Inuit Women’s Conceptualizations of, and Approaches to, Health in a Changing Climate

by

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ABSTRACT

INUIT WOMEN’S CONCEPTUALIZATIONS OF, AND APPROACHES TO, HEALTH IN A CHANGING CLIMATE

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Climate change has been identified as possibly the biggest human health threat of the 21st century and Inuit are believed to be one of the most at-risk populations. To support adaption, decision makers must first understand what health means to Inuit, what health concerns are relevant and important to Inuit, and what adaptation strategies are feasible and desirable. This research employs a community-based analysis to examine Inuit women’s conceptualizations of and approaches to health in adaptation to climate change in the Arctic, in a case study of Ulukhaktok, NT, Canada. Data were collected from semi-structured interviews, free-lists and line drawing (n=29). Findings indicate that Inuit women in Ulukhaktok retain a traditional conceptualization of health that is holistic in nature with attention to the mental, emotional, physical and spiritual parts of the self and which prioritizes relationships among family and the environment. As such, Inuit women are sensitive to the health effects of societal and environmental changes that effect food security, water security and barriers to spending time on the land. This research suggests that climate change health interventions rooted in Inuit women’s conceptualizations of and approaches to health and mainstreamed amid broader health interventions are most likely to have positive health outcomes for Inuit women.
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1.1 Research Rationale

Early records, such as Jenness (1921), indicate that Inuit were virtually free of infectious disease and faced few of the major health concerns that they are dealing with today. Today Inuit are plagued with high rates of chronic conditions including, diabetes, cardiovascular disease and mood disorders as well as substance abuse, domestic violence and suicide (Inuit Health Survey 2008; Wallace 2014). Indeed average Inuit life expectancy is ten years less than for the rest of Canada (Wallace 2014); however, it may be that previously many health concerns went undiagnosed or that shorter life expectancies did not allow chronic health concerns to develop. The root of many of contemporary health concerns can be attributed to socio-economic and cultural changes experienced by Inuit over the past half-century namely moving from semi-nomadic camps into permanent settlements. Additional changes include, the introduction of waged labour, more sedentary living, and access to store-bought foods that are often high in refined sugars and fats. These and other changes have transformed Inuit lives and livelihoods and have increased sensitivity to some health risks (Tester & McNicoll 2004; Gracey & King 2009; King et al. 2009; Kral et al. 2011; Cunsolo Willox et al. 2012; 2014).

The culmination of these changes has impacted Inuit health initiating trends that indicate improvement in some cases and rapid decline in others. Trends in declining health among Inuit living in the Canadian Arctic are acknowledged by Inuit and northern healthcare and public health workers, and there are concerted efforts at multiple levels of government to address them. At the Federal level, the Canadian government provides
funding to territorial and regional organizations to develop community health programming (e.g. Brighter Futures - a mental and social well-being initiative; Drop the Pop; Canada Prenatal Nutrition Program (CPNP); and Nutrition North food subsidies) (IRC 2013a; 2013b; BDHSS 2015). It is likely that these programs are making a positive difference for Inuit health, albeit empirical evaluations of the programs have not yet been conducted. Despite these efforts, it is generally accepted that more needs to be done to address both the chronic and acute (i.e. infections) health issues that continue to affect many Inuit (AHDR 2014; Furgal et al. 2010; Ford 2012).

At the same time, Inuit have been experiencing rapid environmental changes associated with global climate change, which also have implications for their health. The global climate is changing at rates unprecedented in human history. These changes are occurring at accelerated rates in the Arctic and are projected to continue into the future (IPCC 2013). Inuit are expected to be especially sensitive to the health effects of climate change, given the already high burden of ill health, the close relationship Inuit maintain with the environment for subsistence, and a variety of socioeconomic and cultural changes that limit the ability to adapt to the impacts of climate change (Furgal et al. 2010; Ford et al. 2010; Ford 2012).

In order to support adaption, decision makers must first understand what health means to Inuit, what health concerns are relevant and important to Inuit beyond those selected *a priori* by health professionals, and what health related adaptation strategies are feasible and desirable for Inuit themselves (Smit et al. 2000; Pearce et al. 2010; Ford 2012). Furthermore, the impacts of and responses to the health effects of climate change are highly localized and will be shaped by local geography and a range of endogenous
factors including demographics, economic diversity, livelihood characteristics, and previous experience dealing with change (Duerden 2004). Given this, research that aims to be impactful requires working with people in communities to identify who is sensitive, to what changes, and in what ways, as well as what climate change adaptation opportunities are realistic and desirable (Pearce et al. 2010).

Research emphasizes that the health effects of climate change are differentiated by gender; more specifically, men and women experience different vulnerabilities and are equipped with different adaptive capacities (Rasmussen 2009; Kukarenko 2011; Prior et al. 2013). This body of scholarship recognizes that gender perspectives on climate change and health are critical avenues for research and stresses the importance of understanding how Inuit conceptualize and approach health as a starting point for understanding how they will experience and adapt to health risks associated with climate change (Denton 2002; Kukarenko 2011; Begum 2015; Pauktuutit 2016). Typically, gender has been included in climate change adaptation research in the Arctic as a variable to make data more statistically rich and sometimes discussed as an afterthought in the context of research findings (Kukarenko 2011). However, a gendered approach to climate change health research involves examining gender from the outset of the research.

To date, most adaptation research in the Canadian Arctic has focused on the exposure-sensitivity of male Inuit hunters to dangers of engaging in land-ice-based activities under changing conditions (Ford et al. 2006a; Ford et al. 2006b; Dowsley 2009; Pearce et al. 2010; Pearce et al. 2011; Ford & Pearce 2012; Bunce et al. 2016). This work has documented increased risks associated with hunting and travelling on the land and ice and compromised travel routes to hunting areas with implications for hunter safety, food
security and well-being (Pearce et al. 2010; Ford et al. 2012). Some research has linked the effects of climate change on subsistence food production to high incidences of depression and other mood disorders among Inuit (Rasmussen 2009; Cunsolo-Willox et al. 2012; 2014). Less is known about Inuit women’s experiences with climate change and even less is known about potential implications for women’s health (Beaumier 2010; Kukarenko 2011; Begum 2015). To inform adaptation to the health effects of climate change among Inuit women we first need to know how Inuit women conceptualize health; what health risks Inuit women are currently experiencing and how these might change under future climate conditions; and how Inuit women respond to these risks.

1.2 Research Aim and Objectives

The aim of this research is to examine Inuit women’s conceptualizations of and approaches to health in the context of adaptation to climate change in the Arctic, in a case study of Ulukhaktok, NT, Canada. The aim is achieved through the following objectives:

1. characterize how Inuit women conceptualize health;
2. document health risks that are relevant and important to Inuit women;
3. identify and describe what strategies are being employed by Inuit women to address health risks; and
4. identify opportunities to enhance the health of Inuit women now and in the future under a changing climate.

1.3 Thesis Outline

The thesis is organized into seven chapters. Chapter Two, Research Context, presents a synopsis of relevant literature and situates the research amidst several broad bodies of scholarship, providing a theoretical and practical basis for the research.
Chapter Three, *Study Location*, discusses social, political, economic and environmental conditions that influence how the community of Ulukhaktok experiences health and environmental change. This chapter provides context for the community case study and provides a foundation for the interpretation of the research results. Following this, Chapter Four, *Methodology*, outlines the methods employed in this research including, research design, the development of community research partnerships, data collection and analysis, and results dissemination.

Results for the first three objectives are presented in Chapter Five, *Results*. The section begins by describing how participants conceptualize health, and how this mediates their sensitivity to the health effects of climate change. The chapter continues by characterizing health concerns, past, present and future that are relevant and important to participants. This chapter concludes with a description of the strategies employed to manage these concerns.

Chapter six, *Discussion*, considers the significance of the research key findings and addresses objective four, by discussing opportunities to enhance Inuit women’s health in the context of ongoing climate and societal changes.

Chapter seven, *Conclusions* summarizes the key research findings, outlines the scholarly and practical contributions of the research, and suggests future research opportunities.
CHAPTER 2: Context for Research

This thesis engages with climate change and human health, vulnerability and adaptation, and Inuit Traditional Knowledge scholarships. In this chapter, all three bodies of scholarship are reviewed, developing a theoretical and practical foundation for this research. The first section of this chapter reviews current understanding of the implications of climate change for human health, for the general population and for Inuit specifically. I then discuss approaches for assessing vulnerability to climate change and the state of knowledge on adaptation to the health effects of climate change. The final section reviews Inuit traditional knowledge and its relationship with health and the western health care system.

2.1 Climate Change and Human Health

It is widely accepted that the global climate is changing and models project warming to exceed $2^\circ$C over preindustrial averages (IPCC 2013). Changes have already been documented globally including, increasing surface air temperatures, variability in the frequency and intensity of extreme weather events, changes to the global hydrological cycle, and sea level rise (IPCC 2013). These and other changes are expected to negatively affect human health (Ebi & Semenza 2008; Costello et al. 2009) (Figure 2.1). Ways in which climate change is expected to affect human health include: direct impacts of extreme weather events, indirect impacts of environmental change, and consequences of environmental decline and conflict (McMichael et al. 2006; Costello et al. 2009; IPCC 2014).
Figure 2.1: Pathways of climate change impacts on population health (McMichael et al. 2009).

Direct impacts of extreme weather events

Extreme weather and climatic events can have direct impacts on human health. High impact events such as extreme temperatures, flooding, drought, forest fires and storms can overwhelm infrastructure and stress populations past tolerable limits (Ebi et al. 2006; McMichael et al. 2006; IPCC 2014). For example, extreme temperature events can exacerbate complications of cardiovascular and respiratory conditions, heavy rainfalls can wash human sewage and animal wastes into water supplies, drought can cause famine over large geographic areas and coastal settlements are at risk of flooding as sea levels rise (Patz et al. 2005; McMichael et al. 2006). Immediate health impacts may
include death or injury, the spread of communicable diseases and exposure to pollutants, and malnutrition and mental health impacts may follow in the wake of such events (McMichael et al. 2006; Costello et al. 2009; IPCC 2014). Increases in the duration of heat waves, changes to the variability and frequency of intense precipitation and increased risk of flooding have already been documented and are expected to continue into the future with implications for human health (IPCC 2013).

**Indirect impacts of environmental change**

Climate change is indirectly impacting human health as a result of environmental and ecosystem level changes. These health impacts primarily manifest as changes in the range, intensity, transmission and frequency of vector-borne diseases (Ebi et al. 2006; Patz et al. 2008). Infectious agents (e.g. bacteria and viruses), their reservoir insect vectors, animal and water reservoirs and rates of pathogen propagation are strongly influenced by climatic conditions (McMichael et al. 2006; Patz et al. 2008). As a result of increasing temperatures and changes in the hydrological regime of a system food and vector-borne diseases and those related to air-pollutants and aeroallergens are observed to altered rates of incidence, seasonal transmission and geographic range; these changes are likely to result in increased mortality (Costello et al. 2009; Patz et al. 2008). Further, climate change is expected to affect the quality and availability of air, water and food resources. Increasing temperatures have already reduced agricultural yields in some regions and have stressed some species of flora and fauna (IPCC 2013). These changes have affected subsistence practices for some peoples, including Inuit, and have compromised global nutritional health and food security (McMichael et al. 2009; Rosenzweig et al. 2013).
Consequences of environmental decline and conflict

More recently the health effects of climate change are being considered within the broader context of social, economic and political disruptions (Ebi et al. 2006; McMichael et al. 2006). Climate change may introduce health risks as a result of constrained regional food yields and contaminated water resources, disrupted fisheries, loss of land and livelihoods, economic struggle and population displacement following food shortages or natural disasters (WHO 2003; Ebi et al. 2006; McMichael et al. 2009). These circumstances increase the susceptibility of populations to infectious diseases, malnutrition, injury and mental health problems (WHO 2003; Costello et al. 2009; McMichael et al. 2009). Furthermore, unstable infrastructure and ill-equipped public health systems limit the adaptive capacity of communities to address climate change related health risks (McMichael et al. 2009).

By the year 2000 the culmination of climate-related health impacts is estimated to already be responsible for as many as 160 000 deaths and over 5.5 million disability adjusted life years, globally and counting (McMichael et al. 2009). However, the susceptibility of a specific community to any of these factors and its capacity for adaptive response is dependent on characteristics such as, economic standing, pre-existing health-status, land dispositions, globalization and sociocultural characteristics (Ebi et al. 2006; Ebi & Semenze 2008; Ford 2012).

2.1.1 Climate Change and Inuit Health

Climate-related health risks will be experienced with significant heterogeneity and Indigenous populations, including Inuit, are identified as being especially sensitive (Furgal & Seguin 2006; Gracey & King 2009; Ford et al. 2010; Ford 2012). Climate
change is particularly pronounced in the Arctic where average surface air temperatures have increased at three times the global average (ACIA 2004; IPCC 2013). In addition to changes documented globally arctic regions are experiencing significant reductions in the extent, thickness and duration of sea and freshwater ice, degrading permafrost, decreasing snow cover and changes in the distribution of some wildlife and plants species (ACIA 2004; IPCC 2014). Direct health impacts of these changes include increased injury, morbidity and mortality from more frequent extreme events (i.e. storms, floods, heat and cold events, wildfire and drought) and increasingly unpredictable weather patterns (Parkinson & Evengard 2009; IPCC 2013). While indirect health effects include the emergence of novel and exacerbation of existing conditions, the health effects of dislocation and displacement, the potential of warmer/wetter summers to increase the incidence of infectious diseases and the mental and social stresses of changing environment, subsistence species and the loss of traditional lifestyles (Parkinson & Evengard 2009; Ford et al. 2010; Harper et al. 2011; Cunsolo-Willox et al. 2012; IPCC 2013). Prevalent low socioeconomic status (SES), an existing burden of ill health, a close association with the environment, and barriers to accessing healthcare services increases the sensitivity of Inuit health to the effects of climate change (Furgal & Seguin 2006; Nettleton et al. 2007; Gracey & King 2009; King et al. 2009; Ford et al. 2010).

**Socio-economic status**

The high instance of poverty among Inuit increases vulnerability to the health effects of climate change (Ford et al. 2010; Ford et al. 2014). Many Inuit are at high risk of living in poverty and SES is inextricably linked with health, nurturing material conditions and health behaviours that increase sensitivity to climate related health risks.
Low SES contributes to many Inuit experiencing poor quality housing, overcrowded conditions and food and water insecurity (Ford et al. 2010; Rootman et al. 2012; Riva et al. 2014). Poor quality housing and overcrowding increases susceptibility to heat stress, the potential of person-to-person spread of infectious diseases and creates ideal conditions for the transmission of respiratory, gastrointestinal and waterborne diseases (Ford et al. 2010; Harper 2011; Riva et al. 2014). As increasing temperatures impact the frequency, intensity and geographic range of infectious diseases, these characteristics of contemporary communities increase the vulnerability of Inuit health to these climate-related risks (Gracey & King 2009; Ford et al. 2010). Harper et al. (2011) found that increased input to water systems from altered temperature, snowmelt and precipitation patterns lead to an increased reports of gastrointestinal illness in two Nunatsiavut communities and similar trends are anticipated for the spread of other infectious diseases as a result of climate change. Chronic poverty can also limit the adaptive capacity of households and individuals. Not only are many adaptive measures unaffordable, poverty can exacerbate health behaviours and psychological conditions including substance abuse, addiction, stress and social disruption that limit one’s ability to recognize and respond to health risks (Ford et al. 2010). These effects are particularly concerning as Inuit encountering novel risks and diseases to which they have not previously developed a resistance (Bjerregaard et al. 2004).

