4.708 | 0.095 |
| Isolated | 71.8% | | | 84.1% | | |
| Semi-isolated | 69.4% | | | 85.0% | | |
| Non-isolated | 54.3% | | | 78.0% | | |
| **Community Control** | | | | | | |
| Land claim in implementation | | 13.58 | 0.000 | | 5.915 | 0.015 |
| Yes | 71.3% | | | 86.0% | | |
| No | 56.9% | | | 78.6% | | |
| Prolonged (10 yrs) self-government | | 16.813 | 0.000 | | 8.233 | 0.004 |
| Yes | 79.2% | | | 90.8% | | |
| No | 59.7% | | | 80.0% | | |
| PSTA transfer | | 15.521 | 0.000 | | 6.307 | 0.043 |
| In effect | 71.3% | | | 86.0% | | |
| In negotiation | 55.0% | | | 77.9% | | |
| None | 64.5% | | | 81.3% | | |

[31] No road access or road access greater than 90 km to hospital services

| Table 25 *continued* Community-level characteristic by domain | No Suicidal thoughts | $X^2$ value | p-value | No Suicide Attempts | $X^2$ value | p-value |
|---|---|---|---|---|---|---|
| Average time FN citizens use income support | | 11.297 | 0.001 | | 7.460 | 0.006 |
| < 1 year | 75.5% | | | 89.5% | | |
| > 4 years | 60.2% | | | 79.8% | | |
| **Community Engagement** | | | | | | |
| FN has adult education program | | 5.366 | 0.021 | | 2.443 | 0.118 |
| Yes | 60.7% | | | 80.5% | | |
| No | 70.2% | | | 85.5% | | |
| FN offers alcohol & drug counselling | | 1.825 | 0.177 | | 7.017 | 0.008 |
| Yes | 64.8% | | | 83.6% | | |
| No | 56.3% | | | 70.6% | | |
| FN offers alcohol & drug treatment | | 13.575 | 0.000 | | 5.662 | 0.017 |
| Yes | 74.5% | | | 87.6% | | |
| No | 59.0% | | | 79.8% | | |
| FN has alcohol/drug treatment facility | | 16.616 | 0.000 | | 12.063 | 0.001 |
| Yes | 88.1% | | | 98.4% | | |
| No | 61.3% | | | 80.5% | | |
| FN offers diabetes management | | 2.510 | 0.113 | | 8.153 | 0.004 |
| Yes | 66.0% | | | 85.1% | | |
| No | 59.2% | | | 75.6% | | |
| FN offers FASD assessment/diagnosis | | 4.235 | 0.040 | | 0.643 | 0.423 |
| Yes | 72.6% | | | 84.8% | | |
| No | 62.1% | | | 81.6% | | |
| FN offers suicide prevention | | 7.733 | 0.005 | | 1.306 | 0.253 |
| Yes | 59.1% | | | 80.7% | | |
| No | 70.0% | | | 84.2% | | |

| Table 25 *continued* Community-level characteristic by domain | No Suicidal thoughts | $X^2$ value | p-value | No Suicide Attempts | $X^2$ value | p-value |
|---|---|---|---|---|---|---|
| FN offers mental health treatment | | 17.029 | 0.000 | | 16.573 | 0.000 |
| Yes | 81.3% | | | 95.5% | | |
| No | 60.2% | | | 79.3% | | |
| FN offers smoking cessation | | 12.127 | 0.000 | | 9.566 | 0.002 |
| Yes | 76.9% | | | 91.2% | | |
| No | 60.4% | | | 79.7% | | |
| FN offers youth alcohol & drug awareness | | 0.294 | 0.588 | | 4.917 | 0.027 |
| Yes | 64.8% | | | 84.9% | | |
| No | 62.6% | | | 78.0% | | |
| FN offers youth suicide awareness | | 12.127 | 0.000 | | 9.566 | 0.002 |
| Yes | 76.9% | | | 91.2% | | |
| No | 60.4% | | | 79.7% | | |
| FN has regular youth events | | 7.228 | 0.007 | | 0.582 | 0.445 |
| Yes | 57.6% | | | 80.8% | | |
| No | 68.2% | | | 83.2% | | |
| FN has youth mentoring program | | 11.600 | 0.001 | | 1.882 | 0.170 |
| Yes | 53.4% | | | 78.9% | | |
| No | 68.1% | | | 83.5% | | |
| N of recreation facilities FN has | | 0.116@ | 0.004 | | 0.095@ | 0.018 |
| None | 61.9% | | | 78.6% | | |
| One | 53.4% | | | 78.9% | | |
| Two | 70.0% | | | 84.2% | | |
| Three | 72.9% | | | 92.2% | | |
| CC receives youth input | | 21.107 | 0.000 | | 13.714 | 0.000 |
| Yes | 74.1% | | | 88.6% | | |
| No | 56.0% | | | 77.2% | | |
| CC receives women input | | 5.257 | 0.022 | | 0.095 | 0.758 |
| Yes | 68.1% | | | 82.6% | | |
| No | 59.2% | | | 81.7% | | |

| Table 25 *continued* Community-level characteristic by domain | No Suicidal thoughts | $X^2$ value | p-value | No Suicide Attempts | $X^2$ value | p-value |
|---|---|---|---|---|---|---|
| FN has traditional justice program | | 16.616 | 0.000 | | 12.063 | 0.001 |
| Yes | 88.1% | | | 98.4% | | |
| No | 61.3% | | | 80.5% | | |
| FN has traditional healer services | | 27.140 | 0.000 | | 20.519 | 0.000 |
| No | 81.3% | | | 95.5% | | |
| A healer visits 2/yr | 67.9% | | | 83.1% | | |
| A healer lives in the community | 54.1% | | | 76.4% | | |
| FN has employee language policy | | 16.616 | 0.000 | | 12.063 | 0.001 |
| Yes | 88.1% | | | 98.4% | | |
| No | 61.3% | | | 80.5% | | |
| FN has cultural centre | | 0.264 | 0.608 | | 5.756 | 0.016 |
| Yes | 64.8% | | | 85.3% | | |
| No | 62.7% | | | 77.9% | | |

*Note*. Significant differences are shaded.

The four characteristics pertaining to the *community control domain* were significant for both the *no suicidal thoughts* and *no suicide attempts* outcomes: higher rates were found in the communities that had land claim agreements ($X^2(1,607)=13.580$, p=0.000; $X^2(1,629)=5.915$, p=0.015) and PSTAs in effect ($X^2(2,607)=15.521$, p=0.000; $X^2(2,629)=6.307$, p=0.043). These rates were even higher for the communities with prolonged (10 years) self-government experience ($X^2(1,607)=16.813$, p=0.000; $X^2(1,629)=8.233$, p=0.004). Communities with higher proportions of citizens on short periods of income support also had higher rates of *no suicidal thoughts* and *no suicide attempts* ($X^2(1,607)=11.297$, p=0.001; $X^2(1,629)=7.460$, p=0.006).

In the *community engagement domain*, characteristics representing services, programs and resources[32] in the community were examined. The results of the Chi-square tests revealed that communities offering alcohol & drug treatment ($X^2(1,607)=13.575$, p=0.000; $X^2(1,629)=5.662$, p=0.017), mental health treatment ($X^2(1,607)=17.029$, p=0.000; $X^2(1,629)=16.573$, p=0.000), smoking cessation programs ($X^2(1,607)=12.127$, p=0.000; $X^2(1,629)=9.566$, p=0.002) and characterized by the presence of an alcohol and drug treatment facility ($X^2(1,607)=16.616$, p=0.000; $X^2(1,629)=12.063$, p=0.001) and more recreation facilities ($r_s=0.116$, p=0.004; $r_s=0.095$, p=0.018) had significantly higher rates of *no suicidal thoughts* and *no suicide attempts*. Higher rates for both *non-suicide outcomes* were also present in communities which offered suicide awareness to their youth ($X^2(1,607)=12.127$, p=0.000; $X^2(1,629)=9.566$, p=0.002) and who invited their youth to have input in Chief and Council decisions ($X^2(1,607)=21.107$, p=0.000; $X^2(1,629)=13.714$, p=0.000). In addition, suicidal thoughts were also less common in communities which offered FASD assessment/diagnosis services ($X^2(1,607) = 4.235$, p=0.04) and who ensured equal gender representation in Chief and Council decisions ($X^2(1,607)=5.257$, p=0.022). In communities with alcohol & drug counselling ($X^2(1,629) = 7.017$, p=0.008), diabetes management ($X^2(1,629) = 8.153$, p=0.004) and youth alcohol & drug awareness programs ($X^2(1,629) = 4.917$, p=0.027) there were higher rates of *no suicide attempts*. Interestingly, analysis of several community variables showed a reversal of these differences: rates of no suicidal thoughts were lower in communities offering adult education ($X^2(1,607)=5.366$, p=0.021), suicide prevention ($X^2(1,607)=7.733$, p=0.005), regular youth events ($X^2(1,607)=7.228$, p=0.007) and youth mentoring programs ($X^2(1,607)=11.600$, p=0.001).