High burden of ill health

Another factor that influences Inuit sensitivity to the health effects of climate change is the already high burden of ill health in many populations (Bjerregaard et al. 2004).
Chronic conditions such as cardiovascular diseases, obesity, and diabetes are occurring at elevated rates in many Inuit populations (Bjerregaard et al. 2004; Ford et al. 2010; Gracey and King 2009; Nettleton et al. 2007; Reading et al. 2010; Wallace 2014). According to the Inuit Health Survey (Galloway et al. 2010), The Aboriginal Peoples Survey (Wallace 2014) and others (Zhou et al. 2011; Galloway et al. 2012) high cholesterol (58.5%), overweight and obesity status (76.1%), hypertension (36.7%) and diabetes (11%) are of particular concern in Inuit communities. Many of these trends are resultant from colonization, settlement and lifestyle changes leading to reduced physical activity, dietary changes as well as exposure to changing environmental conditions and novel risks, as discussed later in this section (Bjerregaard et al. 2004; Ford et al. 2010; Gracy and King 2009). Many of these health concerns are exacerbated by climate change conditions such as increased heat stress and disruptions to food security and quality, putting Inuit at increased risk (Ford et al. 2010).

**Relationship with the natural environment**

The intimate relationship that many Inuit maintain with the environment further heightens their sensitivity to climate-related health risks (Furgal & Seguin 2006; Ford et al. 2010; Cunsolo Willox et al. 2012). Inuit rely on the land, sea, ice and environmental resources for subsistence livelihoods, diet and cultural practices that support and promote Inuit health (Furgal & Seguin 2006; Kuhnlein & Receveur 2007; Ford et al. 2010; Cunsolo Willox et al. 2012). As climate change alters Arctic landscapes and environments Inuit’s ability to practice and participate in these activities can be constrained with adverse health outcomes. The health benefits of traditional foods,
harvested from the land and sea are recognized widely recognized with cultural and nutritional importance (Van Oostdam et al. 2005; Lambden et al. 2007; Kuhnlein & Receveur 2007; Ford et al. 2010). However, climatic shifts are compromising the distribution and availability of many subsistence species with implications for Inuit food security and nutritional health (Ford et al. 2010). The quality and safety of some traditional foods is also being jeopardized as altered temperature and precipitation regimes are catalyzing the bioaccumulation of contaminants in the food chain and increasing the risk and incidence of food-borne diseases, of particular concern given cultural diets include the consumption of raw and fermented meat (Bjerregaard et al. 2004; Ford et al. 2012). Further, climate change effects such as coastal erosion, melting permafrost, unpredictable weather patterns and severe weather events make travel on the land, ice and sea increasingly dangerous, with higher incidence of accidents resulting in injuries and fatalities (Furgal & Seguin 2006; Wenzel 2009; Pearce et al. 2010; Durkalec et al. 2014; 2015). The aggregate of these climate-related effects inhibits Inuit’s ability to engage with culturally meaningful places and environments with some negative impacts for Inuit mental and emotional health (Cunsolo Willox et al. 2014; Durkalec et al. 2015).

**Barriers to accessing healthcare services**

Finally, Inuit continue to encounter barriers to accessing healthcare services. These include long wait times, shortages of healthcare professionals, limited access to emergency and specialty services and care that are not culturally responsive (Bjerregaard et al. 2004; King et al. 2009). Many of these barriers are a result of the difficulties of treating remote communities, but are further complicated by the cross-cultural context of treatment. Language barriers, a history of oppression through the health system, a deficit
of Inuit working in the health field and a high turn-over of health professionals working in northern regions with a lack of training on working in Inuit contexts create reluctance among Inuit to access health services (Bird et al. 2008; Tester & Irniq 2008; Gracey & King 2009; Ford et al. 2010). This is compounded by a governmental pre-occupation with allopathic treatment rather than strategies aligned with Indigenous conceptualizations of wellness (Bird et al. 2008; Gracey & King 2009; Ford et al. 2010). This results in poor communication of health information regarding prevention, identification and/or treatment strategies, increasing Inuit risk for poor health outcomes (Furgal & Seguin 2006; Bird et al. 2008; King et al. 2009). For example, Bird et al. (2008) describes feelings of “skepticism and distrust” for the healthcare system and poor understanding of disease among Inuit. The cultural disconnect between northern healthcare systems and the Inuit they serve result in healthcare interventions that are irrelevant or poorly adopted by communities and there is an expressed need for the integration of Inuit specific frameworks to improve and promote health and wellness (Bird et al. 2008; Tester & Irniq 2008; King et al. 2009).

It is evident that the impacts of climate change are important public health issues for Inuit and the identification of adaptation opportunities needs to be a priority (Furgal & Seguin 2006; Nettleton et al 2007; Ford et al. 2010; Lesnikowski et al. 2011). It is critical to expand the assessment of vulnerability and adaptive capacity of communities to identify entry points for intervention (Furgal & Seguin 2006; Ford et al. 2010; Ford et al. 2014). The inclusion of Inuit perspectives, experiences and knowledge into this process has proven valuable for engaging communities and capturing the complex, culturally-
mediated dynamics between social, environmental and biomedical aspects of Inuit health (Furgal & Seguin 2006; Gracey & King 2009; Ford 2012).

2.2 Adaptation to the Health Effects of Climate Change

Consensus in the international scientific community is that the global climate is changing, and that these changes are already being experienced in the Arctic (ACIA 2005; Furgal & Prowse 2008; IPCC 2013). Given the anticipated impacts on human health climate change has been identified as possibly the biggest health threat of the 21

century (Costello et al. 2009). Inuit populations living in these northern regions are identified as being particularly vulnerable to the health effects of climate change (Furgal & Seguin 2008; Ford et al. 2010; Ford 2012).

While mitigative efforts are required to avoid “runaway” climate change in the Arctic, it is understood that even with the most aggressive emission control measures the Earth is committed to some degree of change (IPCC 2013). In light of the inevitability and reality of climate-related health outcomes for Inuit there is a strong consensus that communities and health systems must adapt and that there must be a new public health movement that promotes adaptive interventions (Confalonieri et al. 2007; Ebi & Semenza 2008; Costello et al. 2009; Ford et al. 2010; Pearce et al. 2010; Ford et al. 2014; IPCC 2014). Focusing on adaptation is a proactive approach to moderating the effects of climate change by drawing attention to the social, economic and cultural conditions that underpin vulnerability and highlighting the resilience of communities, acknowledging them as active players in the adaptive process as well as the importance of local knowledge in building adaptive capacity (Ford 2012; Ford et al. 2014).
In order to initiate adaption, decision makers must first understand what health means to Inuit, what health concerns are relevant and important to Inuit beyond those selected *a priori* by health professionals, and what health related adaptation strategies are feasible and desirable for Inuit themselves (Smit et al. 2000; Pearce et al. 2010). Different strategies have been employed to assess health systems’ opportunities for adaptation. Commonly, these assessments are based on long-term future emission projections and models of health exposures will change given climate projections, mostly in ecological terms (Ford et al. 2010; Pearce et al. 2010). These assessments, however, downplay the role of human systems, ignoring the social, economic and cultural contexts that shape how the health impacts of climate change are experienced, understood and responded to and overlooking the resilience of communities (Smit & Wandel 2006; Ford et al. 2010; Pearce et al. 2010; Ford et al. 2014).

Alternatively, assessments are building on this ecological understanding and being conducted to examine what predisposes health systems to be vulnerable to the health effects of climate change (Ford et al. 2010; Pearce et al. 2010). In climate change scholarship vulnerability refers to the susceptibility of a system (community) to harm from a climate stimulus, or stimuli and is conceptualized as a function of both the system’s sensitivity to climate exposures and it’s capacity to adapt in order to moderate or avoid harm and exploit potential benefits or to cope with consequences (Adger 2006; Smit & Wandel 2006; IPCC 2014). Adaptations are then the expression or realization of the community’s adaptive capacity that allow it to adjust to climate and its effects (Smit & Wandel 2006; IPCC 2014). Recognition of the role of exposure sensitivity and adaptive capacity highlights the influence of non-climatic factors that shape adaptations
including availability and distribution of resources, structure and function of institutions, social capitol, local knowledge and the public’s perception of the stress itself, all of which can vary greatly at local and regional levels (Smit & Pilifosova 2001; Pearce et al. 2010; IPCC 2014).

Within health contexts adaptation is widely considered to be preventative in nature and involve interventions at the primary, secondary or tertiary levels. Primary interventions aim to prevent or minimize adverse health outcomes by reducing exposure to the risk; secondary interventions operate with the intent to prevent the development of adverse health outcomes following exposure; and tertiary interventions work to minimize impacts and morbidity associated with exposure to health risks (Ebi & Semenza 2008; Ford et al. 2014). Primary interventions and in part secondary interventions are anticipatory in nature and focus on enhancing the adaptive capacity of a community (Ebi & Semenza 2008). While elements of secondary interventions and tertiary interventions are reactive, often including the design and application of interventions targeted towards specific exposures and health outcomes (Ebi & Burton 2008).

Inuit, and other Indigenous cultures are recognized to have significant adaptive capacity (Berkes & Jolly 2001; Ford et al. 2010; Ford 2012). This adaptive capacity is underpinned by traditional knowledge of lands and resources and of managing climate extremes that is allowing communities to take advantage of changing conditions, minimizing the negative impacts (Ford et al. 2010; Pearce et al. 2010; Ford 2012). Traditional knowledge of land and resources as well as cultural identity, the strong social and kinship networks that characterize Inuit culture are critical elements of adaptive capacity for the managements of climate-related health risks (Ford 2012). Despite this,
few studies have systematically assessed the vulnerability of or evaluated the adaptive options for Inuit communities, especially with regard to the health impacts of climate change (Ford et al. 2010; Ford et al. 2014; IPCC 2014). Leading to a significant dearth of information to inform and guide adaptation to the health effects of climate change for Inuit and Indigenous communities (Ford et al. 2010). Given the inevitability of climate change and the reality of health implications for Inuit northern communities and health systems must adapt and there needs to be a new public health movement that promotes adaptive initiatives (Furgal & Seguin 2006; Ebi & Burton 2008; McMichael et al. 2009; Ford et al. 2010; 2014; Ford 2012; Durkalec et al. 2015).

Adapting to the health impacts of climate change is recognized as perhaps the biggest challenge for global public health systems this century and especially necessary to protect Inuit against the adverse health effects of climatic changes already being experienced in Northern regions (Ford et al. 2010; Costello et al. 2009). These efforts must involve the documentation of impacts, identification of the determinants of vulnerability and the prioritization and evaluation of locally appropriate and culturally relevant adaptation strategies (Ford 2012; Ford et al. 2014). The effects of climate change are highly localized, as are the determinants of vulnerability and adaptive capacity that shape how climate-related health impacts are experienced and addressed (Ford et al. 2010; Pearce et al. 2010). Further, it has been shown that interventions that work to document, conserve and promote traditional knowledge can generate successful adaptations for Inuit communities (Ford 2012). As such, adaptation research necessitates working with people in communities in a grassroots, bottom-up structure (Smit & Wandel 2006). Partnerships with Indigenous communities and organizations are vital, to capture culturally specific
meanings and determinants of health, for the articulation of locally specific health needs, and to identify adaptive initiatives that align with local priorities to most effectively improve the function of health systems in the face of climate change (Furgal & Seguin 2006; Ford et al. 2010; Ford 2012).

2.3 Inuit Traditional Knowledge

In order to initiate adaption it must first understood what health means to Inuit, what health concerns are relevant and important to Inuit and what health related adaptation strategies are feasible and desirable for Inuit themselves (Smit et al. 2000; Pearce et al. 2010). Inuit have a long history of coping with and adapting to change, largely facilitated by traditional knowledge (Berkes & Jolly 2002; Wenzel 2009). Inuit traditional knowledge including stories, oral traditions and observations provide valuable information related to climate-related health risks as well as the determinants of adaptive capacity (Pearce et al. 2011; Ford 2012). Previous research has shown the value of including Inuit traditional knowledge in assessments of climate change impacts and for identifying opportunities for adaptive initiatives and to inform policy (Ford et al. 2010; Ford 2012; Furgal and Seguin 2006).

This section begins by outlining Inuit Knowledge through various definitions of the Knowledge system which address its the structure and scope. It then explores Inuit traditional knowledge as it relates to health including what has been documented historically and in other areas of the circumpolar region. This section concludes by examining the role of Inuit traditional knowledge in the healthcare system.
2.3.1 Defining TK, TEK, IK and IQ

A clear definition of Inuit Knowledge is vital for the comprehension of and integration between knowledge systems. Inuit knowledge is referred to by a variety of names including, but not limited to, *Traditional Knowledge*, *Traditional Ecological Knowledge*, *Indigenous Knowledge* and *Inuit Qaujimajatuqangit*. It is important to recognize that many of these terms are interconnected, but also to acknowledge the differences between them.

The Government of the Northwest Territories defines *Traditional Knowledge (TK)* as “knowledge and values, which have been acquired through experience, observation from the land or from spiritual teachings, and handed down from one generation to another” (GNWT 2005). *Traditional Ecological Knowledge (TEK)* is more specifically defined to focus on knowledge in relation to the environment and human interactions in the environment, within socioeconomic, cultural and spiritual contexts (Stevenson 1996; Ohmagari & Berkes 1997; Usher 2000). The specificity of TEK frames it in such a way that more easily facilitates its integration with western science (Stevenson 1996; Wenzel 1999; Tester & Irniq 2008). The term *Indigenous Knowledge* avoids the use of the prefix ‘traditional’ to recognize the intrinsic characteristic of Inuit knowledge systems of evolving with each person’s interpretation or experience and acknowledges new knowledge and understanding gained through interactions with non-indigenous and foreign culture, media, formal education and changing environmental conditions (Stevenson 1996; Wenzel 1999; Usher 2000; Berkes 2010). *Inuit Qaujumajatuqangit (IQ)* is a term that emphasizes the holistic nature of Inuit knowledge
and the interconnectedness of its elements. Tester and Irniq (2008) describe IQ as ‘seamless’ in that its components are indiscernible from one another.

While the definition and use of these terms vary slightly in definition and use, all acknowledge that Inuit knowledge systems are contextualized by worldviews, societal values, a focus on harmony among familial, environmental and spiritual relationships, and shared and unique experiences (Stevenson 1996; Wenzel 1999; Berkes et al. 2007; Tester & Irniq 2008). Inuit knowledge is not only contextual but holistic and inclusive of spiritual, physical, social, psychological and environmental realms, with an emphasis on the dynamics between. Typically there is no distinction between material, animal and human worlds in the reductionist style of western science (Stevenson 1996; Wenzel 1999; Berkes et al. 2007).