[32] Not only related to adults, but to all age-groups in the community. According to the conceptual framework of this study age groups can not be examined in isolation: the inclusion of elders, adults, youth and children into community services and activities is a sign of a healthy community.

For the *cultural continuity domain*, the following differences stood out: communities characterized by the presence of a traditional justice system ($X^2(1,607)=16.616$, p=0.000; $X^2(1,629)=12.063$, p=0.001) and employee language policies ($X^2(1,607)=16.616$, p=0.000; $X^2(1,629)=12.063$, p=0.001) had significantly higher rates of individuals who had reported *no suicidal thoughts* or *no suicide attempts*. Communities fortunate to have a cultural centre also had higher rates of *no suicide attempts* ($X^2(1,629)=5.756$, p=0.016). In contrast, rates of individuals reporting *no suicidal thoughts* or no *suicide attempts* were lower in communities in which a traditional healer was stationed ($X^2(1,607)=27.14$, p=0.000; $X^2(1,629)=20.519$, p=0.000) and who had traditional ceremonies ($X^2(1,607)=13.575$, p=0.000; $X^2(1,629)=5.662$, p=0.017). This finding is similar to that for individual-level characteristics (see Table 24), indicating that respondents who identified no suicidal thoughts or no suicide attempts were less likely to have reached out for help from traditional healers. The community traditional healing characteristics therefore follow the same trend as the individual traditional characteristics examined in Chapter Five. In Chapter Seven (p.111-113), consultations with traditional healers are further discussed. In general, however, the community characteristics that were associated with high rates of *no suicidal thoughts* and *no suicide attempts* were those related to smaller population size and remoteness characteristics, higher social income support independence and the possession of multiple programs/services targeted at children, youth and adults. Few cultural continuity characteristics stood out in the comparison. A possible reason might be that Yukon First Nations communities have made very similar efforts to revive their traditional languages, maintain the harvest and consumption of traditional foods and involve elders in decision making.

## Differences between Communities with Highest and Lowest Rates of Non-Suicide Outcomes

The preceding analysis in Chapter Five and in the section above included nine communities. In order to further the search for community-level characteristics that are associated with overall well-being, I then decided to examine how the communities with the two extremes in rates of *non-suicide* outcomes differed from each other. The examination of the two extremes was attractive because the preceding analyses with all the communities included revealed that most communities are quite similar in their characteristics. An examination of the two extremes could reveal other characteristics of interest which could help explain differences in the rates of the *non-suicide* outcomes. Two communities were immediately identified: one with the highest rate of *non-suicide* outcomes and the other with the lowest. First, scores of the 40 individual-level characteristics presented in Table 6 were compared for the community with the highest rate of *non-suicide* outcomes and the community with the lowest rate. Chi-square tests were executed to identify which individual level characteristics differ from community to community. Table 26 presents the individual-level characteristics that were significantly different between the communities.

Table 26
*Pearson Chi-Square Results of Differences in Individual-level Characteristics between the Communities with Highest and Lowest Rates of Non-Suicide Outcomes*

| Community | Highest absence[a] | Lowest absence[a] | | |
|---|---|---|---|---|
| Individual-level characteristics by domain | Group% | group% | $X^2$value | p-value |
| **Cultural practices** | | | | |
| Speaks Yukon language | | | 4.284 | 0.038 |
| None | 38.1 | 56.9 | | |
| One or more | 61.9 | 43.1 | | |
| Shares traditional food | | | 6.561 | 0.010 |
| Never | 4.8 | 20.4 | | |
| Sometimes/often | 95.2 | 79.6 | | |
| Uses traditional medicine | | | 11.447 | 0.001 |
| No | 19.0 | 48.2 | | |
| Yes | 81.0 | 51.8 | | |
| **Physical** | | | | |
| Has chronic condition | | | 6.054 | 0.014 |
| No | 60.3 | 37.9 | | |
| Yes | 39.7 | 62.1 | | |
| **Emotional** | | | | |
| Achieves emotional balance | | | 7.307 | 0.007 |
| Almost none/some of the time | 12.7 | 33.3 | | |
| Almost all/most of the time | 87.3 | 66.7 | | |
| **Mental** | | | | |
| Achieves mental balance | | | 9.098 | 0.003 |
| Almost none/some of the time | 9.5 | 31.6 | | |
| Almost all/most of the time | 90.5 | 68.4 | | |

| Table 26 *continued* Community | Highest absence[a] | Lowest absence[a] | | |
|---|---|---|---|---|
| Individual-level characteristics by domain | Group% | group% | $X^2$value | p-value |
| **Available support** | | | | |
| Doctor transport | | | 8.128 | 0.004 |
| Almost none/some of the time | 11.3 | 33.3 | | |
| Almost all/most of the time | 88.7 | 66.7 | | |
| Affection | | | 15.735 | 0.000 |
| Almost none/some of the time | 3.2 | 30.2 | | |
| Almost all/most of the time | 96.8 | 69.8 | | |
| Someone to confide in | | | 7.524 | 0.006 |
| Almost none/some of the time | 19.4 | 43.1 | | |
| Almost all/most of the time | 80.6 | 56.9 | | |
| Enjoyment | | | 12.569 | 0.000 |
| Almost none/some of the time | 6.5 | 32.1 | | |
| Almost all/most of the time | 93.5 | 67.9 | | |
| **Residential school** | | | | |
| Participant went | | | 13.388 | 0.000 |
| No | 85.7 | 55.4 | | |
| Yes | 14.3 | 44.6 | | |
| **Education** | | | 9.289 | 0.002 |
| Has less than High school | 36.1 | 12.1 | | |
| Has more than High school | 63.9 | 87.9 | | |

[a] *of suicidal thoughts and suicide attempts*

These scores show that the community with the highest rate of *non-suicide* outcomes has been more successful in keeping ties to its traditional roots through greater fluency in traditional language, use of traditional medicine and sharing of traditional food. The members of this community also feel more physically, emotionally and mentally healthy in comparison to the community with the lowest rate of these two outcomes. Residential school attendance is strikingly different: the community with the highest rates of *non-suicide*

outcomes has significantly fewer members who reported that they went to residential school. Interestingly, the community with the lowest rate is characterized by a higher number of respondents who completed more than high school education.

The following individual-level characteristics were not statistically different between the two groups as their presence in the communities was very similar: wild meat and fish consumption, traditional healer consultation, importance of traditional culture, traditional spirituality and religion, physical, and spiritual balance, racism, having someone to count on for help and to give you a break, having parents who attended residential school, and employment. Next, the community level variables from the ecological survey (Table 6) for the communities with the highest and lowest rates of *non-suicide* were examined to explore whether the two communities differed on many characteristics. The differences are presented in Table 27.

Table 27
*Pearson Chi-Square Results of Differences in Community Characteristics between the Communities with Highest and Lowest Rates of Non-Suicide Outcomes*

| Community | Highest absence[a] | Lowest absence[a] |
|---|---|---|
| Community characteristics[@] by domain | | |
| **Community control** | | |
| Prolonged self government experience | Yes | No |
| FN citizens on brief income support | 93.3% < 1 year | 61.2% >4 years |
| **Community engagement** | | |
| FN has Aboriginal Headstart & preschool program | Yes | No |
| FN has adult education program | No | Yes |
| FN has transition home | No | Yes |
| FN offers Alcohol & drug counselling and treatment | Yes | No |
| FN offers Alcohol & drug treatment program | Yes | No |
| FN has Alcohol & drug treatment facility | Yes | No |
| FN offers diabetes management | Yes | No |
| FN offers suicide prevention | No | Yes |

| Table 27 *continued* Community | Highest absence* | Lowest absence* |
|---|---|---|
| Community characteristics[@] by domain | | |
| FN offers mental health treatment | Yes | No |
| FN has shelter | Yes | No |
| FN has youth centre | No | Yes |
| FN has youth alcohol & drug awareness program | Yes | No |
| FN has youth suicide awareness program | Yes | No |
| CC receives youth input | Yes | No |
| **Cultural continuity** | | |
| FN has employee language policy | Yes | No |
| FN has cultural centre | Yes | No |
| FN has healer stationed in community | No | Yes |
| FN has a traditional justice program | Yes | No |

*Note*. @All presented characteristics have a X2>16 and a p-value of 0.000.
[a] of suicidal outcomes.