While Inuit continue to adjust to the social, political, economic and cultural changes to their lifestyles of recent history environmental changes are instigating dramatic alterations to the environment they are inextricably connected to, with serious implications for Inuit health. Science is capable of describing and quantifying the environmental changes occurring. However, insights from Inuit knowledge are imperative to understand how Inuit are experiencing and reacting to these changes.

### 2.3.2 Traditional Knowledge and Health

Traditional knowledge systems are described as holistic, with emphasis on the interrelatedness of human, environmental and spiritual realms, this definition holds true for Indigenous conceptualizations of health and wellness. Indigenous knowledge outlines health far more broadly than the absence of disease or infirmity and is inclusive of
physical, mental, social, emotional, cultural, environmental and spiritual components of wellbeing (Kirmayer et al. 2003; Isaak & Marchessault 2008; King et al. 2009).

Being holistic in nature Indigenous understanding of health considers these components inseparable, focusing on the balance between them and the dynamic ways in which they are interrelated (Kirmayer et al. 2003; Nettleton et al. 2007; King et al. 2009; Mark & Lyons 2010). Indigenous cultures view often illness or sickness as an indication of either and excess or deficit in one or more of these areas and that affecting one affects the rest (Nettleton et al. 2007; King et al. 2009; Richmond & Ross 2009). The idea of maintaining balance for good health extends beyond the individual to include social wellbeing and requires harmony with others such as the extended family, the community, the environment and the spiritual worlds (Wenzel 1981; Lowenberg & Davis 1994; Borre 1995; Wolsko et al. 2006; King et al. 2009). This is indicative of Indigenous community-centered ideas of a person, whereby other members of the community as well as the land and animals are considered a part of one’s self and wellbeing is derived from a state of connectedness among them (King et al. 2009; Stroink & Nelson 2012). In this context ‘the land’ refers collectively to the land, sea and ice environments that are of importance to Inuit. As such, cultural and environmental dispossession and poor interpersonal relationships are strongly linked to poor health among Indigenous peoples (Wenzel 1981; Tester & Irniq 2008; King et al. 2009; Tobias & Richmond 2014).

Within these concepts of health, significance is assigned to the role of the environment for good health. Along with a deeply rooted spiritual and emotional connection to traditional lands Indigenous knowledge includes lengthy and culturally specific pharmacopeias of various herbs, roots, leaves, bark and animals used in the
preparation of medicines, spiritual ceremonies and foods for the prevention and treatment of ill-health (Anyinam 1995; Gracey & King 2009). Traditional foods, sourced from the land and water via subsistence practices, are prominent in Indigenous conceptualizations of health. They are important sources of nutrients and also have social and cultural significance for one’s identity and community health (Kuhnlein & Receveur 1996; Richmond & Ross 2009; Stroink & Nelson 2012).

Documentation of traditional Inuit conceptualizations of health and wellbeing is consistent with these holistic ideals. Inuit perceptions of health are often described as a synthesis of the health of individual body and mind with focus on the social wellbeing of the community (Gottesfeld & Anderson 1988; Borre 1995). Diagnosis of a health issue is done within the etiological context of the individual’s interpersonal, physical, mental, social, emotional, cultural, environmental, spiritual and cultural relationships, one’s past actions and behaviours with respect to these are possible sources of the current ailment (Wenzel 1981). Treatment is then designed to more specifically address the imbalance or event/action within these areas. Given the collectivist nature of Inuit culture often families or whole communities are involved in process of treating a sick individual (Wenzel 1981).

Research has identified the floral and faunal species that remain important in Inuit medicinal and nutritional health practices and affirmed that country foods remain a staple for maintaining good health (Davis & Banack 2012; Lambden et al. 2007; Wenzel 2009). Subsistence practices are also shown to contribute positively to physical, psychological and community wellbeing (Condon et al. 1995; Pearce et al. 2011; Cunsolo-Wilox et al. 2012). However, Inuit communities today exist in a significantly different social reality
than that of their predecessors and the environment with which they are so thoroughly integrated is undergoing rapid transformation. Further, as climate change progresses, the environmental systems with which Inuit have an intimate interdependence continue to transform with profound impacts for individual and community health and wellbeing. Inuit conceptualizations of and approaches to health in response to these changes are particularly important to examine given that adaptive capacity is heavily influenced by one’s own perception (Adger 2006; Pearce et al. 2010).

There is a dearth of knowledge is regards to the perceptions of health among contemporary Inuit in the rapidly changing environment. Articulation of these is needed to capture the complicated and culturally specific dynamics of social, environmental and biomedical determinants of health in order to design and identify entry points for culturally responsive interventions (Bird et al. 2008; Furgal & Seguin 2006; Ford 2012)

2.3.3 Traditional Knowledge and the Healthcare System

The dramatic socioeconomic and cultural changes that Inuit have experienced over the last half of a century include the development of a formalized healthcare system. Initially, missionaries at the local churches and doctors that travelled into northern regions once a year on the supply barge provided all healthcare services and treatment (Condon 1996; Wenzel 1981). Today, healthcare in northern communities is provided via local nursing stations and regional hospitals and is supplemented by visits from specialists and access to major facilities in southern Canada. This cosmopolitan system made considerable improvements in Inuit health status, through the treatment of diseases and injuries, vaccinations and population health efforts. However, medical services were developed based on western ideologies of health and healthcare that are not consistent

There are significant differences between Western and traditional Inuit ideologies of health and health care. The individualistic approaches and physical symptom focus of Western medicine are in stark contrast to the relational model of Inuit healthcare that defines health holistically within cultural, social and environmental contexts (Wenzel 1981; King et al. 2009; Kral et al. 2011; Edwards & Martin 2012). This dichotomy can create conflict for Inuit seeking medical treatment and limit the success of northern health systems (Wenzel 1981; Lemchuck-Favel & Jock 2004; Kral et al. 2011; Richmond & Ross 2009).

Recently, there have been efforts to design Aboriginal-specific health systems to address the unique needs of Indigenous communities. These health systems embrace a holistic approach and apply a synergy of traditional and western health philosophies (Lemchuck-Favel & Jock 2004; Edwards & Martin 2012). The synergy of Western medicine and traditional approaches to health can be successfully combined to create health systems that respond dynamically to the needs of contemporary Inuit communities and allow Inuit to access the appropriate resources. Moreover, the principles of holism emphasize the integration of health and social services with other community programs such as, justice and corrections, training and schools to facilitate the pursuit of balance among the spiritual, emotional, physical and social aspects of an individual (Lemchuck-Favel & Jock 2004).

The development of Aboriginal health systems are faced with considerable challenges, the pre-existing burden of ill health, small population size and remoteness of
communities, lack of funding and limited Aboriginal health professionals are pervasive issues (Lemchuck-Favel & Jock 2004; Edwards & Martin 2012). However, the development of a sustainable Aboriginal health system can be highly effective for improving patient outcomes, satisfaction and community awareness and preventative action towards health issues (AHDR 2014; Edwards & Martin 2012).
This chapter describes the regional and local context for the research by presenting background information on the Copper Inuit and the community of Ulukhaktok, NT. This includes information on the history of the Copper Inuit, the development of Ulukhaktok as a settlement, and a description of formal health services currently available to Inuit in Ulukhaktok. The use of a case study facilitated an in-depth examination of the conditions shaping conceptualizations of and approaches to health as they manifest in the real-life context of Inuit women in Ulukhaktok and the inclusion of local Inuit perspectives and experiences with climate change (Ford et al. 2010).

3.1 Copper Inuit

Copper Inuit are the westernmost group of Inuit in the Canadian Arctic, so named for their highly specialized skills of building tools such as ulus, knives, sewing needles, harpoon heads and arrow tips out of cooper found naturally in the area (Jenness 1921; Condon 1996). Copper Inuit traditionally frequented the areas of Prince Albert Sound, Minto Inlet and the Southern coast of Banks Island and travelled to hunt for food and to trade and socialize with other groups (Condon 1996).

Principles of mutual interdependence and kinship facilitated the survival of Inuit in the extreme Arctic environment (Kral 2003). The collectivist nature of the society allowed Copper Inuit to more effectively access resources for survival via collaborative hunting techniques and food sharing partnerships (Jenness 1921; Condon 1996; Nuttall 2000; Kral 2003). Other partnerships included dancing or joking partners, namesake relationships, marriage, and spousal sharing partnerships (Condon 1996).
Given their remoteness and mobility, Copper Inuit were some of the last peoples in the Arctic to be contacted by European explorers (Condon 1996). Prior to contact, injury and starvation were the most significant factors limiting Inuit life expectancy. According to early anthropological record Inuit were free of major infectious disease (Jenness 1921). As the frequency and duration of contact with European traders, missionaries and others the Copper Inuit were exposed to a number of novel diseases to which they had limited natural immunity (Jenness 1921; Condon 1996). Rapid outbreaks of influenza, measles, tuberculosis and venereal disease resulted in high rates of fatality among the Copper Inuit (Jenness 1921; Condon 1996).

3.2 Ulukhaktok, Northwest Territories

Ulukhaktok is located on the west coast of Victoria Island, NT (70°45’42N, 117°48’20 W) in the Inuvialuit Settlement Region, Figure 3.1. The community has grown rapidly since its establishment in 1939. Attracted by the availability of trade items such as tea, sugar and tobacco and the social events of the Roman Catholic and Anglican missions, families continued to settle in the hamlet through the 1940-60s (Condon 1996). The last family living nomadically settled in Ulukhaktok in 1967 and today the settlement is home to approximately 480 residents (Condon 1996; NWT Bureau of Statistics 2012). Of this population, 91% identifies as Aboriginal and 50.5% as women (NWT Bureau of Statistics 2012).
Figure 3.1: Location of Ulukhaktok in the Inuvialuit Settlement Region, Northwest Territories, Canada (Pearce et al. 2011a).

Settlement was the catalyst for dramatic economic and social change (Condon 1996). The community currently supports a K-12 school, a daycare, a multi-purpose community center, a youth center, a hockey arena, two grocery stores, a convenience store, a hotel and restaurant and a health center. The community has transitioned from subsistence living to include a wage-based economy with 54.8% of the population over the age of 15 in the labour force and 21% receiving income assistance each month (NWT Bureau of Statistics 2012). With the introduction of formal education, the number of community members who have achieved a high school diploma or more has steadily increased and in 2011 was reported to be 38.7% of the population (NWT Bureau of Statistics 2012).

Despite the imposition of these institutions traditional Copper Inuit culture remains influential in Ulukhaktok. Although most residents are proficient in English, the
Kangiryuarmiut dialect of Inuinnaqtun is still spoken by over 60% of the population (Condon 1996; NWT Bureau of Statistics 2012). English is the predominant language for workplace transactions such as those at retail stores and local government offices. More than 70% of the Aboriginal population reports still being engaged in subsistence hunting and fishing activities and via food sharing networks these country foods are the primary source of nutrients for 63% of Ulukhaktok households (NWT Bureau of Statistics 2012). Other cultural practices such as drum dancing and sewing also remain commonplace.

3.2.1 Health Services in Ulukhaktok, NT

Territorial and federal governments jointly manage formal healthcare services in Ulukhaktok (Pearce et al. 2011). All residents of the Northwest Territories, and thus Ulukhaktok, who are Canadian citizens, permanent residents, have an employment or students visa or are members of the RCMP are eligible for healthcare coverage under the NWT Health Care Plan as constituted by the Canada Health Act. Eight different health authorities provide health services to the regions of the NT; Ulukhaktok is encompassed in the purview of the Beaufort-Delta Health and Social Services Authority, BDHSSA (GNWT 2016). However, given the size and remoteness of many of the Beaufort Delta region communities, providing a full suite of medical services in situ in each is unfeasible (King et al. 2009; BDHSSA 2015). Ulukhaktok is serviced by a local health center that is staffed by four nurses, who cycle through two job shares, and a social worker. The Ulukhaktok Health Center offers, chronic disease clinics, emergency services, diagnostic, restorative, rehabilitative and palliative care, health promotion and disease prevention, home care, elder day programs, immunization programs, pre and post natal care, school health programs, services for the aged and handicapped, Well Child/Woman/Man clinics
(BDHSSA 2015). All other services are regionally administered, including, physician services, including gynecological specialists, dental services, diabetes education, health promotion, nutrition, rehabilitation services, continuing care services, long term care (physical, social and mental), hospital care and services, surgical procedures, obstetrical care (BDHSSA 2015).

These regional services are coordinated and/or provided by specialists located in Inuvik, NT, Yellowknife, NT or Edmonton AB. Dental, optometry and physician services visit the community regularly on four to six week cycles. To access these, and other services more immediately residents of Ulukhaktok may communicate via Telehealth, a video conferencing interface, or must travel from the community. NWT Health Care Plan does cover medical travel in order to access necessary and appropriate health services. Ulukhaktomiut receive return airfare, accommodation, ground transportation and limited support for meals in order to access any services not offered in the community at the nearest (BDHSSA 2015).
CHAPTER 4: Methodology

This research was conducted in partnership with Inuit in Ulukhaktok, NT. Primary data collection took place in Ulukhaktok between May and August 2014. The chapter begins by discussing the measures taken to build a constructive research partnership between the university researchers and Inuit partners in Ulukhaktok. This is followed by an outline and description of the methods used for primary data collection and analysis including sampling strategy, interview design, cross-cultural interviewing considerations, participant observation and analysis of secondary sources.

4.1 Community-Researcher Collaboration

Research examining the human dimension of climate change requires input from, and close collaboration with, community members and local organizations (Pearce et al. 2009). As interest in researching northern regions and cultures grows, Inuit people are becoming increasingly vocal regarding their concerns surrounding the impacts of research practices for northern communities (ITK& NRI 2007). In light of this, there has been effort made to refine protocols that address the practical, ethical and regulatory considerations for partnerships that actively engage Indigenous and Northern communities in research (Smith 1999; ITK & NRI 2007; Pearce et al. 2009). Key considerations followed in this research for community-researcher collaboration are outlined in Figure 4.1. Although, working with communities is an iterative process and necessitates ongoing communication throughout to ensure all community and research concerns are being addressed.
Early communication between the community of focus and researchers is essential for a strong relationship and the success of collaborative efforts (Gearheard & Shirley 2007; Pearce et al. 2009). Early communication and pre-research consultation with the community ensured that the project pursued a question of relevance and interest to the community and identified potential local partners (Smith 1999; Pearce et al. 2009). This research builds on previous research relationships between the student researcher and supervisor and Inuit in Ulukhaktok. The researchers met with the Ulukhaktok Community Corporation (UCC) in January 2013 to discuss the research topic, agree on a research question, and identify local partners. The researchers maintained remote communication with local partners over the next several months and continued to refine the research focus and methods. Feedback from local partners and other community
members was continually integrated into the research throughout the entire research process, from data collection and analysis to results dissemination.

Upon the pre-research consultation meetings, the UCC supported an application for a NWT scientific research license from the Aurora Research Institute, ARI. Application to the ARI for a research license require researchers to follow ethical principles throughout the research process and receive ethical approval from a recognized approval board and commit to submitting summary of the work completed (ARI, 2014). This research is captured within the larger project Inuit Traditional Knowledge for Adapting to the Health Effects of Climate Change, IK-ADAPT, which received approval for an NWT research license from ARI. See Appendix 4 and 5 to review both the University of Guelph ethics approval certificate and the NWT research license issued by the ARI.