Unsurprisingly, the results of the analysis of the two extreme communities are somewhat similar to those of the analysis which included all nine communities (see Table 25): sixteen of the twenty-seven community-level characteristics identified in the analysis of all nine communities were also identified in the analysis of the two extreme communities. However, the comparison between the two extremes did reveal four community-level characteristics that had not varied between communities when all nine communities were included in the analysis: the community with the highest rate of *non-suicide* outcomes differed from the community with the lowest rate by the presence of an Aboriginal Headstart program and a shelter, and the absence of a youth centre and a transition home. This would indicate that besides the nature of the program, the number of the programs could be a determining factor.

Similar to the findings of Chandler and Lalonde (1998), this study shows that higher rates of *non-suicide* outcomes were found in the community that had had the longest experience with self-government. The First Nations government in this community appears to have more successfully implemented programs that work towards greater overall well-being in the community. This result could well be related to self-governance: through PSTAs, self-governing First Nations have responsibility for the delivery of up to ten health services. These arrangements give them more flexibility in the design and implementation of programs and services that are culturally appropriate and meet the needs of their citizens.

Lastly, the community with the highest rate of *non-suicide* outcomes was characterized by more connections with traditional culture. Of the four community-level characteristics that were different between the two extreme communities, three of these characteristics: cultural centre, employee language policy and traditional justice program, were present in the community with the highest rate of *non-suicide* outcomes, while only one characteristic, existence of a traditional healer in the community, was present the community with the lowest rate. As with self-governance, it appears that greater efforts or experience with programs to promote connection with traditional culture is positively correlated with the outcome measures.

**Summary Comments**

With some exceptions, these findings support the conclusions reached by Chandler (2007; Chandler & Lalonde, 1998; Chandler, Lalonde, Sokol, & Hallett, 2003) that low rates of suicide are found in communities that have been successful both in preserving some sense of connection to and ownership of their traditional past, and in gaining some civil control over their future through self government. Communities with higher well-being outcomes are

also characterized by smaller population size and remoteness characteristics, higher social income support independence, and the possession of multiple programs/services targeted at children, youth and adults. Few cultural continuity characteristics stood out in the present study. A possible reason might be that Yukon First Nations communities are very similar in their efforts to revive their traditional languages, maintain the harvest and consumption of traditional foods and involve elders in decision making. As noted in the discussion of the use of traditional healers, this connection to the traditional past appears to be negatively correlated with the outcome measure. Whether this finding is accurate is perhaps open to debate. As will be discussed in the next chapter, further research on this point may help clarify the role of traditional healers in overall well-being.

According to the findings in the present study, the community that achieved greater political control had the lowest rate of individuals who had thought of or attempted suicide. This community was also the most inclusive in its governance as it included elders, women and youth councils.

# CHAPTER SEVEN

# DISCUSSION AND CONCLUSION

This chapter summarizes the study and the overall findings. First, the findings are discussed in light of the research questions and current literature, followed by a culturally informed discussion of what the findings mean. The effectiveness of the outcome measures in this study is also examined. The limitations of the study are presented, followed by the implications for practice and policy. Recommendations for future research and summary comments close out the chapter.

## Overview of the Study

The primary purpose of this study has been to analyze some of the multilevel characteristics that enhance the overall well-being of Yukon First Nations people. The following research questions were created: (1) what are the specific individual-level characteristics that can be identified that are associated with overall well-being? And (2) what specific community-level characteristics can be identified that are associated with overall well-being?

To answer the research questions, selected variables from the Yukon Adult RHS data-set (individual-level characteristics) and the ecological variable survey (community-level characteristics) underwent a sequence of bivariate and multivariate comparisons to explore associations with the outcome measures (*no depression*, *no suicidal thoughts* and *no suicide attempts*). Logistic modeling was only possible for assessing the unique contributions of the individual-level characteristics.[33] Before moving to discuss the results of the analysis, the conceptual framework used in this study is revisited below.

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[33] Community-level characteristics came from only nine communities. Logistic regression was not feasible with these variables because of the small sample size and collinearity problems.

## Conceptual Framework Revisited

As shown on page 4, the conceptual framework in this study centered on the following elements: determinants of health; resilience; resistance; Indigenist perspective; community control, community engagement, cultural continuity and a Yukon First Nations holistic view of health. The individual- and community-level characteristics under investigation were selected because the literature on determinants of health; resilience; resistance; community control, community engagement and cultural continuity identified them as important for health and well-being. The Yukon First Nations context necessary for a decolonized interpretation was provided by the personal experiences of Yukon First Nations people as recorded in documentaries, life stories and meetings. The analysis was undertaken from within an "indigenist" perspective, which has been described by Walters et al., (2002, p.S105), as recognizing the colonized position of Indigenous people living as minority populations within a nation-state, while advocating for empowerment and sovereignty in a post-colonial world. The strength-based and collaborative approach of this study and implementation of OCAP fit with the indigenist perspective and also speak to the application of resistance in research. All the elements of the framework are therefore incorporated in the analysis. The following sections present the analysis and the conclusions that can be drawn from it.

## Research Question One: Individual-Level Characteristics Associated with Overall Well-being

The outcomes *no depression,*[34] *no suicidal thoughts,*[35] and *no suicide attempts,*[33] were used as measures for overall well-being. The analysis identified a set of seventeen individual

[34] No instances of feeling "sad, blue or depressed" for two consecutive weeks in a row in the year prior to the survey.

characteristics having a significant association with the outcome measures. There was considerable overlap between the outcome measures, as some characteristics were correlated with more than one outcome measure, indicating a broad holistic effect upon well-being. The associations and the overlap are shown schematically in Figure 3.

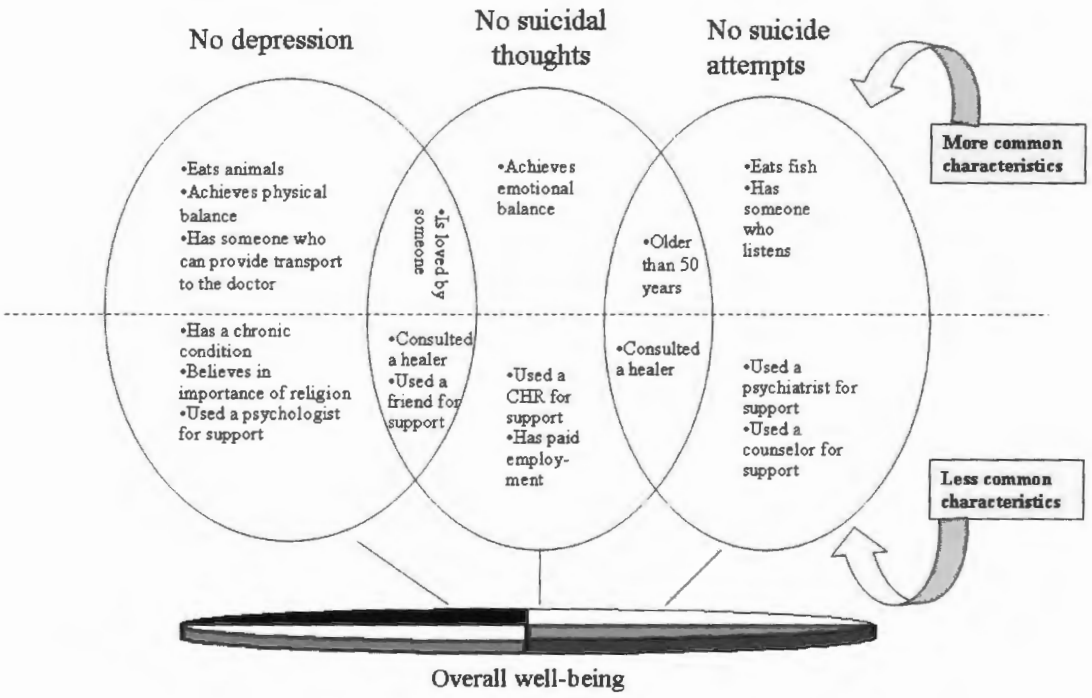


Figure 3. Associations and Overlap between Individual-Level Characteristics and Outcome Measures

These individual characteristics could be traced back to the four dimensions of the Yukon First Nations definition of well-being: physical, mental, spiritual and emotional. Again there is significant overlap, as one characteristic may fit within more than one dimension of the wheel. For ease of discussion, and to explore how the individual-level characteristics have an impact on overall well-being, they have been grouped as follows:

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[35] During life

*traditional foods* (eats fish; eats animals); *modern and traditional health care* (mental health services; traditional healers; CHRs); *emotional supports and loving relationships* (achieves emotional balance; is loved by someone; uses a friend for emotional support; has someone who listens); spirituality (believes in importance of religion); *physical well-being* (achieves physical balance; has a chronic condition); and socio-economic characteristics (age; paid employment). See Figure 4.


Figure 4. Conceptual Framework with Individual Characteristics Specified

*Traditional Foods*

The results of this study indicate that the regular consumption of land-based animals is positively associated with absence of depression, and the regular consumption of fish with the absence of suicidal thoughts. These findings make a great deal of sense given the important roles these foods continue to play in the overall well-being of Yukon First Nations. They provide important support for what many First Nations people believe is essential to their existence: not only the consumption and preservation of traditional foods, but also the time itself that is spent being out on the land. Fish and animals provide quality nutrients important for health, important year-round social, cultural, spiritual and economic benefits, and opportunities for physical activity. For example, fish is a substantial traditional staple and many traditions have evolved around it. The fishing harvest brings families and clans together, provides opportunities for spiritual sustenance as people are out on the land, and strengthens bonds through food sharing. The fish cycle gives people direction in their lives as they follow the rivers for salmon in the fall, go out on the ice for pike in winter, catch grayling of lake outlets in the spring, and net lake trout in the summer (DAC, 2007a).

Although the nutritional qualities of land-based animals are different from those of fish, this source also provides many important nutrients and has the same important non-nutritional benefits as those mentioned for fish. Interestingly, respondents who had not been recently depressed not only ate land-based foods more frequently, but also were more likely to feel in physical balance. The consumption and harvest of country foods might well have an effect on well-being, as many First Nations people have commented on how good they feel physically and emotionally when they are out on the land. Having fish or meat also provides economic benefits and independence: with these foods - dried, fresh or frozen - people can

reduce their reliance on market foods. A recent study concluded that people on social assistance or with low incomes cannot afford a basic diet of store-bought foods as the costs would exceed their income (CYFN, 2007). In addition, DAC members identified that people feel comfort and pride when they are not hungry or needy (2007a). Similar feelings of competence and being able to hold onto a positive self-image have been identified in the literature as key factors in resilience (Nichol, 2000).

It is not clear how employment affects access to traditional foods. Nadasdy (2000) observed that First Nations citizens with full-time office jobs have less time available to get out on the land. Climate change has also been identified as a threat through its impact on wildlife migratory routes causing unfamiliar animals, such as deer, to arrive in the territory and familiar ones to change their usual mobility patterns in search of food and shelter (CYFN, 2007). Given the many benefits that are associated with the harvest and consumption of traditional foods, the results of this study provide support for its continued access and preservation.

*Modern and Traditional Health Care*

This section discusses the individual-level characteristics that relate to modern and traditional health care. For ease of discussion, modern and traditional health care is further sub-divided into mental health services, traditional healers and Community Health Representatives (CHRs).

*Use of Mental Health Services*

This study found that it was more common for respondents with depression, suicidal thoughts or suicide attempts to seek support from designated mental health experts.[36] Yukoners who have been diagnosed with a mental health disorder have access to Mental

[36] according to the western model

Health Services, a program of the Government of Yukon which provides assessment, treatment, case management, consultation, referral and support services to persons with a diagnosable mental health problem. The department also funds Yukon Family Services Association (a non-governmental organization) to provide counselling services. Through either Mental Health Services or Yukon Family Services Association, each community outside of Whitehorse has a clinical counsellor who may provide direct clinical services, or be the first point of contact for individuals wishing to access a range of mental health or counselling services. Both services are available to any individual in Yukon who is deemed eligible.[37] Mental Health Services also manages (on behalf of the Non-Insured Health Benefits Program of Health Canada) referrals to private psychologists for short-term crisis intervention services. This program is available only to Status First Nation people. Up to 12 sessions may be approved with a renewal for up to 6 more sessions. Mental Health Services does not employ either psychologists or psychiatrists but contracts with individual psychologists and psychiatrists for services. Again, these services are available upon referral from Mental Health Services. Psychiatric services are also available upon referral by a general practitioner (M. Fast, personal communication, April 25, 2007).

In light of the above information, the higher numbers of consultations for respondents with depression, suicidal thoughts and suicide attempts are therefore likely a reflection of the fact that these people indeed had diagnosed "mental health" issues and were referred through the territorial health system. However, DAC members believe that there is a great shortage of mental health professionals in the Yukon and that there are long waiting lists for the services. They also believe that it is difficult for Yukon First Nations people to distinguish between

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[37] i.e., there is no residency requirement, and there is no difference in the services available to individuals of First Nations or non First Nations ancestry

psychologists and psychiatrists and that many people will not readily seek out and engage such professionals (DAC, 2007a). The issue does not appear to be primarily financial: it is more about cultural accessibility, cultural relevance and cultural safety (Anderson et al., 2003; Browne & Smye, 2005; Browne, Smye, & Varcoe, 2005, Gaudette et al., 1996; Health Commission, 2006). Although increasing attention is being paid across Northern Canada to cultural aspects of health and health care, interventions offered by federal and territorial governments continue to focus on Western understandings of health and illness. They are strongly influenced by psychiatry with its attachment to biomedical traditions and individualistic approaches to treatment, and maintain the unequal relations of power between the provider and recipient of services. The concept of cultural safety acknowledges the health beliefs and practices of different ethno-cultural groups, as well as individual and institutional discrimination and the dynamics of health care relations in the post colonial context, and addresses inequities in power relationships between the service provider and the people who use the service. Based on the results of this study, I support the view expressed by the DAC (2007a) and CYFN Health Commission (2006) and by other researchers (Browne & Smye, 2005; Browne, Smye, & Varcoe, 2005, Gaudette et al., 1996; Papps & Ramsden, 1996) that effective services can only occur with cultural safety, which implies First Nations control and involvement in the design and delivery of mental health services.

*Traditional Healers*

Consultations with a traditional healer were also twice as common for those who indicated problems with depression, suicidal thoughts or attempted suicide. An important feature of the traditional healer practice is active participation by the person seeking the service and the healer's spirit helpers (Letendre, 2002; Morse, Young, & Swartz, 1991).

Traditional healers delivered important health services in the past (CYFN, 2006), but no research regarding current access to and use of their services in the Yukon was found. According to DAC members, traditional healers are not as easy to find today as in the past, and consulting with them is a very private and sacred matter, one that people keep to themselves. They believe that bringing detailed information about the traditional healing practices into the public domain will reduce the powers of the healer and therefore is not appropriate (DAC, 2007). It appears that the decision to consult a specific traditional healer is influenced by many factors other than access. Testimonies from DAC members revealed that some First Nations people will travel large distances to see a recommended healer,[38] so not having a healer in the community is not necessarily a reason for not consulting one. The desire and urgency to see a healer, together with the recognition of the healer's expertise, also play a role. Furthermore, there is not always consensus about who is considered a healer and how their services should be rewarded. Elders in the DAC believe that the healing powers that "true" traditional healers have are gifts from the Creator and cannot be taught. In addition, true healers do not ask for money in return for services. Rather, they are thanked with whatever their patients choose to give (CYFN, 2006c; 2007b). The differences in needs, access, expertise and how people appreciate healers all seem to be factors that determine their use. Depending on how these factors play out, traditional healers appear to play a more important role in the well-being of some individuals as compared to others. Given the cultural sensitivity and taboos related to discussion of traditional healers, research related to the use of traditional healers may encounter resistance. Under the guidance of the DAC, it might be feasible to develop a methodology that could provide more information, clarifying

[38] NIHB will cover travel costs to a traditional healer within the Yukon only and only for requests that fit their eligibility criteria (M. Stewart, personal communication. April 19, 2007).

the role of traditional healers not only in helping those suffering from depression, suicidal thoughts or suicide attempts, but also in helping others resist those conditions.