*On-going Communication*

The researcher maintained on-going communication with community partners to discuss the progress, direction and findings of the research project and continually integrate feedback back into the research (ACUN 2003; ITK & NRI 2007; Pearce et al. 2009). This facilitated opportunities to evaluate, develop and improve the research in collaboration with community partners for a more locally appropriate design and also built trust and understanding within the community for both the researcher and the research objectives (SMITH 1999; Pearce et al. 2009). While in the community the researcher frequented public locations and events such as grocery stores, Hamlet offices, the hotel restaurant, school events and community celebrations. Further the researcher spent social time with people in the community sharing tea and family meals, going on
trips on the land, learning to sew/embroider, sports events and drum dancing. These interactions helped the researcher learn more about the local culture, and develop rapport with community members (Gearheard & Shirley 2007; Pearce et al. 2009).

Community Involvement with Research Design and Development

Community involvement in the research enabled community members to be engaged in the design and development of the research. This practice was necessary to build on the knowledge of community members to design a project that would be practical, appropriate and relevant (Smith 1999; Gearheard & Shirley 2007; Wolfe et al. 2007; Pearce et al. 2009). It also provides the community ownership over the project, encouraging participation, accurate representation of results and overall community satisfaction with the research (Gearheard & Shirley 2007).

Short data collection and/or consultation visits have been criticized by communities for not allowing sufficient time for discussion or feedback on research goals and methods (Smith 1999; Pearce et al. 2009). The researcher maintained scheduling flexibility while in the community in order to adjust to feedback and community response. Initially the data collection field season was scheduled for a one-month visit to accommodate time for consultation with community partners prior to beginning data collection and to adjust to feedback from during the process. However, upon the recommendation of this consultation and in light of community response the data collection visit was extended to three months to allow time for the researcher to engage in community activities and learn more about the local culture and community context first hand. While the community suggested that data collection in the winter seasons (October – March) would be more effective as fewer people are leaving the community to travel on
the land, the researcher was restricted by academic calendars and commitments. As such, the field season was mutually agreed upon to occur in the summer months of May – August.

Prior to beginning data collection the researcher met with Community Health Representatives, CHR, from the Ulukhaktok Health Centre to review the goal of the research, verify that the interview guide asked questions appropriate for the community and that would yield results that addressed the project objectives. The research was designed using methods previously proven to be effective and well received in the community (Condon et al. 1995; Collings 2009; Pearce et al. 2010; Pearce et al. 2011). Consultation confirmed the application of these methods for the current research and recommended individuals who would be effective as local research partners.

The researcher established working partnerships with two local researchers and a local interpreter who aided in the identification of participants, guided the delivery of interviews to ensure cultural and local relevancy and helped overcome language barriers during the data collection period. The researcher further collaborated with these local partners to coordinate local verification of results and design dissemination materials for both the community and wider audiences.

Opportunity for Local Employment

This research would not have been feasible without the collaborative efforts of local partners. Their influence guided the research process, facilitated community support for and participation in the research and guided the interpretation and verification of results (Gearheard & Shirley 2007; Wolfe et al. 2007; Pearce et al. 2009). Further, the training and experience garnered by local partners as a result of this research contributes
to community capacity for future locally developed projects (ITK & NRI 2007; Pearce et al. 2009).

Local research partners were hired based on recommendations from the Ulukhaktok Community Corporation and the Ulukhaktok Health Center. It can be difficult for local partners to balance employment commitments with other commitments and subsistence pursuits, especially given the timing of this research during a busy hunting season (Pearce et al. 2009). The employment of two local research partners accommodated for the frequency of travel out of the community for fishing and camping, allowing the researcher to work with one partner while the other was unavailable and provided the freedom for research partners to continue engaging in on the land activities. Research partners were essential for identifying the women eligible for the sample pool and in soliciting interviews. Throughout the process the local researcher partners guided the research progress advising the researcher as to local customs, vernacular and refining interview questions. These efforts were essential for successful data collection. Subsequently, local research partners directed the interpretation of research results and were critical in facilitating logistics of verifying of results with participants and disseminating to the larger community. While working in this capacity the local research partners developed skills in interviewing, report writing and presenting.

One local interpreter was also employed as a member of the research team. This interpreter worked with the researcher to structure interviews that would be effective when transitioning between English and Inuinnaqtun. The interpreter was essential for data collection in the bilingual context of this research.
All work was undertaken under a contract between local partner and the researcher, which outlined mutually agreed upon compensation. While data collection was occurring in the community another research project was already underway, offering financial remuneration for participants. This set precedent and as such informants in this research also received a financial gift for their participation. This was never presented as an incentive to participate but as a gesture of reciprocity for a participant’s time and knowledge, in alignment with the cultural customs of the community. Many participants were surprised and appreciative at the gestures following the conclusion of the interview.

4.2 Primary Data Collection

Primary data collection was conducted by the University researcher, Linnaea Jasiuk, community research partners Jasmine Klengenberg and Denise Taptuna Okheena and interpreter Susie Malgokak. Data collection took place over twelve weeks between May and August of 2014. Methods used for collecting primary data include individual interview with community members that involved free-listing, open-ended questioning and line drawing and participant observation.

4.2.1 Sampling Strategy

A hierarchy of sampling strategies was employed to capture a sample that included participants from different families, age groups and living situations (e.g. single mother, grandmother, etc.). To be eligible, participants must have been 18 years of age or older, which was the age of consent as decided by the Hamlet of Ulukhaktok, all participants also self-identified as women and as Inuit. The total number of adult Inuit women residing in Ulukhaktok at the time of the research was 119. Of these, 29 were included in the research sample. The following sampling strategies were used;
Opportunistic/accessibility sampling was the first strategy in the hierarchy but was an on-going process throughout data collection. Opportunistic sampling, also known as accessibility sampling, provides the researcher the flexibility to capitalize on opportunities as they present themselves (Rice 2010). This allows the project to adapt to situations and include interviews that would be in accessible in other circumstances (Rice 2010). Developing a sample in this manner is time demanding and requires a good rapport between the researcher and the community. The field season for this research was inclusive of time for the researcher to develop a level of trust with the community and amass a sample over time as opportunities presented themselves. For this research, posters in both English and Inuinnaqtun, detailing the research and outlining how to contact the research team were displayed in public locations throughout town, including the Eskimo Coop, the Northern Store, the QuickStop convenience store and the Hamlet offices. As a result of these posters as well as general conversation between the researcher and community members in social settings the project was often a topic of interest and the researcher had the opportunity to arrange for an interview at a time convenient for the individual and members of the research team.

Snowball sampling was the second stage of the sampling hierarchy. This sampling strategy relied on participants from opportunistic sampling as initial contacts to identify others who would be potentially willing and helpful informants (Heckathorn 2007; Rice 2010). Snowball sampling is used to access hidden populations, those that are not obvious to the researcher or for whom privacy is a concern (Heckathorn 2007; Sadler et al. 2010; Dragan & Isaic-Maniu 2013). For this research this was of particular utility to access individuals with private health concerns or who hold specific knowledge that may
not otherwise be known/visible to the researcher. This strategy was used throughout the data collection for this research, routinely asking participants to identify individuals who are particularly knowledgeable or experienced with topics relating to health or are engaged in health programming/activities in the community.

*Purposive sampling* was the final stage in the sampling method hierarchy. Purposive sampling is commonly invoked to compensate for the deficiencies of snowball sampling methods and ensure that there is not a sampling bias towards one social network or familial group (Heckathorn 2007). This final stage in sampling methods further refined the list of suggested participants developed via snowball sampling to identify those individuals who were suggested most frequently or who’s experience was most relevant. There is concern that the use of purposive sampling invites bias as the selection of informants is influenced by the researcher’s own experience, which may be limited, and their own prejudices (Rice 2010). To avoid such bias this phase of sampling was guided primarily by community research partners who advised as to the individuals who would not only be valuable informants but who would also be willing and able to participate.

Purposive sampling was also engaged to obtain a representative sample. A local research partner familiar with the community was tasked with listing all resident women in the community as well as their approximate age. This information allowed the researcher to work from the snowball sampling lists and sample purposively from cohorts to maintain a sample representative of the age structure of the community.

### 4.2.1.1 Sample Size

A number of factors can influence the optimal sample size for a study (Mason 2010). In particular the timing of fieldwork inhibited the ability to pre-determine a
sample size for this case study community. Spring and summer are highly active hunting months in Ulukhaktok and as such community members are constantly coming and going from town and spending extending periods of time on the land at hunting camps.

Conducting interviews at the convenience of the participant in this dynamic made estimating the number of interviews that would be completed near impossible. It is suggested that pre-determining a sample size does not align with the fundamental goals of qualitative research (Mason 2010; Dragan & Isaic-Maniu 2013).

As such it was the intention of the university researcher to conduct interviews with community members until a point of information saturation had been reached from a sample representative of the community’s age structure. Saturation was attained at approximately 23 interviews. However, opportunities arose to interview individuals who had been identified by members of the community as particularly knowledgeable or having a specific expertise on the topic. These interviews were completed but resulted in a sample that was not proportionate to the age structure of the community. So additional interviews were pursued to maintain a representative sample. The final interview sample size was 29 accounting for approximately 24% of the total number of women residing in Ulukhaktok at the time of research. This sample was collected to be representative of the age structure of women residing in the community, see Table 4.1.

Table 4.1: Interview sample proportionate to the age structure of total population of women residing in Ulukhaktok, NT

<table>
<thead>
<tr>
<th>Cohort</th>
<th>18-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>8</td>
<td>5</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Total pool</td>
<td>35</td>
<td>17</td>
<td>35</td>
<td>14</td>
<td>18</td>
<td>119</td>
</tr>
</tbody>
</table>
4.2.2 Interview Structure

Interviews were semi-structured and questions were open-ended, allowing discussions to progress in a conversation style manner that was comfortable for the participant and for the discussion of certain topics to be guided by the interests and knowledge of the participant. Semi-structured interviewing techniques are acknowledged as highly effective for research focusing on local and traditional knowledge in Inuit communities (Huntington 1998; Usher 2000; Pearce et al. 2011; Westdal et al. 2013). The researcher made use of an interview guide (see Appendix 1); however, this served only as a thematic guide to ensure all relevant topics were addressed. The flexibility of this interview method allowed in the participant to discuss topics that a participant was especially knowledgeable and/or passionate about (Huntington 1998). Further, it provided the flexibility for the researcher to adjust the interview to meet the characteristics of each interaction, making interviews much more enjoyable and effective (Huntington 1998). In some instances the participants even commented on how much they enjoyed the conversation with the researcher and the local research assistant. The flexible nature of the interview allows discussion to progress in a manner congruent with Inuit oral traditions of knowledge sharing (Ferguson & Messier 1997; Huntington1998).

Free-listing exercises and line drawing activities were complimented with open-ended questions. Participants were asked a series of questions that were phrased in such a way that did not allude to any answer categories (i.e. yes or no) (Dunn 2000; Patton 2002). The freedom from predefined answering categories allowed participants to answer in their own words (Dunn 2000; Patton 2002). Further, this allowed the participant to speak to the topic with which they are particularly knowledgeable or passionate about
and address each topic to the full extent of their knowledge and comfort (Huntington 1998; Dunn 2000; Patton 2002). This characteristic of open-ended questions was particularly useful for this research as a wide range of answers and perspectives were possible and expected.

At the beginning of each interview participants were asked several straightforward questions that helped to build rapport and put the participant at ease in the interview (Dunn 2000; Patton 2002). In many instances the participant, the research assistant and the researcher were laughing early in the interview and by the end participants indicated that they had enjoyed the experience. Subsequent open-ended questions built on free-list and line drawing responses. The free structure of these questions was utilized to encourage participants to expand on the free-list provided and ensure that nothing was excluded (Dunn 2000; Brewer 2002; Patton 2002). These question were also useful to encourage participants to explain their answers or clarify the terminology and imagery in their responses to complete the researcher’s understanding of their intended meaning (Dunn 2000; Brewer 2002; Patton 2002). Finally, open-ended questions were used to explore topics that were not raised in either free-listing or line drawing but that the researcher though would compliment the objectives of this research, as identified through phased assertion (Dunn 2000; Patton 2002; Collings 2009). The complete interview guide can be reviewed in Appendix 1.

4.2.2.1 Free Listing

Free listing was used to gather large amounts of information on the specific cultural domain of women’s conceptualizations of health, what is needed for a woman to live a healthy life (Brewer 2002; Quinlan 2005). For this research the domain of focus for
the free listing was healthy living necessities. Participants were asked to “list all the things a woman needs to live a healthy life.” Critiques of free listing include that participants may not list all items that they know within that domain because they either forget or are unaware they should list everything. The researcher used supplemental interviewing techniques to enhance participants’ recall in order to render a more thorough and complete list (Brewer 2002). Once participants indicated that they could not remember anything else women needed for a healthy life, the researcher would read back to the participant the list they had provided. This practice regularly revealed items that the participant had thought they noted but did not (Brewer 2002). This practice also allowed the researcher to check the list for accuracy (Brewer 2002). When the participants again indicated that they could not think of more items the researcher used non-specific prompting. This involved the researcher asking about individual items already on the list, further narrowing the semantic domain and encouraging participants to think more in depth, often revealing additional items (Brewer 2002). Prompts used often included, “What other treatments have you used?”, “What other foods are healthy?”, “Who else would you go to for help with that?” After participants once again indicated that they could think of nothing else that a woman needs for a healthy life, the researcher considered the free list complete.

Given varied literacy of the all free listing questions were administered orally. Orally given free lists are subject to influence from others in vicinity offering suggestions (Quinlan 2005). To reduce this external influence and ensure that all items on the list given were from the participant, interviews were conducted privately whenever possible, with only the researcher, the local research partner and the participant present. If there
was an instance of external influence in the free listing process, the researcher made note of this and the item it rendered for the list, and this was accounted for in the analysis.

### 4.2.2.2 Line Drawing

The interview also included two line drawing exercises. Participants were provided with paper and a set of coloured pencils and asked to draw a healthy woman. If a participant asked what kind of drawing was expected they were told to draw whatever they wanted as long as it indicated a healthy woman. When participant’s indicated that they were content with their drawing of a healthy woman, they were asked to then draw an unhealthy woman. Once both drawings were complete the researcher engaged the participants in discussion about their drawing, inquiring specifically about the activity the woman was engaged in, the objects depicted around her and why they were associated with her being healthy or unhealthy. Creative methods such as these combine scientific rigor and critical analysis with imagination and creativity to help participants characterize and assign meaning to their experiences and aids researchers in interpreting perceptions within a cultural context (Emond 2005; Mitchell et al. 2011). Line drawing, and other creative techniques are used in cross-cultural contexts as an effective tool for the transmission of experience and perception (Condon & Stern 1993; Emond 2005; Mitchell et al. 2011).

The researcher utilized these methods to capitalize on the visual storytelling and knowledge transfer customs of Ulukhaktok (Condon & Stern 1993; Emond 2005; Balanoff et al. 2009; Mitchell et al. 2011). The use of visual techniques also helped address language barriers of cross-cultural interviewing, allowing participants to
communicate words or ideas for which there is no effective Inuinnaqtun to English translation. All line drawings completed can be found in Appendix 3.