*Community Health Representatives*

People who had thought about suicide had an increased likelihood of contact with a community health representative (CHR). In 1962, the Medical Services branch of Health and Welfare Canada (now First Nations and Inuit Health Branch [FNIHB]) instituted the CHR program, primarily for First Nations and Inuit communities that had restricted or no access to medical treatment or public health services. The CHR's primary role was the sustained promotion of well-being, the protection of health and the prevention of injury and illness, especially for "status Indians" in communities that had no nurses or high nurse turnover (McCulla, 2004). The advent of self-government has changed things significantly. In ten out of the eleven self-governing Yukon First Nations, the CHR position either no longer exists or has changed. Depending upon the individual arrangement under which they are now employed, CHRs have different roles and in some cases have taken on different titles, such as community wellness worker. Still, there are 15 CHRs or community wellness workers in the Yukon and they are important health care providers in the communities (DAC, 2007). The finding that they are more commonly seen by people who reported suicidal tendencies confirms that the CHRs/community wellness workers are filling a need.

*Emotional Supports and Loving Relationships*

The literature emphasizes the importance of a supportive environment and the need to be loved (Bloom, 1990; Hertzman, 2000; Northern Native Broadcasting Yukon, 2001). The finding that the *no suicide attempts* group was more likely to have someone who would listen to them when they needed to talk provides support for the protective influence of friends and

other supporters. Evidence for the benefits of a greater support network and the roles different forms of support play in achieving well-being could also be found in the fact that the *no depression* group was more confident that they could count on someone to take them to the doctor in time of need. This study therefore clearly shows that those without depression, suicidal thoughts and suicide attempts feel more loved and better supported by others. Feeling well loved and supported also most likely contributed to those without suicidal thoughts feeling more emotionally balanced. However, this conclusion must be balanced against the finding that respondents with depression and suicidal thoughts were more likely to use a friend for emotional support. This finding indicates that people other than formally recognized mental health professionals can play an important role in assisting with emotional, mental and spiritual health issues, especially in light of the identified deficiencies with current mental health services in the Yukon. It may also serve to emphasize the importance of informal support networks for those suffering from depression and suicidal thoughts. As such, it indicates that broad levels of supports are important for overall well-being.

Although elders in the DAC indicated that it was not common in the past to talk openly about love and affection, these emotions were demonstrated by grandparents who were tender caregivers of their grandchildren and by parents working hard to provide everyone in the family with food, clothing and shelter. In general, everyone looked out for each other. The DAC members believe that because of the support provided by the extended family network, problems with depression and suicide hardly existed in the past. Everyone had a clearly defined role and respected place in society (DAC, 2007). Other studies have shown that emotional and psychological support by friends and family members are

protective and resilience-enhancing characteristics that reduce the risk for poor mental health, current depression, post traumatic stress disorder and suicide attempts (Coker, Smith, Thompson, McKeown, & Davis, 2002; Elias, 2004; Nichol, 2000).

*Spirituality*

Interestingly, belief in the importance of religion came up as a more frequent characteristic for those with feelings of depression. The role of the churches in weakening and fragmenting of traditional First Nations societies may be a factor. On the other hand, this finding may well mean that for some a strong faith will provide a positive direction in life and a way to accept and deal with life's difficulties. However, DAC members pointed out that religion means many things to different people. Some might think of Christianity (CYFN, 2006) or the Bahá'í religion which, because of a prophecy and values similar to those of traditional Yukon First Nations values, has gained many followers amongst Yukon First Nations (Echevarria, 2006); others might refer to religion as the religious/spiritual ceremonies and beliefs that were an integral part of traditional Yukon First Nations life long before the introduction to western Christianity (DAC, 2007a). There is convincing evidence through research for the Yukon RHS (CYFN, 2006) and other sources (Echevarria, 2006; Halcrow, 1995; Yukon Native Broadcasting, 2001) that spirituality is a very important factor in resilience, health and healing for Yukon First Nations people.

*Physical Well-being*

Unsurprisingly, those without depression were more likely to feel in physical balance and less likely to have been diagnosed with one or more chronic health conditions. Since it is likely that the presence of a chronic health condition poses limits on what one can do in life, the limitations, frustrations or pain that arise as a result of the condition can understandably

negatively affect the achievement of overall well-being. As one elder in the DAC (2007a) stated: "feeling good in your body makes you feel good about how you feel. If you don't feel ill, you enjoy your health and it is easier to have a positive outlook in life."

*Socio-Economic Characteristics*

This study found that suicidal thoughts and suicide attempts were more common for those who were younger than 50 years of age during the survey, and again, the literature supports these findings (Elias, 2004; Kirmayer et al., 2000). Brenda Elias (2004, p. 279) suggests that this finding may suggest what she calls survivorship,[39] or a resilience that is not fully understood. DAC members also supported this notion and emphasized that it takes maturity and life experience to achieve overall well-being (DAC, 2007a).Those who indicated that they were working for pay at the time of the survey were more likely not to have feelings of depression, but were also more likely to have had suicidal thoughts during their lives. These findings are difficult to reconcile. Because of the wording of the survey questions, it is unclear if absence of depression or presence of suicidal thoughts coincided with the times respondents were or were not employed. The Yukon RHS results (CYFN, 2006) revealed a high rate of adult unemployment, especially in the more remote communities where employment options are limited. Both employment and unemployment have been found in other studies to be risk factors for mental health related conditions such as depression and suicide. This is not surprising, as there are many factors that would make a job enjoyable or stressful. In order to make more sense out of these results, more specific information is needed, such as type of job, job satisfaction, job stress, job and financial security. Questions that focus on these details would be recommended for other research that explores the relationship between employment and health.

[39] Survivorship is not defined by Elias (2004)

*Individual Characteristics: Summary Comments*

In summary, these results seem to show that many respondents in this study who had experienced depression, suicidal thoughts, or suicide attempts, acted on the realization that, for their healing to advance, they had to reach out to someone with expertise in the emotional, mental and spiritual health fields. This reaching out on its own can be seen as an act of personal strength and resilience (Elias, 2004; Nichol, 2000). Similar testimonies are given in the Yukon documentaries "Our Spirits are Very Strong" and "One of Many," the Yukon RHS report and "Walking Together: Words of the Elders" (Yukon First Nations Elders' Council, 1994). These records emphasize that it often takes people quite some time to get their lives back together after experiences of significant adversity. However, through the ability to see the difficulty as a problem that can be worked on and overcome, they were able to rebuild their lives. Given the length of time it often takes to recover from adversity, it is important to note that a broad and stable support network seems to be needed to support and sustain health and overall well-being. As noted in the discussion of emotional supports and loving relationships, this study clearly shows that those without depression, suicidal thoughts and suicide attempts feel well loved and supported by others.

## Research Question Two: Community-Level Characteristics Associated with Overall Well-Being

The rates of *no depression* were very similar amongst the nine communities involved in the present study, in contrast to the rates of *non-suicide outcomes*, which varied significantly by community. The associations between the *non-suicide* outcomes and selected

community-level characteristics were therefore examined to find the community characteristics that supported overall well-being. These community-level characteristics pertained to the following domains: geographic characteristics, community control, community engagement and cultural continuity. They are shown in Figure 5 and discussed in detail below.

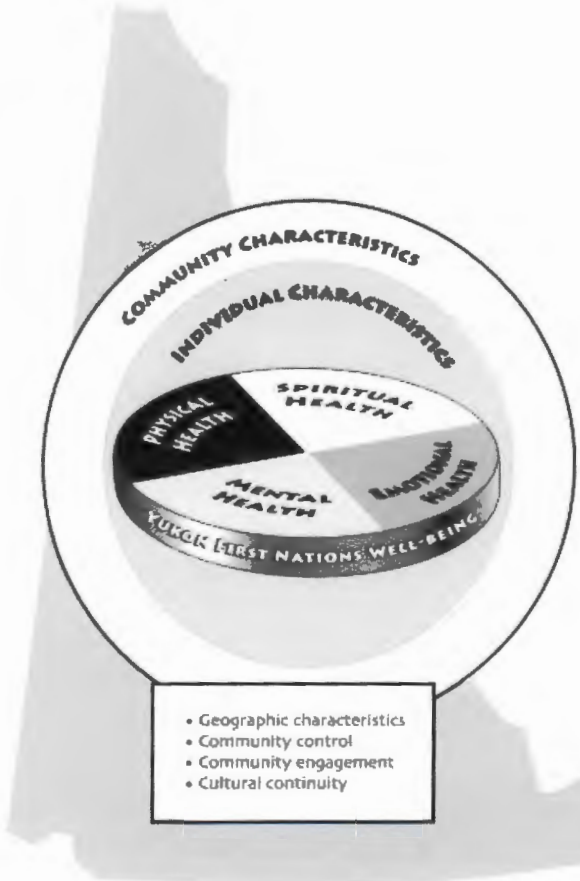


Figure 5. Conceptual Framework with Community-Level Characteristics Specified

*Geographic Characteristics*

Communities with lower rates of non-suicide outcomes were characterized by smaller population size and remoteness. In her examination of Manitoba RHS data, Brenda Elias also found that individuals from non-isolated communities were more likely to have had thoughts of suicide (Elias, 2004, p.209). In the present study, it is unclear just which distribution of