4.2.2.3 Cross Cultural Interviewing Considerations

4.2.2.3.1 Language Differences

English is commonly spoken in Ulukhaktok; however, the traditional language of the Inuit of Ulukhaktok is the Kangiryuarmiut dialect of Inuinnaqtun and there remain a number of individuals who communicate in this traditional language (Condon 1996). While the researcher made a concerted effort to learn some Inuinnaqtun, competency did not extend beyond daily greetings and the names of animals. Given that the researcher’s only proficient language is English all interviews were either conducted in English or translated between Inuinnaqtun and English. All participants were given the option for the interview to be conducted in the language they were most comfortable communicating in. While English was the language of choice for many participants, it was not for most of the 60+ cohort, some in this age category are monolingual in Inuinnaqtun. For these interviews the researcher worked closely with a locally respected interpreter who was present at all interviews for which the participant indicated Inuinnaqtun would be their language of choice. The interpreter also assisted by making phone calls to these participants to arrange a convenient time for the interview to take place.

The researcher and interpreter worked cooperatively to build interviews that would allow for the greatest success in these bilingual contexts. It was important that the interpreter understand the goal of the project so that no meaning was lost in the translation of questions. In several instances the interpreter told the researcher “I will try
to say that a different way” and in some cases the interpreter made use of examples that were place and generationally specific to give context to the question for a participant. At the conclusion of each interview the researcher was sure to say “Quana” (thank-you) to the participants for the time and knowledge they shared.

4.2.2.3.2 Ethical Considerations

Informed consent to participate in the research was obtained prior the administration of each interview in a written letter and orally in either English and/or Inuinnaqtun (Ballanoff et al. 2009). Participants were informed of the researcher’s affiliation with the University of Guelph and familiarized with the objectives of the research. In addition participants were informed that they have the right to withdraw from the research at time, up until the data had been collated. If individuals were still keen to participate, the researcher requested their permission to record the exchange, informing them that the recording would be used solely for review by the researcher and the research advisor. At the conclusion of the interview, when participants had full knowledge of the information they had shared, the researcher requested permission to use their name in publication.

4.2.3 Participant Observation

Participant observation is a method in which the researcher engages in the community, participating in the common and uncommon activities of a culture to understand its explicit and tacit components (Musante 2014). These methods were used in this research to develop rapport with the community, to guide interviews and to contextualize the information garnered from secondary source review and interviews (Laidler et al. 2008; Collings 2009). During data collection the researcher recorded daily
observations regarding biases as a southern researcher, personal circumstances that may influence the research and major occurrences in the community that would influence the community, their activities and the researcher’s observations (Collings 2009; Musante 2014).

Participant observation is often restricted by the time demanded for its success (Collings 2009). The twelve-week field season was designed in part to compensate for this limitation. During this time the researcher became an active part of the community, engaging in daily activities, community celebrations and special events. The timing of the field season was fortuitous and allowed the researcher to attend a number community events including, the high school graduation, the annual Ulukhaktok Kingalik Jamboree, Canada Day celebrations and Billy Joss Open (golf tournament). On a regular basis the researcher actively visited women in the community socially, preparing and sharing meals with local families, learning to embroider from women of the community, helping to check fish nets and clean fish, and assisting in harvesting meat when hunters brought a beluga to the shore. In addition, the researcher spent four nights and five days on the land participating in a camping trip organized by the Ulukhaktok Community Corporation, UCC. This provided numerous opportunities for informal conversation both related to the research topic and not. Through these interactions the researcher gained cultural and communicative competence that enhanced the quality of research.

Information learned through participant observation informed the interview process and questions asked. The use of phased assertion drew on observations to develop locally relevant interview probes to demonstrate a level of competence required by Inuit elders before additional knowledge is shared (Collings 2009). Participant
observation was also a qualitative research method for data collection in its own right, providing information on the challenges, opportunities and priorities that shape women’s health behavior in Ulukhaktok (Musante 2014). The information gained from participating in and observing the community is incorporated explicitly into the data analysis (Musante 2014).

4.2.4 Analysis of Secondary Sources

Semi-structured interviews and participant observation were complimented by an analysis of relevant secondary sources (e.g. peer-reviewed publications, grey literature, health records/statistics and government reports). A literature review of climate change impacts on health, Inuit health transitions and Northern healthcare was conducted to identify research needs (see chapter two). This ensured that the research built and expanded on completed research.

The analysis of secondary sources also informed the design of research methods, highlighting the utility of participant observation, semi-structured interviews and visual techniques (drawing), for data collection in the community (Condon & Stern 1993; Collings 2009; Pearce et al. 2011). The review of secondary sources also aided the researcher in developing relevant interview probes through phased assertion (Collings 2009). The results were then interpreted in the context of information documented in secondary sources, namely information on projected future climate change, Inuit dietary changes and relevance to Inuit health.

4.3 Data Analysis

This section describes methods used to analyze primary data collected. This includes an outline of both the salience analysis calculations and interpretation of free
listing data as well as the latent content analysis technique applied to interview response data.

**Salience Analysis**

Free list data were calculated to determine cultural salience or prominence of each item. This measure accounts for the frequency of mention of any item among lists, it is also weighted for the position of the item within each list (Ryan et al. 2000; Quinlan et al. 2005). Salience was calculated as follows, each participant’s list was digitized in exactly the order as it was given, and input into an Excel spreadsheet. The items in each were then inversely ranked (i.e. the first mentioned item is given the lowest rank, as indicated by the highest number, and the last mentioned item the highest rank, as indicated by the number 1). The rank of each item was then divided by the total number of items in that participant’s list (Ryan et al. 2000; Quinlan et al. 2005). To determine cultural salience of items among participants the scores of each item are summed and divided by the total number of participants (N=29) (Ryan et al. 2000; Quinlan et al. 2005).

In response to what is required for a healthy or good life, free listing responses of participants yielded 47 unique items listed across all cohorts. While there is no standardized method for selecting predominant themes, this was done following Quinlan’s (2005) suggestion that significant themes are those items with greatest salience before a notable break in the data. For this data set this break occurred at the threshold of 0.1 salience (Quinlan 2005). This identified 8 superordinate themes to be significant.

Free listing was an effective method for quickly collecting large amounts of data from the participants. However, given the breadth of the topic it was possible that participants would forget some items and/or detail. Further, measures of salience only
indicate the prominence of each idea among participants and not the rational behind the ranking (Quinlan 2005). As such it was important to crosscheck the free listing results with other sources of data in order to both triangulate the identified themes and explore each in more depth for enhanced context (Quinlan 2005; Bird et al. 2008).

*Latent Content Analysis*

Latent content analysis is considered highly effective for examining and developing and understanding of an individual’s experience of health and well-being (Hsieh & Shannon 2005). As such, both semi-structured interview data and participant observation data were analyzed using this technique. Latent content analysis does not involve sorting data into predetermined categories but instead searching the data for reoccurring references in order to identify naturally emergent themes (Dunn 2000; Patton 2002). This technique also takes into account latent content such as laughter, posture and tone in addition to explicit responses (Hsieh & Shannon 2005; Elo & Kyngas 2008).

This analysis was done using NVivo 2.0 software. All interview recordings and field notes were transcribed into electronic formats to be compatible with the software and uploaded into the program. Each source of data was then reviewed and predominant ideas and concepts that emerged within the text of interviews and field notes, both implicit and explicit were coded (Dunn 2000; Patton 2002). Once all data sources had been coded thoroughly, related ideas were collected together and collapsed into overarching themes. Coded themes were all cross-references to identify instances in which multiple themes were discussed together. The collection of data (i.e. coded quotes and observations) and latent content within in each theme was then assessed collectively to add context and clarify the voice of the participants among the data. Results of salience
and latent content analysis as well as review of secondary sources are presented and discussed in detail in Chapter 5.
CHAPTER 5: Results

This chapter presents the results for the first three research objectives: (1) characterize how Inuit women conceptualize health, (2) document health risk that are relevant and important to women and (3) identify and describe what strategies are being employed by Inuit women to address health risks. The chapter begins by characterizing how Inuit women conceptualize health including both perceived determinants and indicators of good health. The following section details the health concerns relevant to Inuit women in Ulukhaktok, those they have or are currently experiencing as well as those that they foresee in their future. Building on this the chapter then documents the health risks that are important to Inuit women, including those already impacting their health as well as those anticipate to become influential. Finally, this chapter outlines the strategies being employed by Inuit women to address health risks.

5.1 Inuit Women’s Conceptualizations of Health

In response to what is required for a healthy or good life, free listing responses of participants yielded 47 unique items listed across all cohorts. These results were calculated as per Quinlan (2005) (see section 4.3) within each cohort and across all cohorts collectively to determine the cultural salience of each item and identify those most predominant. These items were triangulated and explored in greater detail through semi-structured interviews and participant observation. The culmination of this analysis showed that Inuit women’s conceptualizations of health includes, family, the land, healthy eating, active lifestyle, happiness/positivity, community involvement and cultural connectedness as both drivers and indicators of good health.
While the remainder of this section discusses themes identified in the data individually, it is important to note the considerable overlap across themes, as shown in Table 5.2. For example, women often discussed being happy while on the land with their families, from which no theme can be meaningfully separated from the others. This is interpreted as being indicative of the holistic nature of Inuit knowledge and the interconnectedness of its parts and to portray a holistic perspective of health and wellbeing among Inuit women in Ulukhaktok (Kral et al. 2011). This is discussed in greater detail in section 2.3 and 2.4 (Tester & Irniq 2008).

### Table 5.1: Salience of emergent themes across freelist and interview responses

<table>
<thead>
<tr>
<th>Theme</th>
<th>Composite Salience $\sum/n$ (N=29)</th>
<th>Number of Participants Referencing</th>
<th>Number of Related Narrative Statements (NS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>0.342</td>
<td>29</td>
<td>145</td>
</tr>
<tr>
<td>The Land</td>
<td>0.244</td>
<td>27</td>
<td>121</td>
</tr>
<tr>
<td>Healthy Eating</td>
<td>0.411</td>
<td>27</td>
<td>84</td>
</tr>
<tr>
<td>Active Lifestyle</td>
<td>0.189</td>
<td>23</td>
<td>57</td>
</tr>
<tr>
<td>Happiness/Positivity</td>
<td>0.146</td>
<td>26</td>
<td>73</td>
</tr>
<tr>
<td>Community Involvement</td>
<td>0.184</td>
<td>21</td>
<td>80</td>
</tr>
<tr>
<td>Cultural Connectedness</td>
<td>-</td>
<td>26</td>
<td>84</td>
</tr>
</tbody>
</table>

While the remainder of this section discusses themes identified in the data individually, it is important to note the considerable overlap across themes, as shown in Table 5.2. For example, women often discussed being happy while on the land with their families, from which no theme can be meaningfully separated from the others. This is interpreted as being indicative of the holistic nature of Inuit knowledge and the interconnectedness of its parts and to portray a holistic perspective of health and wellbeing among Inuit women in Ulukhaktok (Kral et al. 2011). This is discussed in greater detail in section 2.3 and 2.4 (Tester & Irniq 2008).
Table 5.2: Emergent themes mentioned together and/or as a component of one other in participants’ description of a healthy life

<table>
<thead>
<tr>
<th></th>
<th>Family</th>
<th>Land</th>
<th>Healthy Eating</th>
<th>Active Lifestyle</th>
<th>Positivity/Positivity</th>
<th>Community Involvement</th>
<th>Cultural Connectedness</th>
<th>Cultural Connectedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Land</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Healthy Eating</td>
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<tr>
<td>Active Lifestyle</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positivity/Positivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Community Involvement</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Cultural Connectedness</td>
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</tbody>
</table>

The narratives expressed within the context of this project do reference all the parts of the ‘self’, including emotional, physical, mental and spiritual, accentuating the holistic perception of health conveyed by the participants in this project. These ideas will be discussed as appropriate within the domain of the dominant themes.

**Family**

The most prominent theme identified among all sources of data was the importance of family for one’s health and wellbeing. Family was listed at the second most salient item across all cohorts, referenced by 100% (N=29) of participants and mentioned more frequently in 145 narrative statements (NS) than any other theme.

The significance of family was evident within the community, exemplified by the emphasis placed on sharing mealtimes together, generations travelling on the land together and the practice of addressing one another by relation rather than name; for
example, “hi my cousin” or “sure brother”. Direct references to the importance of family by all participants validated the perceived importance of these relationships. As Susan Kaodloak (41) confirmed,

“...we are a very family oriented community! You know extended family, not just grandchildren, but nieces and nephews or your niece’s kids kind of thing.”
– Susan Kaodloak, 41 yrs old

All participants made specific reference to the influence of family for one’s health and well-being and family was featured prominently in participant’s line drawings of a healthy woman (see Figures 5.1a, 5.1b and 5.2).
Figure 5.1a: ‘A Healthy Woman’ as drawn by Gilbert Olifie, 41 yrs old

Figure 5.1b: ‘An Unhealthy Woman’ as drawn by Gilbert Olifie, 41 yrs old
Figure 5.2: ‘An Unhealthy Woman’ (top) vs. ‘A Healthy Woman’ (bottom) as drawn by Laverna Klengenberg, 44 yrs old

Some mothers teased that simply having young children to care for has an inherent benefit for their physical health. One mother, whose two young children repeatedly interrupted the interview for diaper changes, snacks and to show us their drawings affirmed,

“[My kids]...they certainly keep me active all the time.” -23 yrs old

However, discussion of family’s influence on physical health more seriously and frequently included reference the practice of food sharing. This custom allows families or single mothers without access to the resources necessary to travel and hunt on the land and ice to still benefit nutritionally and spiritually from country foods. Roberta Memogana, 43 recalled how her father provided country food not only for his own children but for several other families as well,
“[My father] he’d always have to hunt cause it wasn’t just our family, but he was supporting how many other families. Cause his sister had no more husband to hunt for her, his best friend couldn’t hunt that much or that good anymore because he was, like his vision was going and his hearing was going. So he’d always hunt for his friend Kagyut and for his sister. So it was for three houses he was always supporting.” – Roberta Memogana, 43 yrs old

Women on the giving end of this exchange also included the practice as a part of a healthy life. These gestures in taking care of family and community members were heavily emphasized and women described deriving happiness and health in doing so.