risk and protective factors in the communities might explain this finding. Smaller and more remote communities might be less exposed to the erosion of traditional languages, cultural traditions and community cohesion and to the influx of alcohol and drugs, which are more easily accessed in more urban areas. On the other hand, community funding formulas are based on population size, favouring larger communities by providing them with more funds and resources. More specialized health services generally are also only available in the larger urban centres. For example, comprehensive hospital services in the Yukon territory are located only in the capital. In addition, other studies have demonstrated that poverty is significantly correlated with suicide (Bagley, 1991; Cooper, Corrado, Karlberg, & Adams, 1992). It is not clear from this study how urban status affects socio-economic characteristics. In general, more jobs exist in the urban areas. However data from the RHS indicate that unemployment is high in both towns and communities, so the results are non-conclusive.

*Community Control*

According to the findings in the present study, the community that achieved greater political independence and control over social assistance programs had the highest rate of *non-suicide* outcomes. This community was also the most inclusive in its governance as its Chief and Council received input from Elders, women and youth. As a group, the communities that had the longest self-government experience in the Yukon also had the highest absence of suicidal outcomes. These findings support the conclusions reached by Chandler and Lalonde (Chandler, 2007; Chandler & Lalonde, 1998; Lalonde, 2005) that low rates of suicide are found in communities that have been successful in gaining some civil control over their future through self-government. Other than the work of Chandler and

Lalonde, there is little research evidence about the relationship of *non-suicide* outcomes and self-determination.

*Community Engagement*

Higher rates of *non-suicide* outcomes were found in communities with higher numbers of multiple programs/services focused on different aspects of overall well-being and targeted at children, youth and adults. The characteristics that were studied were limited to the questions in the ecological variable survey, which emphasized existing programs and infrastructure in the community. A limitation was that only a tally was made of existing programs and resources. There was no information regarding the content or quality, appreciation of the services/resources by users, frequency of use, how much of the targeted audience was reached, or how well the services met community needs and expectations. Communities may appear similar in the types of programs they have, but how these are run in practice and what they offer can be quite different from community to community. Chandler and Lalonde compared First Nations youth suicide rates by presence of self-government, land claims, education, health services, cultural facilities and police and fire services. Communities with three or more of these characteristics present experienced substantially fewer suicides. In this study, all the communities in question had a slightly different range and number of services to offer; but as was mentioned above, Chandler and Lalonde's findings were supported as those communities with slightly more resources and services had significantly higher rates of *non-suicide* outcomes.

*Cultural Continuity*

Three cultural continuity factors stood out in the present study: traditional justice programs, employee language policies, and traditional healers. Communities with traditional justice programs or employee language policies had higher rates of *non-suicide* outcomes. Similar to the analysis with individual factors, however, the association between traditional healer services in the community and *non-suicide* outcomes was reversed: communities without traditional healers had higher rates of *non-suicide* outcomes. A possible reason for the low number of factors in this domain that were significantly associated might be that Yukon First Nations communities are very similar in their efforts to strengthen their cultural identity. For example, all Yukon First Nations communities have traditional language programs, involve Elders in decision making and, although to a lesser level than in the past, maintain the harvest and consumption of traditional foods (ecological survey data). Wilson and Rosenberg (2001), who had hypothesized that engaging in traditional land use activities may predict better health status amongst Canadian First Nations peoples, also found no statistically significant relationships between these outcomes. More detailed information regarding programs/resources (and their success) related to cultural continuity may be needed to demonstrate and explain differences in health outcomes between communities.

## Usefulness of Outcome Measures

This study operated from the assumption that Yukon First Nations people have developed strength to transcend significant past and current adversity. It assumed that respondents who had not reported any feelings of recent depression, had no suicidal thoughts and had not attempted suicide during their life-time would be more likely to have achieved overall well-being. The analysis in the present study, however, made it clear that the three

outcome measures each represented different groups of individuals. They are characterized by the presence of different predictors. This may in part be related to the fact that the measures spanned different time periods: *no depression* referred to the year prior to the survey only, whereas *no suicidal thoughts* and *no suicide attempts* referred to the respondents' lifetimes. As a consequence, the *no suicidal thoughts* and *no suicide attempts* groups might have been too restricted: the control group (those who were coded "0" in this study, referring to the individuals who had indicated suicidal thoughts and suicide attempts) included respondents who had recently thought of suicide or tried to commit it, but also those who had done so long ago. As observed by the review of resilience research, it may be expected that the respondents who had these experiences long ago have since then overcome these experiences and grown stronger from them. By the time of the survey these respondents may well have achieved good overall well-being, in contrast to respondents who at the time of the survey were still struggling with suicidal thoughts and had tried to commit suicide. Very likely, therefore, some of the characteristics that were found to be negatively associated with overall well-being may in fact be indications of positive efforts by those who have thought about or attempted suicide in the past to heal themselves and prevent the occurrence of these incidents in the future.

Furthermore, the rates of *no depression* were very similar amongst the nine communities involved in the present study, in contrast to the rates of *non-suicide* outcomes, which varied significantly by First Nations community. Only the associations between the *non-suicide* outcomes and selected community-level characteristics could therefore be examined to find the community-level characteristics that influenced these outcomes. Hence, the *no depression* outcome was a good measure to find individual-level characteristics that

supported overall well-being, but not for community-level characteristics. However, the use of the three outcomes did lead to the identification of a broad range of health-promoting characteristics consistent with the Yukon First Nations definition of well-being.

**Study Limitations**

A number of limitations to this study should be discussed. First, the analyses performed in this study were shaped and confined by the data-set available. Although the Yukon portion of the RHS is the largest Yukon First Nations data-set available to date, the analyses that could be undertaken were limited because of the sample size, which included just 673 cases and 9 communities. Next to Nunavut, the Yukon is Canada's smallest jurisdiction and represents less than 0.1% of Canada's population (there are approximately 30,000 people in the Yukon, of which about one quarter is of First Nations Ancestry). The population size we had to work with poses inherent statistical limitations because of the small numbers. The sample studied represented an estimated 26% of the First Nations people living in Yukon communities, including the Yukon capital, and included both status and non-status people. Although this was a great achievement, the data-set was too small in size for a multi-level analysis, and the stratified analysis that was performed was limited to the variables that had sufficient cases in the "absence" and "presence" of condition categories. Small sample sizes also reduce the ability of regression analyses to detect differences. For both the stratified bivariate analyses and the regression analyses, it is difficult to determine whether the non-significant differences were a true effect or the result of inadequate statistical power.

In addition, despite its well-documented negative impact on health, residential school experiences did not come out as a significant health-influencing factor in this study. The

residential school attendance variables were left out of the analysis because of the relatively large number of missing cases in the residential school questions of the Yukon RHS adult survey. It is difficult to determine whether this was related to the fact that the survey questions related to residential school and emotions were at the end of the survey and therefore affected by interviewer and interviewee fatigue, or if it was related to the sensitivity of the topic. Finding the right balance between type and number of questions to ask in a survey, and then wording them invitingly and clearly is an art in itself. Depending on the sensitivity of the issue and the detail that is needed for certain topics such as residential school trauma, it might be wise to consider smaller-scale qualitative research or mixed methods approaches in future research.

This study attempted to identify characteristics that enhance the overall well-being of Yukon First Nations people based on survey information that was largely problem-focused - the RHS was not designed to comprehensively measure the broad range of protective factors that individuals and communities have developed to achieve overall well-being. To move away from a deficit perspective it seems timely for health survey research to expand the questions that relate to the range of characteristics that affect well-being to those that also include feelings of happiness, belonging, pride and strength.

**Implications/Recommendations**

It is clear that there are still many questions about the causal relationship between well-being and factors associated with it. In order to better understand and subsequently promote the roles individual-level and community-level characteristics play in health and well-being, it is important to truly involve First Nations in research and planning, as they are the experts and authorities on their health, experiences, and beliefs. Therefore, more

collaborative mixed-methods research directed by First Nations people themselves, involving them in every step, and using both quantitative and qualitative measures, will be needed to find more satisfying answers.