“When they run out they always come here. Not only my family but other elders when they need food they come here. And I try and prepare it in a way that the elders like it and the way that my children like it. Because some of them like it a little bit aged and some of them don’t, they like it fresh. I try and mark every bag, which is more to their liking. Sometimes they just grab the wrong bag, they say ‘oh this one must be for the young guys’ hahaha” – Jean Ekpakhokak, 61 yrs old

“You know I’ve been very blessed to have my family around me to be able to share with me. But there are times too when you know...we need to think of our younger ones to be able to have their country foods. So for me, I’m able to lend in my little parts...sometimes of the year country foods is not so available so we just learn to mix it in with your store bought market food. You know, meat, fish and ...I mean meat, beef and pork chops...just blend it in and try to make it last longer. I think that’s where our elders are, like my age group...we do that anyway.” – Annie Goose, 66

Participants also placed considerable emphasis on the influence of family for mental and emotional health and well-being. Roberta Memogana (43) poignantly illustrates this in her depiction of a healthy woman as one who is a part of “a happy family”, see Figure 5.3.
Family and the responsibility of caring for family, children in particular were often cited as the motivation and inspiration for women to attain sobriety and refrain from the use of drugs and alcohol. Annie Goose, 66 yrs old, attributes her nearly 20 years of sobriety to her grandchildren,

“My biggest inspirators is my family, my children. My little Tobin when he’s sitting around doing his painting when I was trying to recover [from knee surgery] him just being around and saying his little questions was a big healing for me...My family has been a big part, when she [Jasmine Klengenberg, granddaughter] was 4 years old and when I was just sobering up and that just...oh my goodness...my 4 year old can see this, especially my grandchild. So those little things has been a big part of my recovery, sobriety. To make it real” – Annie Goose, 66 yrs old

And as Joanne Ekpakohak, 43 yrs old, honestly expressed,

“If they [my children] weren’t around, I don’t know where I’d be...in the drunk tank!”
The Land

The second most prominent theme when considered across all interview and participant observation data is the significance of a connectedness to the land and spending time on the land. Consistent with other research here ‘the land’ refers collectively to the ice, waters and land upon which people travel, camp and hunt and includes all components of these environments that are of importance to Inuit. This theme was listed as the third most culturally salient item requirement for a healthy life among all age cohorts. It was noted that participants listing this theme later in their free list, or not at all, are those that do not have regular access to the expensive equipment required to travel onto the land. However, being on the land was referenced by 93% (N=27) of participants in 121 narrative statements. Further, the theme interrelated with most others, underscoring the interconnectedness of human and natural worlds and a holistic perspective of health among Inuit women.

The land was often mentioned jointly with family as part of a healthy life. The land is described as the ideal venue for family to spend time together and strengthen the relationships that are considered essential for a healthy life. Laverna Klengenberg, 44, and Gilbert Olifie both clearly expressed this in the contrast between their depictions of a healthy woman being not only with their families but that this healthy interaction takes place on the land, compared to an unhealthy woman who is inside and alone, see Figures 5.1.1a,b and 5.1.2. Agnes Kuptana, 60, also definitively expressed that the land and family are interrelated elements of a healthy life in her representation of a healthy woman including the statement that, “Out on the land with family is a healing and healthy lifestyle”, see Figure 5.4.
Figure 5.4: ‘A Healthy Woman’ as drawn by Agnes Kuptana, 60 yrs old, “Out on the land with family is a healing living and healthy lifestyle.”

Women expanded on this idea and explained that the land also plays an important role in a healthy life as a catalyst for sharing traditions and knowledge. This includes story telling, cooking and hunting and foraging knowledge.

“[A healthy life is] spending time together I guess. Doing stuff together, being out on the land, learning the traditional life.” – Denise Okheena, 30 yrs old
“When you’re in the house you couldn’t teach them so much because they’re excited about TV or their iPods or iPads, but when you’re out on the land they watch everything you do! And that’s how they learn because they can’t go without it, like if you go out there. All the things they have to do in order to survive out there. Without it they won’t! We lived through stories our whole life from our elders and now that they’re gone I’m doing the same thing with my grandchildren...even just the rocks and grass all around you can teach you a lot just by looking at it because we are not the first ones to camp there. There’s been elders and people that have been camping there, you just walk on it and see their traces of campgrounds and then you pass it on and pass it on. You show them the good spots for fishing, good spots for picking berries, good spots where the roots are and there’s even flint where I am so I put a big Inuksuk up so the kids, if they ever go by there just look around on the land, you’ll find flint.”
– Jean Ekpakohak, 61 yrs old

As such, the land is a part of maintaining a balance for women’s mental and emotional health. However, in addition to being the setting for positive family interactions and relationships many women recounted deriving incredible mental, emotional and spiritual solace from the land itself. Women in all cohorts described time on the land as peaceful, stress-relieving and refreshing. For example:

“Even if it’s just for the night, it’s a peaceful night. It’s calming, really calming.”
- Bryann Memogana, 19 yrs old

“Be out on the land, go travelling as much as I could...it’s good, refreshing. It’s so peaceful to be out. It’s stress free” – Dana Illasiak, 23 yrs old

“[It’s] stress free! It’s so simple out there! Like, you don’t have much to worry about” – Denise Okheena, 30 yrs old

“I used to [go to] counseling. But me, my counseling is out on the land. I go out there and heal and think about everything. I just go out there and cry it out...That’s where I counsel, that’s where I sit and just meditate. Some people call it meditation I just call it re-healing. I find it heals your soul. It does, it really does. Even just to sit across a really plain tundra and looking and just seeing nothing and you could see yourself or a part of your life just like that...when I go to a certain place, a river that bends [I see] my life rolling through it and I could se everything that I’ve done and all the sins I’ve done and I could see it flowing down the river, you know, like healing. That’s why I call it my healer”
– Joanne Ekpakohak, 43 yrs old
Bryann Memogana, 19, and Mary Okheena, 53 yrs old, explained that this is the result of a deep spiritual connection to and a sense of identity rooted in the land,

“The land is who we are! The land is...what makes us, you know Inuit. The land is...was always our provider, our shelter...you know just the means of us being there. Our spirituality is the land.” – Mary Okheena, 53 yrs old

“It’s important to be on the land. Especially where they grew up. Where they grew up and what they grew up with” – Bryann Memogana, 19 yrs old

Additionally, participating women also emphasized the physical benefits of time spent on the land. In particular they highlighted the physicality demanded to survive on the land and the nutrition of country foods harvested from the land.

“Being out on the land is good heath too for your body, mind and soul...just walking mainly, try to walk. My grandmother that passed on, Rene, who once lived out on the land [was healthy], she walked and walked and walked, that’s all they did long ago. She’s my inspiration.” - Trudy-Ann Akoakhian, 42 yrs old

“It [being on the land] is better than town because you can’t just stay still and get your food, you have to go out there and look for it and follow the animals.” – Joanne Ekpakahak, 43 yrs old

**Healthy Eating**

The third most prominent theme in relation to Inuit women’s conceptualizations of health and wellbeing is healthy eating and healthy food. This was the second most culturally salient item listed by women for a healthy life and healthy eating was referenced by 93% (N=27) of participants in 84 NS. Further exploration of this theme with participants identified healthy foods to include country foods (i.e. foods sourced from the land or water) as well as dairy, fruit and vegetables. In fact, the cultural salience of country food itself was greater than any other item and mentioned by 100% (N=29) of participants. Discussions often compared country foods and meats to those available at
the local grocery store. Participants, including Roberta Memogana, 43 yrs old, consider country foods to better meet the nutritional requirements of a northern diet, containing high levels of protein, iron and other nutrients.

“The supplements [make country food the healthiest]. If you live off the land and you get your meat off the land that’s a lot healthier than getting already washed food from the store. That’s how I see it. Cause you could get all your nutrients from one meal. I love healthy. I eat healthy. Sometimes I regret buying food from the store but that’s what we have to do. If you cant get it from the land then you have to get it from the store.” – Roberta Memogana, 43 yrs old

Country food is considered to be healthier than store bought food as much as for what is in it as for what is not. Women expressed their preference for country foods to be in part a result of the fact that they have not been treated with antibiotics or preservative chemicals as many store bought foods have been.

“It’s not processed at all, our native food. We do it ourselves, we know what goes into it and how it’s prepared versus store bought stuff and you don’t know what they’re fed and how they’ve been processed and God knows what else kind of chemicals go in their food, you know, down south. Up here we know what goes in our food.” – Joanne Ogina, 50 yrs old

“I find it [country food] more natural and you know they don’t have the stuff they put in food for the animals on the farms and that. So it’s all natural and I find it a lot better.” – Michelle Kitekudlak, 34 yrs old

Participants also discussed that country foods give them more energy and keep them more full for longer than store bought foods. Importantly, the concept of healthy eating includes more than physical benefits. Elders Annie Goose, 66 yrs old, and Anges Kuptana, 60 yrs old explain how sharing country foods is a healthy practice to bolster family relationships and community strength,

“I’ve been very blessed to have my family around me to be able to share with. But there are times too when you know, we need to think of our younger ones to be able to have their country foods. So for me, I’m able to lend in my little parts.” – Annie Goose, 66 yrs old
“I think for one, when you have the food, the healthy country food. EAT IT, if you have it. If you don’t it’s nothing bad, asking. Because somebody when they need it, they phone and ask “you know I’m short on so-and-so” and we tell them “Come over! Just go in the freezer and look!” you know like sharing. Not everybody have access to it [country food].” – Anges Kuptana, 60 yrs old

Active Lifestyle

Across all interview questions physical activity also emerged as a prominent theme for a healthy life. It was the fourth most culturally salient item listed among cohorts and its importance was discussed by 79% (N=23) of participants in 57 NS. It was emphasized that an active lifestyle is beneficial for mental, emotional and physical health. Susan Kaodloak, 41 yrs old, describes her concept of an active lifestyle in Ulukahktok as,

“Going out and joining baseball or golf or playing with their kids or their grandkids, you know that sort of thing, still being able to. Even if they had to work to be able to go out and say take a walk with one of their grandchildren. Those would be the women most healthy physically and then you know metal too because they feel like they want to go out and do stuff. That is what I say is living here and being healthy.” – Susan Kaodloak, 41 yrs old

This was a widely shared opinion among participants, that an active lifestyle includes community and family involvement, walking and engaging in on the land activities. An active lifestyle, and these activities in particular are considered part of a healthy life as outlets for stress relief and happiness, promoting mental and emotional well-being.

“Just daily do something around the house to keep active, go for walks, go visiting, get out on the land...going for a walk with [your] other half. Something to do, something to keep [your] mind off other things” – Dana Illasiak, 23 yrs old

“It’s good for your body and your soul too probably because you’re out there at one with nature. I don’t know, some people might talk to themselves but I think it’s whatever’s out there.” – Darlene Nigiyok, 35 yrs old
Women also highlighted the physical health benefits of an active lifestyle. Participants explained that an active lifestyle increases your energy, enables one to participate in community events, and helps one stay active later into life, maintain a healthy weight and prevent diabetes.

“Instead of taking rides all the time, it’s good to walk, get your blood circulating and it’s good for your body, your muscles, your joints. Sometimes my sister, I tell my sister, cause she really sews eh? Sitting is not good for you, so I’m telling her walk up the hill, go up, come and walk! She has a Honda so when she’s too tired she prefer it but a lot of times I tell her walking good for you. A lot of time I see people, especially young people ask if I want a ride and I tell them ‘here, just take my bag and I’d rather walk’. Because if I start to get rides too much then my knee gets really bad.” – Anges Kuptana, 60 yrs old

**Happiness/Positivity**

Participants across all age cohorts listed happiness/positivity as a distinct component of a healthy life and it was the sixth most culturally salient item. Further, 90% (N=26) of participants in 73 NS discussed happiness as essential for a healthy life throughout their interviews. The eldest member of the community, Jean Kagyut, 95 yrs old, shared a direct message about the importance of happiness for a healthy life,

“That’s what the good life is all about...enjoying it! You know when you’re down and you go right down. I guess the other part is to respect people and be happy with others.” - Jean Kagyut, 95 yrs old, via translator

In drawings many respondents distinguished between a healthy woman and an unhealthy woman by characterizing their emotions, healthy women being happy and unhealthy women being sad and often lonely. For example, Mary Okheena, 53 yrs old drew a smiling woman under the northern lights as healthy and a crying woman as a representation of an unhealthy woman see Figure 5.1.5a and 5.1.5b. Others were more symbolic in their drawings, Joanne Ogina, 50 yrs old drew a dark space when describing the unhealthiest time her life, one when she was depressed see Figure 5.6. Roberta
Memogana, 43 yrs old, drew “a happy family” when describing a healthy woman and altogether refused to draw an unhealthy woman saying that she “won’t draw sadness” see Figure 5.4.

**Figure 5.5a:** ‘A Healthy Woman’ as drawn by Mary Okheena, 53 yrs old

**Figure 5.5b:** ‘An Unhealthy Woman’ as drawn by Mary Okheena, 53 yrs old
Figure 5.6: ‘A Healthy Woman’ (top) vs. ‘An Unhealthy Woman’ (bottom) as drawn by Joanne Ogina, 50 yrs old

This collection of drawings is indicative of the sentiments expressed by many of the women in their own drawings or interviews. Women often referenced deriving happiness from time spent on the land and with family. Frequently this idea was discussed in the reciprocal, unhappiness being described as indicative of an unhealthy
life. Participants expressed that unhappiness could be both a cause and a symptom of poor health. Jean Ekpakohak, 61 yrs old, explained this,

“Their body, even their attitude and everything starts to get sick and they go along with whatever they’re feeling and they just become so gloomy or just don’t want to do anything and that’s unhealthy. If they were active and doing things all the time they would be a lot healthier because they are moving and they should be enjoying what they are doing.” – Jean Ekpakohak, 61 yrs old

Importantly, women described instances of sadness and poor health as collective experiences, afflicting close family and community members. Likewise, women explained that this shared experience could also be leveraged as a source of healing. Jean Ekpakohak continues,

“I am sad sometimes when, you know you hear things and you see things and you feel sad because your family members are not doing okay and some members are doing okay. So you’re happy and then there are others that make you sad. Because everything revolves around you family, so if one is feeling down, you feel down with them and feel happy when they’re happy. But in order to get everybody feeling happy you just try and get them going happily. Not on how they’re sad all the time, change the attitude!” – Jean Ekpakohak, 61 yrs old

Women emphasized that isolating oneself from family and community is both an indication of unhappiness and poor health as well as an unhealthy practice in and of itself perpetuating unhappiness.

**Community Involvement**

Active community involvement was the fifth most culturally salient item identified by women as a part of a healthy life and was referenced by 72% (N=21) of participants in 80 NS. It is important to note, however, that references to community involvement decreased with the age of the cohorts. The theme being discussed by 95% of participants 60+, 50-59 and 40-49 years old, 50% of the 30-39 year olds and 29% of the 18-29 year old cohort. In particular, women discussed the negative health effects
experienced when not involved in the community, including unhappiness, negativity and depression. An unhealthy woman was described as being lonely, having poor relationships with family and friends, being in mentally or physically abusive relationships and unwilling or unable to access support.

“Loneliness! That’s one thing of an unhealthy person…people pushing them away, then they get shy inside and don’t want to communicate. [indicating her drawing] that is a broken heart I see in one lady.”
- Joanne Ekpakahak, 43 yrs old

“They’re a lot more guarded, very scared to say anything. Actually, they don’t really want to talk to anybody, they’re embarrassed about themselves. They just don’t seem to have normal interactions. Everyone here is very friendly and very easy to talk to each other...um...you can see that they’re family life is not very good because they don’t talk, they’re very guarded and they’re scared, you can tell they’re scared, those kinds of things.” – Susan Kaodloak, 41 yrs old

This characterization is clear in Gilbert Olifie’s portrayal of an unhealthy woman, see Figure 5.1b.

“[This person] is all alone and ...has a road block to go and get help. They never participate in drum dance or community gatherings. There is all this help (indicating the house full of people), drum dance and stuff...but try to go here and there’s always something in the way” – Gilbert Olifie, 41 yrs old

However, observations were that women in Ulukhaktok maintain active social lives, participating in sewing and cooking groups, drum dancing, attending community events and spending their free time visiting with one another. Throughout their interviews women repeatedly referenced this and referring to healthy living as a collective practice. Margaret Notaina, 69 yrs old, clarified that this social activity and community involvement is definitively a part of a healthy life,

“Visiting each other and talking is for our health, women’s health.”
- Margaret Notaina, 69 yrs old
Many women discussed the influence of a social support system within the community for emotional and mental wellbeing. Agnes Kuptana, 60 yrs old, shared its influence in helping her cope with the loss of her brother.

“There are people that come to a point where they, maybe because they lost a loved one and they are grieving but they want to grieve alone. They turn to substance...they kind of push people away. You have to reach out, cause if you don’t then they’re also suicidal. Even if they’re not ready to talk you know you just say that we care, we’re here and that what makes them say ‘somebody really do care for me today, I’m not alone’...When I was in that state she [a friend in the community] came over and she told me all about it and we shared and we laughed and we cried, the good things, and the bad things and before I knew it I have never felt so good in a long, long time. Like I was light, I wanted to go out and do things. I just finally had the courage to let everything go.”
– Agnes Kuptana, 60 yrs old

Women identified a number of concrete ways that being actively engaged in the community enhances the collective wellbeing and contributes to a healthy life, including the passing of traditional knowledge, sharing food and meals and companionship both in the community and on the land.

“Just closing yourself in...like stay at home, do nothing. That’s an unhealthy lifestyle. There’s so many things going on in this community. Like everybody says it’s boring living here...But it’s healthy to do something with your energy, doing something positive with it, keeping yourself busy. Just like going picking berries or playing with kids, helping somebody out! Like even just helping someone carry their groceries home, talking to someone.” – Micah Okheena, 22 yrs old

Many women, predominantly elders, explained this behaviour and emphasis on being involved with the community in the form of social support and working together is a longstanding characteristic of Inuit culture in Ulukhaktok.

“Inuk, they didn’t like when somebody was doing something or going to be going somewhere, they never just you know like...they didn’t like watching the, They’d rather go help them out, get them things, help them out make sleds or fixing nets or that. And they never ask for pay or anything. They did it for love. They always wanted to help. And even help laid traps, make food, anything they’d be there, they’ll help each other out.” – Mary Okheena, 53 yrs old
Annie Goose, 66 yrs old has been involved in a number of committees both in within and beyond the community including some that specifically addressed women’s health and wellbeing and shared her observations on the role of community involvement for women’s health and wellbeing in Ulukhaktok.

“I thought to myself, ‘If I want to live, I need to contribute’ so that’s where I was…you know, with the amount of people in the community I’m still amazed at how much they contribute, even though they are in their own stuff. Better part of them want to be part of a community. Because we are here, we got no other place to go unless we take off on the land and be out! Haha Cultural sewing, women’s evenings, having monthly gatherings to eat together, coming together and the you know talk about whatever they felt like. You know it’s like, you offer something, and evening thing for long and different people start to come in and you start to mingle with different people in you community and you start to come out of your shell.” - Annie Goose, 66 yrs old

Culture

Here, culture refers to practices and perceptions derived from traditional Inuit lifestyles (i.e. land-based activities, traditional foods, etc.). A sense of cultural identity and cultural practice were an overriding theme identified by women across all cohorts. The influence of Inuit culture and tradition in women’s perceptions of health was evident in the results and its role clearly significant to participants. While culture as a discrete idea was not listed explicitly by any participant as being important for a healthy life it was directly referenced in semi-structured interviews by 94% (N=26) of participants in 84 NS and references to culture appeared in most drawings of a healthy woman, appearing as cultural dress on healthy women in figures 5.3 and 5.7, traditional foods such as seal, piffy (dried fish) and musk ox, see figures 5.1a, 5.4 and 5.9 and other cultural activities such as drum dancing as in figures 5.5a and 5.7, and sewing as in figure 5.9.
Annie Goose, 66 yrs old whose depiction of a healthy woman includes many of these elements described the role of culture in her own path to health and healing as,

“I think regaining your cultural identity, having teachers that know the techniques of hunting, fishing, creating, sewing, carving...all those things that come to make the identity come alive in an individual...by doing.”
– Annie Goose, 66 yrs old

Figure 5.7: ‘A Healthy Woman’ as drawn by Kari Goose, 20 yrs old

Figure 5.8: ‘A Healthy Woman’ as drawn by Annie Goose, 66 yrs old
Notably, the influence and importance of Inuit culture was referenced in relation to all other themes comprising women’s conceptualizations of health and wellbeing. Micah Okheena, 22 yrs old, and others, used drum dancing to explain how her Inuit identity and culture underpin and unify all the elements of a healthy life,

“Drum dancing, it helps physically and...I don’t know it just lifts my spirits afterwards. Like if I’m bummed out like all week, I go to drum dancing and afterwards I’m so much happier... Just being around the people that are there [friends and family] and just the beat, like you could feel it. You can feel the beat when they beat the drum you can feel it all over your body and in your soul.”
– Micah Okheena, 22 yrs old

Sewing was another activity commonly referenced by participants as a healthy practice and an illustration of how prominent culture is in women’s conceptualizations of health and wellbeing. Sewing circles were discussed as a form of counseling that brings women together socially creating an emotionally supportive environment and a platform for elders to share stories and impart wisdom. Sewing is also considered to be healthy as it keeps one’s mind busy and active. Michelle Kitekudlak, 34 yrs old explained that it has been essential in her efforts to curb unhealthy habits such as smoking and featured a sewing needle in her depiction of a healthy woman, see Figure 5.9.

Figure 5.9: ‘A Healthy Woman’ (left) vs. ‘An Unhealthy Woman’ (right) as drawn by Michelle Kitekudlak, 34 yrs old
5.2 Health Risks Relevant and Important for Inuit Women in Ulukhaktok, NT

This section presents the health risks relevant for and important to Inuit women in Ulukhaktok, NT. It begins by documenting the health concerns relevant to Inuit women, those that they have experienced in the past and are presently coping with and those they anticipate in their future. The section then presents the health risks that women themselves identify as important influences, beyond those that they have experience to include those that they predict to be influential for their health in the future.

5.2.1 Health Concerns Relevant to Inuit Women

All participants in the cohort of women 60 years old and older (N=4) and one in the 50-59 year old cohort corroborated early anthropological accounts (Jenness 1921) reminiscing of a time when Inuit did not get sick. They attribute this resiliency to traditional lifestyles and diets and collective concepts of healthy living and care.

“That’s why our people, we were not sick all the time back then, cause they had...they lived out on the land...there was hardly any sickness really, if a person got sick then people don’t just leave them. They tend to them. Bring them broth, food...when you eat somebody else’s cooking or food it’s like, it’s a healing, like a medicine.” – Agnes Kuptana, 60 yrs old

“Long ago there was hardly any sickness around cause they were mainly having only [country] food.” – Margaret Notaina, 69 yrs old

Results, however, reveal that this is no longer true for women in Ulukhaktok. All participants reported at least one health problem that has, or is currently impacting their lives, see Figures 5.10 and 5.11.
Figure 5.10: Health issues participants report having previously affected their lives

Figure 5.11: Health issues participants report to be currently affecting their lives
Reported health concerns include chronic conditions such as asthma and psoriasis, reproductive health issues including miscarriages and menopause, infections such as tuberculosis, chicken pox and H. pylori, injuries and a variety of musculoskeletal issues, among others. Women predominantly reported physiological health problems but also included alcohol addiction and depression as both past and present concerns.

The most frequently mentioned conditions include current arthritis reported by 20% (N=6) of participants, other current joint issues, previous accidents on the land and bouts of the flu, were each reported by 14% (N=4) of participants; most other conditions are reported by one or two participants. The relatively low frequency with which any given health condition was reported verifies statements from local health care workers that they do not witness health problems in Ulukahktok at disproportionate rates. However, there are some deficiencies in the accuracy of these results. Initially when asked what health issues they have experienced the majority of women answered none. Only when probed “you have never been sick?” did many women identify past or present health issues. This may indicate that women do not conceptualize these issues as major concerns and that this inventory is not exhaustive. Further, figures 5.11 and 5.12 represent only the health concerns of participants and do not capture those of other women in the community. Cancer, diabetes and addiction were all prevalent themes in conversation with women in Ulukhaktok. While only two participants reported cancer as a previous health issue, three other women discussed it as either a previous or current health concern, in particular breast cancer. Similarly, only two participants identified diabetes as a current health concern while numerous other women not participating discussed it as a current health concern for themselves and as a trend within the community. Addiction to both alcohol
and marijuana were also frequently cited as major health concerns among women in the community.

When asked what health problems they were concerned about in their future, women’s answers differed from their experienced health problems, see Figure 5.12.

Figure 5.12: Health issues women in Ulukhaktok, NT are concerned about for their future

Women identified fewer health problems of concern for their future, some stating they are not anxious about any major health issues affecting them in the future. Further, the health issues of prominent concern are not the ones that have been most commonly experienced by participants. Only one participant mentioned joint issues and arthritis, the most frequently mentioned past or present health concerns, as a future concern. The most frequently mentioned health concerns for women’s future are cancer, discussed by 28% (N=8) of participants and obesity and diabetes each mentioned by 10% (N=3) of
participants. Cancer was frequently mentioned with reference to a participant’s family history of women diagnosed with cancer. Concern for future occurrence of obesity and diabetes was discussed with reference to trends observed in the community, including the price of food, availability of recreational activities and health trends witnessed among other women.

5.2.2 Health Risks Important to Inuit Women

Participants who referenced a time when Inuit did not get sick attribute an initial rise in health problems to the arrival of European explorers, missionaries and traders.

“...didn’t really know, long ago before there was any Kablunaqs [Europeans] coming around she didn’t know of any sickness or you know, illness. Only when the planes start come back and forth they start here...they start get sickness and disease in the groups.” – Jean Kagyut, 95 yrs old, via translator

“Long ago there was no sickness around, the only time people would get sick, I remember getting sick or feeling a little bit of a cold in when these planes come in, these doctors come in to give examination to all the people and that’s when the cough starts to come.” – Jean Ekpakohak, 61 yrs old

In the decades since, Inuit have experienced drastic socioeconomic, cultural and environmental changes and today cope with a variety of novel risks to their health.

Participants acknowledge the poor availability of and access to health resources and economic stress as the preeminent risks to women’s health in Ulukhaktok.

Availability of and Access to Health Resources

The majority of participants as well as women in the community at large expressed a shared sentiment of dissatisfaction regarding the availability and accessibility of health services in the settlement. Women described that not only is there a limited array of locally available health services but also that they faced several barriers to accessing these resources. Many women highlighted that Ulukhaktok does not have local
access to a complete suite of health services, see section 3.2.1. The community’s health center is staffed by four nurses who cycle through two job shares, a social worker and dental, optometry and physician teams visit the community on four to six week cycles. For any specialist, surgical, hospital, long-term care, rehabilitation, gynecological or obstetrical services women must travel out of the community, flying to Inuvik, NT, Yellowknife, NT or Edmonton, AB.

A key feature of services availability in the community is the hours of services. With few health professionals based in the community and the limited time of specialists visiting the community, women shared experiences having difficulty in receiving health care treatment. Specialist’s visits are sometimes as short as one day and all available appointments are often immediately filled. Some women reported having gone as long as one year without seeing a specialist for a health concern as they were unable to secure an appointment.

The wide geographic dispersion of health services also affects their availability and presents challenges for women’s health. Women spoke about the added levels of complication and stress associated with having to travel in order to receive treatment. Participants frequently reported experiencing negative effects of travel and being separated from family and their community, which are specified by the women in this research as important parts of Inuit women’s health. In particular, women referenced the extended period of time they must spend out of the community when expecting a child. Typically an expectant mother is evacuated approximately one month prior to her due date to await the birth closer to a hospital. Bryann Memogana, 19 yrs old, recalled the
depression she experienced while spending four weeks alone at the age of sixteen awaiting the delivery of her first child,

“I was there for exactly four weeks. Oh my God I was going through depression while I was waiting for Sarah [to be born]. No one to talk to, no one to be there. It doesn’t feel like home.” – Bryann Memogana, 19 yrs old

Not only can this travel be emotionally taxing for pregnant women but physically risky as well and has resulted in several extraordinary birthing stories, such as giving birth on the airplane. More than one child in Ulukhaktok has a birth certificate on which the location of their birth includes an altitude measurement.

Some women also suggested compromised health care as a result of the limited local services available. For some women the travel required to access some health services is a significant barrier and they forego treatment, compromising their health. Laverna Klengenberg, 44 yrs old, for example has delayed knee surgery for more than fifteen years due to a fear of flying.

“10 of this past 15 years I had not travelled. I had a fear of flying. Total fear of just being enclosed in a, confined in a place that I could not escape. That was my fear…I was supposed to have surgery on this knee a couple of times and I still haven’t. Twice I was supposed to have, they said they would take my kneecap off and fix something in there. I never, ever did go for it.”
– Laverna Klengenberg, 44 yrs old

Jean Kagyut, 95 has also forgone healthcare services, specifically long-term Elders care, which would necessitate her moving from the community to Inuvik, the nearest center where these services are offered.

“She said she has been asked, I guess by the doctors, if she wants to go, move to the long term care but she said she don’t want to. She wants to be with her children and her grandchildren and her son-in-laws. She wants to stay here right to her last breath, to be with her family. She been there, she tried it out for a couple of weeks…two weeks. She said that she has no relatives down there; she doesn’t know a word of English so she said that she didn’t like it. She was given the chance to try it out, to see what it’s like. She said she don’t like it, she doesn’t
Jean shared that family, culture and country food are so vital to her health that it would be more beneficial for her health remain in her community than to leave for long-term care. These collective experiences underpin the importance of availability and access to healthcare as a determinant of health and its significance as risk to the health of Inuit women in the Canadian Arctic.

Economic Stress

Women expressed that economic stress is a risk to their health and that of their families by limiting their ability to access health-enhancing resources and practices. For the women in Ulukahktok this economic stress is the result of both scarcity of employment opportunities as well as the cost of goods and services in community.

“Number one [for health] probably a job, because without that income you can’t even get anything at all.” – Roberta Memogana, 43 yrs old

Participants emphasized that securing safe housing for their families is both a priority and a significant financial pressure.

“I think the biggest obstacle is being able to afford to take care of your family. Giving them good food, a roof over their heads, you know pay all the power and everything. I think that’s the biggest draw back for every woman.”
– Susan Kaodloak, 41 yrs old

For many women in this research housing was a primary source of stress. For some, this cost is so prohibitive that it necessitates sharing a residence with parents or in-laws and living in crowded conditions. This has implications for health such as elevating stress levels and facilitating the spread of contagious illnesses. For others, the cost of housing
restricts their finances and access to other health-enhancing resources, such as nutritious foods.

Women discussed economic stress in regards to food prices and their ability to practice good nutrition. 93% of participants listed eating healthy foods including fruits, vegetables, dairy and country foods as important for a healthy life, but women shared that the cost of food is often a prohibitive factor. Food prices in Ulukhaktok, and other northern communities, are high and many women expressed frustration that healthy food in particular are the most expensive.