This study confirms that there is a message of hope. Although there are differences in individual and community situations, the following characteristics stand out as promoting well-being: revival of spirituality; revival and knowledge of traditions and pre-contact history; access to opportunities for learning; access to traditional and culturally safe health services; availability of community programs that address all aspects of holistic health; loving relationships and emotional support; and access to traditional foods and self-government. Overall well-being will not be easily attained, as adversity and challenges abound. It will take time, skills, resources and the sustained broad support of others.

In comparison to the rest of the country, Yukon First Nations are advanced in their achievement of self-government. This study showed that prolonged self-government experience was associated with reduced rates of suicidal thoughts and attempts. In the years that have gone by since the data-collection for this survey took place, more Yukon First Nations have implemented self-government agreements and taken over responsibility for programs and services previously implemented by the federal and territorial governments. It would be worthwhile for future studies to explore how increased control over programs and resources is impacting health outcomes. Also, this study identified strong negative associations between overall well-being, Western mental health services, and traditional healers Interesting research questions would be how the cultural safety of health services can be enhanced, how traditional healing services can be integrated with other health services, and whether this enhancement would result in reduced rates of chronic health conditions.

This study found that it may not only be the nature of the programs that are offered in the community, but also the number of them, that determines community differences in well-being. More research related to types and features of programs/services that are well received and appreciated in the communities and perceived to make a positive differences is needed to demonstrate impacts on well-being. Lastly, the present study confirmed the benefits of continued traditional foods harvest and consumption. Research focused on sustained access, preservation and food safety of traditional foods in the context of climate change and industrialization would also be beneficial.

**Summary Comments**

This study was a collaborative attempt to identify characteristics associated with well-being in a quantitative data-set. With current high rates of overall un-wellness, there is great potential for overall well-being to improve when individual and community level characteristics positively related to well-being can be identified and enhanced. By re-emphasizing that Yukon First Nations people are their own experts in relation to their own health and well-being and showing which characteristics have been helpful for achieving well-being, this study will, in its own small way, assist and inspire the healing momentum that currently exists.

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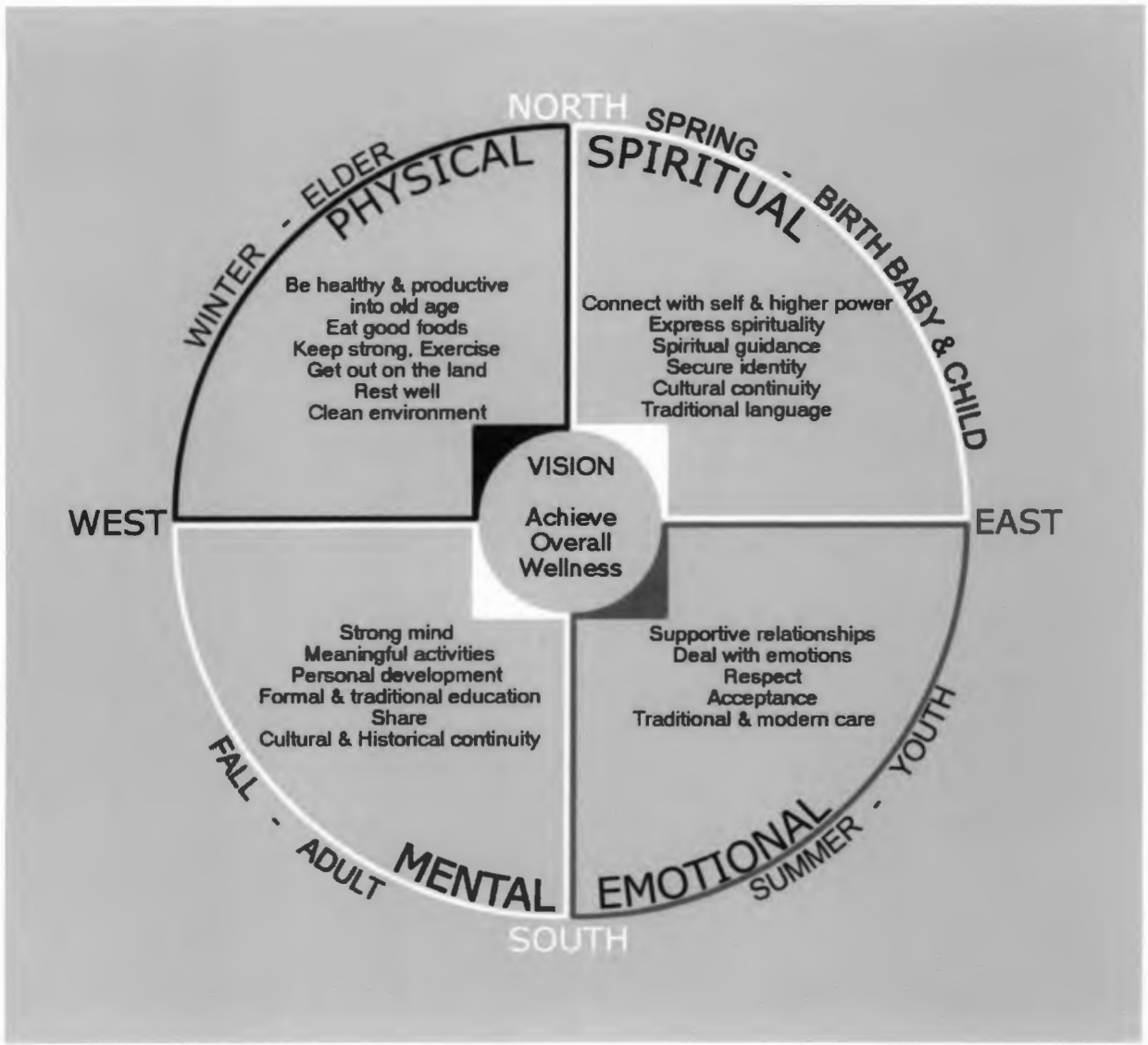
Appendix A


Traditional Territories of Yukon First Nations
and Settlement Areas of
Inuvialuit and Tetlit Gwich'in
YUKON TERRITORY
October 2005
Administrative centres of First Nations are depicted in the colour of their traditional territory. All other communities are in grey.
0 75 150 300 km
Scale 5,500,000
N
W
E
S
Vuntut Gwitchin
Fort McPherson
Tr'ondëk Hwëch'in
Dawson
Mayo
Beaver Creek
White River
Little Salmon Carmacks
Carmacks
Kaska
Ross River
Burwash Landing
Kluane
Champagne & Aishihik
Kwanlin Dun
WHITEHORSE
Teslin
Tlingit
Teslin
Watson Lake

Appendix B

Yukon First Nations Vision of Overall Well-Being




The Vision is expanded into these themes as follows

1. SPIRITUAL (quadrant 1)

- Connect with deeper self and a higher power;
- Express traditional spirituality in private through prayer and giving thanks;
- Express spirituality together in a place of worship, community circle or cultural gathering;
- Have access to spiritual guidance;
- Be secure in cultural identity.

2. EMOTIONAL (quadrant 2)

- Have someone in life to be with, to share and do things with, and to receive support from;
- Be able to deal positively with emotions, especially with negative ones such as anger, frustration, sadness and low self-esteem;
- Respect others and be respected by others;
- Accept others and be accepted by others;
- Have access to traditional and modern health care.

3. MENTAL (quadrant 3)

- Keep the mind strong by engaging in meaningful or challenging activities such as work, games, arts, crafts and other hobbies;
- Be taught in traditional language;
- Work on personal development through education (formal and traditional) and learning from others;
- Share knowledge and experiences with other First Nations members;
- Continuity with cultural and historical past.

4. PHYSICAL (quadrant 4)

- lead a useful and productive life to an old age;
- be generally physically well (not limited by health conditions);
- eat good foods;
- keep the body strong through physical exercise;
- keep the body clean from alcohol and drugs;
- get out onto the land;
- give the body sufficient rest;
- live in clean surroundings.

# Appendix C

## Declaration of Confidentiality

TOGETHER TODAY FOR OUR CHILDREN TOMORROW

**COUNCIL OF YUKON FIRST NATIONS**

11 NISUTLIN DRIVE WHITEHORSE, YUKON Y1A 3S4 TEL (867) 393-9200 FAX (867) 668-6577

**Declaration of Confidentiality for researchers who provide assistance with analysis of Yukon RHS Survey Data**

I, Helen Stappers, *understand that maintaining confidentiality is critical to the integrity of the Yukon First Nations Regional Health Survey (RHS) and of the organizations taking part in the Yukon RHS.*

*I declare that I will protect the privacy of individual respondents, communities and First Nations collectively, and maintain the confidentiality of all survey data and related information.*

*I will not without appropriate authorization disclose or make known any data or statistical outputs that come to my knowledge by reason of my work on the Yukon RHS. I will return confidential data that are not approved for distribution and that are disclosed to me by the Dissemination Approval Committee.*

| | |
|---|---|
| *Researcher Signature* | [signature] |
| *Date (MM/DD/YY)* | February 2, 2006 |
| *Witness Name (printed)* | Lori Duncan |
| *Witness' Signature* | [signature] |
| *Date (MM/DD/YY)* | February 2, 2006 |

Appendix D

UNBC Ethics Review Board Approval

# UNIVERSITY OF NORTHERN BRITISH COLUMBIA

## RESEARCH ETHICS BOARD

MEMORANDUM

**To:** Helen Stappers
**CC:** Josee Lavoie
Martha MacLeod

**From:** Henry Harder, Chair
Research Ethics Board

**Date:** March 8, 2007

**Re:** **E2007.0214.022**
Resilience and wellness in Yukon First Nations

Thank you for submitting the above-noted research proposal to the Research Ethics Board. Your proposal has been approved.

We are pleased to issue approval for the above named study for a period of 12 months from the date of this letter. Continuation beyond that date will require further review and renewal of REB approval. Any changes or amendments to the protocol or consent form must be approved by the Research Ethics Board.

Good luck with your research.

Sincerely,

Henry Harder

# Appendix E

## Collinearity Diagnostics and Variance Proportions

Table E1
*Collinearity Diagnostics "depression model"*

| | Tolerance | VIF |
|---|---|---|
| First Nations | .915 | 1.093 |
| Do you eats land based animals | .933 | 1.072 |
| Did you ever consult a traditional healer | .955 | 1.047 |
| Do you suffer from a chronic condition | .972 | 1.028 |
| Achieve physical balance | .947 | 1.056 |
| Importance of religion | .981 | 1.019 |
| SO who can take you to the doctor | .862 | 1.160 |
| SO who gives you affection | .845 | 1.184 |
| Use of friend for emotional or mental health support | .950 | 1.053 |
| Use of psychologist for emotional or mental health support | .968 | 1.033 |

Table E2
*Variance Proportions Depression Model*

| Dimension | Eigenvalue | Condition index | (Constant) | FNs | Animals | Any trad. healer | Chronic condition | physical balance | religion importance | SO who can take you to the doctor | SO who gives you affection | friend | psychologist |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.082 | 1.000 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .01 | .00 |
| 2 | .988 | 2.678 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .89 |
| 3 | .704 | 3.171 | .00 | .04 | .00 | .74 | .00 | .01 | .01 | .00 | .00 | .03 | .03 |
| 4 | .494 | 3.786 | .00 | .05 | .01 | .13 | .44 | .10 | .01 | .00 | .00 | .11 | .04 |
| 5 | .404 | 4.188 | .00 | .01 | .00 | .04 | .31 | .02 | .00 | .00 | .00 | .66 | .01 |
| 6 | .355 | 4.469 | .00 | .47 | .07 | .03 | .01 | .30 | .00 | .03 | .01 | .02 | .00 |
| 7 | .309 | 4.788 | .00 | .10 | .00 | .01 | .06 | .03 | .81 | .01 | .00 | .05 | .00 |
| 8 | .266 | 5.161 | .00 | .10 | .09 | .01 | .06 | .39 | .05 | .20 | .05 | .05 | .00 |
| 9 | .240 | 5.430 | .00 | .19 | .75 | .03 | .00 | .05 | .01 | .09 | .02 | .00 | .00 |
| 10 | .109 | 8.055 | .01 | .00 | .02 | .00 | .00 | .01 | .03 | .61 | .64 | .03 | .00 |
| 11 | .050 | 11.93 | .98 | .01 | .06 | .01 | .10 | .07 | .07 | .05 | .27 | .05 | .02 |

Table E3
*Collinearity Diagnostics Suicidal Thoughts Model*

| | Tolerance | VIF |
|---|---|---|
| First Nations | .885 | 1.130 |
| Age | .929 | 1.077 |
| Did you ever consult a traditional healer | .943 | 1.060 |
| SO who gives you affection | .969 | 1.033 |
| Use of friend for emotional or mental health support | .902 | 1.108 |
| Use of CHR for emotional or mental health support | .960 | 1.042 |
| Are you currently working for pay | .913 | 1.095 |

Table E4
*Variance Proportions Suicidal Thoughts Model*

| Dimension | Eigenvalue | Condition index | Constant | First Nations | age | traditional healer | emotional balance | affection | : friend | CHR | paid work |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.654 | 1.000 | .00 | .01 | .01 | .01 | .01 | .00 | .01 | .00 | .01 |
| 2 | .917 | 2.483 | .00 | .01 | .00 | .00 | .01 | .00 | .01 | .83 | .02 |
| 3 | .698 | 2.845 | .00 | .08 | .01 | .63 | .02 | .00 | .02 | .04 | .02 |
| 4 | .477 | 3.443 | .00 | .01 | .00 | .02 | .16 | .01 | .11 | .00 | .58 |
| 5 | .430 | 3.627 | .00 | .06 | .07 | .29 | .02 | .01 | .29 | .07 | .23 |
| 6 | .317 | 4.225 | .00 | .47 | .18 | .04 | .04 | .00 | .27 | .04 | .10 |
| 7 | .265 | 4.616 | .00 | .26 | .26 | .00 | .45 | .00 | .22 | .00 | .04 |
| 8 | .187 | 5.495 | .02 | .08 | .24 | .00 | .24 | .43 | .04 | .00 | .00 |
| 9 | .055 | 10.167 | .97 | .03 | .23 | .00 | .06 | .54 | .03 | .01 | .00 |

Table E5
*Collinearity Diagnostics "Suicide Attempts" model*

| | Tolerance | VIF |
|---|---|---|
| First Nations | .935 | 1.069 |
| Age | .923 | 1.084 |
| Eats fish | .894 | 1.119 |
| Traditional healer | .951 | 1.052 |
| SO to count on for help | .976 | 1.025 |
| Use of psychiatrist for emotional or mental health support | .909 | 1.100 |
| Use of counsellor for emotional or mental health support | .909 | 1.101 |

Table E6
*Variance Proportions "Suicide Attempts" Model*

| Dimension | Eigenvalue | Condition index | Constant | First Nations | Age | Fish | Traditional healer | SO to count on for help | Psychiatrist | Counsellor |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.498 | 1.000 | .00 | .01 | .01 | .01 | .01 | .01 | .00 | .01 |
| 2 | 1.097 | 2.025 | .00 | .01 | .00 | .01 | .00 | .00 | .48 | .20 |
| 3 | .675 | 2.581 | .00 | .08 | .01 | .07 | .44 | .00 | .19 | .14 |
| 4 | .635 | 2.662 | .00 | .01 | .00 | .02 | .35 | .01 | .26 | .47 |
| 5 | .469 | 3.099 | .01 | .00 | .16 | .45 | .04 | .01 | .05 | .17 |
| 6 | .326 | 3.717 | .00 | .76 | .04 | .25 | .13 | .05 | .00 | .01 |
| 7 | .224 | 4.485 | .00 | .01 | .37 | .13 | .02 | .61 | .02 | .00 |
| 8 | .077 | 7.635 | .98 | .11 | .41 | .07 | .00 | .31 | .00 | .00 |

# Appendix F

## Non Significant Community-Level Characteristics

| **Community engagement** |
|---|
| Number of nutrition related programs FN offers |
| Presence of a community tv/radio in FN |
| Home day care in the community |
| Headstart/preschool in the community |
| Presence of a transition home in the community |
| FN offers HIV/AIDS prevention & awareness |
| FN offers mental health counselling |
| FN offers special needs training |
| FN has a youth centre |
| FN has a youth council/committee |
| FN has youth employment program |
| CC receives input from elders |
| **Cultural Continuity** |
| Number of traditional country foods available for harvesting in FNs territory |
| FN has adult language classes |
| FN has language instruction/immersion in school & daycare |
| FN has language teacher training |
| FN has traditional ceremonies |
| FN has cultural workshops on community history, culture or customs |
| FN has elders council/committee/group |