“It’s hard to eat healthy here sometimes. For four bag of groceries we can spend up to $500-600.” – Bryann Memogana, 19 yrs old

“The cost of modern food to live healthy...they’re so costly now that you have to substitute it to a lesser cost that’s not as healthy. I’ve seen so much families do that, substitute it to a lower price because that’s the only thing they can afford.” – Julia Ekpakahak, 46 yrs old

“...People don’t have any, they don’t have hardly any jobs around here and they have to go to like income support so it’s hard for them to buy the food that they need, like some stuff they get really expensive because of the freight that they come in by.” – Mary Okheena, 53 yrs old

Country food, which is considered to be the most nutritionally dense and most beneficial for an Inuit diet, is frequently suggested as an alternative to expensive store bought food. However, access to this resource is also constrained by economic stress. Equipment, fuel, ammunition and other supplies for hunting are all restrictive costs that limit women’s access to these foods.

“It’s so hard to live healthy up here...it’s so costly! Hunting, to get the good food and then if you don’t have the stuff like transportation and food to go hunting with it’s hard to get food at the store because it’s expensive too. And the cheapest food at the store is junk food...pop, chips, chocolate...anything that has high contents of sugar.” – Darlene Nigiyok, 35 yrs old
“[the food is] already rotting, the fruits and the vegetables. Plus sometimes the meat don’t look so good that you know that come here. So it’s kind of like you’re picky. So a lot of people depend on the native foods that are in the north. They do a lot of hunting but at the same time the gas and the ammunition is really expensive too, to go out on the land. And there are times the animals are scarce so they have to go far and that’s one thing that kid of affects people here but...like...for health living they really have to depend mostly on native food. Even though sometimes I know that it’s really hard for them and they have to get store bought food. A lot of them they don’t have the equipment so they depend on store bought food and yet they’re so expensive for them. Trying to get healthy food, good food, is really hard for a lot of people in the north.”

– Mary Okheena, 53 yrs old

Ninety-six percent, 96% (N = 28) of participants identified access to the land as a significant part of a healthy life with mental and emotional health benefits such as happiness, calmness, being mentally challenged and engaged and a venue to impart cultural lessons and strengthen family relations. However, 65% (N = 19) of participants disclosed that economic stress limits their ability to regularly access the land with direct impacts to their health. Gilbert Olifie describes how economic stress limits her family’s ability to realize the benefits of time on the land,

“[to be healthy you need] to eat good food, be out on the land, cabin or family stuff, learn our cultural traditions and our language...It’s important to be on the land but I don’t go as much as I used to. Growing up with my parents I was out on the land all the time, travelling, fishing but I guess with not much machines or equipment we rarely ever...the past years we rarely get to go...we only have one Honda so we would have to make how many trips!” – Gilbert Olifie, 41 yrs old

Substance abuse is also related to economic stress and ill health. While drug and alcohol abuse was identified by 87% (N=26) of participants as being bad for health, it was discussed not in relation to their effects on one’s physical or mental state but to their cost and the misallocation of funds. Many participants shared that addiction can often lead to the misallocation of money, and funds that should be used to buy groceries for the family, new equipment to travel and/or hunt, is instead spent on drugs and/or alcohol.
5.3 Strategies Employed by Inuit Women to Approach Health

All participants reported using both traditional health practices as well as the formal healthcare offered at the nursing station depending on the health concern they were addressing. Traditional practices were described as the foundation of the women’s preventative health behaviours and critical for maintaining good health. The formal health system was used almost exclusively in a reactive fashion to treat the symptoms of already developed conditions. Women did have some complaints about care at the nursing station most of which were related to personal conflict with staff and waiting times but overall women expressed satisfaction with the actual medical treatment that they received. For example, Jean Kagayut, 95 yrs old, shared how grateful she is for the doctors and the glasses given to her that allow her to continue practicing her crafts:

“Another important thing to her is her sewing, making crafts and keeping herself busy. She said if it wasn’t for these glasses she wouldn’t be able to see, that’s the only way she sews now.” – Jean Kagayut, 95 yrs old (via translator)

Conversely, no participants reported using traditional remedies to treat physical ailments. Several participants recalled local cures from their mothers, grandmothers or other family members such as, a strip of sinew across the forehead for a migraine, boiled willow as a pain reliever, seal liver to regain strength, fish heads for calcium, a paste made of flowers for pink eye and caribou skin membrane to close a wound. However, no participant claimed to be currently making use of these. This differed when participants discussed the treatment of mental, emotional and spiritual health and local traditional practices were identified as the principal or sole source of treatment for mental, emotional and spiritual health by 100% of participants. 5% (N=5) of participants stated that they have used some form of counseling offered within the formal healthcare system and have experienced
some success, and all participants emphasized the importance of traditional practices in their treatment. In particular women noted the support of friends and family as source of relief and healing. It was observed that visiting between friends and other family members to share tea or a meal and to talk was a regular and frequent routine in Ulukahktok. So much so that knocking upon arrival is an uncommon habit. Jean Ekpakohak, 61 yrs old, explained the origin of this custom,

“Well it was something new, because people were not used to being counselled. But because of their nomadic life long ago they used to help each other. Like when they hear of a death in a certain family, they travel to that family to be with them for a while to get their life back to normal and then they would split again.”
– Jean Ekpakohak, 61 yrs old

Many participants identified that talking with friends or family is cathartic and an important part of a health regime. It was discussed how this practice helps one to process difficult emotions and to stay positive, discussed in section 5.1 to also be an element of a healthy life.

“If a person comes to me and wants to talk, you know, I just let them talk, I let them say what they want to say and then when they’re done then I encourage them and give them advice. But umm…there are people that even, you know…want to push you away, they want to be alone. You have to reach out to them. Cause if you don’t then they’re also suicidal”
– Anges Kuptana, 60 yrs old

“Friends and family too…you know not too keep, how you say it about your feelings like this to others and stuff…talk with others, get support and help from others. [I go to] my sisters, my family….friends. Both of my sisters are out in Yellowknife though. But I always talk to them on the phone”
– Gilbert Olifie, 41 yrs old

“Having friends and family around you, especially when they have that positive attitude and help you….it really helps. And they keep you…keep your hopes up, your smiles, it’s that good feeling inside. That’s always the one best medicine you could have if you want to be at a better state of what you’re in.”
– Roberta Memogana, 43 yrs old
Dana Ilasiak, 23 yrs old, included this support in her drawing of a healthy life accentuating the importance of “Someone to talk to, let everything out”, see figure 5.13.

![Figure 5.13: ‘A Healthy Woman’ as drawn by Dana Ilasiak, 23 yrs old](image)

One woman from Ulukhaktok, not a participant, even initiated an Inuit women’s support phone line for those diagnosed with and being treated for cancer. This followed her own diagnosis with the disease and the feelings of sadness sense and isolation she experienced. She expressed that she felt considerably better when she was able to connect with other Inuit women and have access to that support.

Consistent with previously reported findings, participants identified spending time on the land as a resource for mental, emotional and spiritual healing. Such discussion typically also included references to the land also being a place for family to spend time together and connect and an essential part of traditional culture (i.e. fishing, hunting, etc.). The land was discussed in section 5.1 as a part of a healthy life for these reasons.
and many women further elaborated to explicitly identify it as a deliberate part of their health practices.

“...you're out there at one with nature. I don’t know, some people might talk to themselves but I think it’s whatever’s out there. I just walk anywhere in the direction away from town, away from the traffic. Fresh air helps a lot...let it out.”
– Darlene Nigiyok, 35 yrs old

“[The land] it’s a healer, you know...it was good to be out on the land because to me it absorbs what I have and gives me back renewed energy and it’s so beautiful and that’s the way I feel about it. I think everybody does too.”
– Mary Okheena, 53 yrs old

The dichotomy between traditional and formal approaches to health is further evidenced in women’s depictions of a healthy life. Each participant who completed a drawing of a healthy woman included aspects of a traditional lifestyle (i.e. traditional foods, drum dancing, fishing, the land, etc.), see Figures 5.1a, 5.3, 5.4, 5.5a, 5.6, 5.7, 5.8, 5.9 and others in Appendix 3. Meanwhile, despite being identified as the primary source of treatment for physical ailments, not a single drawing included any element of the formal healthcare system; the health center, medications, glasses, hospitals, nurses, etc. were not drawn by any participant in their picture of a healthy person.
CHAPTER 6: Discussion

The aim of this research was to examine Inuit women’s conceptualizations of and approaches to health in the context of adaptation to climate change in the Arctic. To support health interventions and adaptive initiatives that are culturally responsive and effective, decision makers must first understand what health means to Inuit, what health concerns are relevant and what risks are important to Inuit beyond those selected *a priori* by health professionals, and what health strategies are feasible and desirable (Smit et al. 2000; Pearce et al. 2010).

This research found that conceptualizations of health and wellbeing among Inuit women today largely reflect traditional conceptualizations of health. This conceptualization of health involves a number of interwoven factors influencing health including but not limited to, family, the land-sea-ice, healthy eating (notably country foods), an active lifestyle, happiness/positivity, community involvement and cultural connectedness. There is considerable overlap among these themes such that no one theme can be meaningfully distinguished from the others, a seamlessness reminiscent of Inuit Traditional Knowledge (Berkes et al. 2007; Tester & Irniq 2008; Kral et al. 2011). Women in Ulukhaktok emphasized that connectedness among individuals as well as to place and the environment are essential elements of their health and wellbeing. This connection between human health and the environment has been referred to as ‘eco-centric’ by other scholars (Stairs 1992; Stairs & Wenzel 1992; Kirmayer et al. 2009; Richmond & Ross 2008; Cunsolo Willox et al. 2014). This understanding of health and wellbeing differs from conventional Euro-centric views of health that make up the foundation of formal health services available in Ulukhaktok and the wider Inuvialuit
Settlement Region that treat physical symptoms in isolation from other components of health.

The Inuit women interviewed did not explicitly identify climate change as a direct risk to their health; however, elements of Inuit women’s conceptualization of health, as identified by them, are sensitive to the indirect effects of climate change, notably those associated with food and water security and spending time on the land. The results confirm that for Inuit women across all age cohorts the land is a significant component of health and well-being. The land has importance for cultural well-being, the acquisition of desirable country foods and drinking water, and as a therapeutic landscape beneficial for mental and emotional health.

In many instances, climate change is negatively affecting access to country foods and land-based activities (Pearce et al. 2010). Decreases in the extent, thickness and duration of sea and freshwater ice, degrading permafrost, reduction in annual snow cover, unpredictable weather patterns and changes in the availability of some wildlife species limit subsistence hunting activities and compromise food security (Pearce et al. 2010; Parker 2016). Increasing temperatures and changes in precipitation patterns is shown to increase the risk of water-borne, food-borne and vector-borne diseases such as *Cryptosporidium parvum*, campylobacteriosis, giardiasis, botulism, echinococcosis and *Escherichia coli* (Parkinson & Butler 2005; Evengard & Saurborn 2009; Harper et al. 2011). The culmination of these climate-related impacts sometimes limit the ability of Inuit to engage in culturally significant practices on the land and access meaningful places and landscapes (ACIA 2005; Pearce et al. 2011; IPCC 2014). This has been
demonstrated in other regions to have negative implications for Inuit mental and emotional health (Wilson 2003; Hess et al. 2008; Cunsolo Willox et al. 2012; 2014).

This research shows that Inuit women in Ulukhaktok use both traditional health practices as well as the formal healthcare system. The use of each approach, however, is highly dichotomized. Traditional practices were found to comprise the foundation of women’s preventative health behaviours and are central for maintaining good health whereas the formal health system is used almost exclusively in a reactive fashion to treat and manage the symptoms of already developed conditions that are being experienced. For example, a healthy diet inclusive of country foods, an active lifestyle centered around spending time on the land, and participating in drum dance and sewing on a regular basis are considered part of living a healthy life and maintaining good health. However, when someone is physically injured, develops a cough, has a headache, becomes pregnant, has a toothache, etc. treatment is most often sought via the formal healthcare system. This finding supports other research that has also identified traditional approaches to health as influential in preventative health care among Inuit (Healy et al. 2008; Kral et al. 2009; Kirmayer et al. 2014). Additionally, identifying that Inuit women rely on the formal health care system primarily in a reactive manner provides further insight into the findings of other authors (Bird et al. 2008; Harper et al. 2015) which report lower rates of healthcare use among Inuit.

The type of health concern being addressed further dichotomizes the use of these two systems. While the women interviewed rely on the formal healthcare system to treat physical ailments, they rarely utilize formal healthcare for counseling services. Typically mental and emotional support is sought through family and friends and spending time on
the land. These results reinforce findings from other regions of the Arctic that also show
how Inuit draw upon traditional practices for mental and emotional health (Van Wagner

There are currently some health programs in Ulukhaktok that include an element
of Inuit traditional approaches to health. These include, pre-natal classes that combine
formal pre-natal health lessons with traditional knowledge and skills such as sewing,
drum dancing and companionship among women, as well as youth and family camps at
which time there are opportunities to engage with the land, be active, transmit knowledge
of fishing, hunting and healthy eating, sewing and other skillsets identified by Inuit to be
of importance (Pearce et al. 2011). These programs, however, are expensive to operate
and are only offered periodically throughout the year to a limited number of individuals.
Addressing the economic viability of continuing or expanding these programs represents
a strategic policy entry point to enhance Inuit women’s health. Other opportunities exist
to develop culturally appropriate mental health programs. This research show that Inuit
women in Ulukhaktok are not accessing mental health support services offered through
the formal health system but instead rely on the support of family and friends and the
solace of time on the land. This finding suggests that mental health services that are
community-driven and family-oriented will be more likely to have positive outcomes for
Inuit women’s health (Kral et al. 2011; Cunsolo-Wilox et al. 2012; Big-Canoe &
Richmond 2014). Another strategic policy entry point to support Inuit women’s health
addresses childbirth. Currently, pregnant women leave the community one full month
prior to their expected due date. Leaving the community to give birth presents
considerable mental and emotional stress, as women often do not have access to
recreation or direct support in the weeks prior to delivery. The Inuit women interviewed describe that being out of their community for such extended periods of time alone created extreme feelings of isolation that compromise their health and well-being. Access to local birthing resources would alleviate some of these stresses and enable women to share the experience of giving birth with their families. Midwifery programs that integrate Inuit traditional practices and formal healthcare methods for care have proven successful in Rankin Inlet, Nunavut and in the Nunavik region, showing to not only be safe but to improve outcomes over evacuation policies (Van Wanger et al. 2007; Healy et al. 2008). Such programs could be considered for Ulukhaktok and elsewhere in the ISR and would respond to the importance of family in Inuit women’s approaches to health.

Both research and practice have shown that successful health promotion initiatives in Indigenous communities must be culturally responsive and require the engagement of local perspectives (McLennan & Khavarpour 2004; Reading & Reading 2012). As such, adaptive initiatives and health interventions that are holistically framed and emphasize relationships within communities and with the environment are likely to have positive effects on Inuit women health. This could involve mainstreaming climate change adaptation health initiatives within Inuit approaches to health, such as supporting activities that strengthen social networks and facilitating time on the land with family.
CHAPTER 7: Conclusions

This chapter summarizes the key findings of the research and highlights the scholarly and practical contributions. The chapter is divided into four sections. The first section outlines the key findings of the research. The next section discusses the scholarly contributions of the research in the context of the broader field of Inuit women’s health promotion and climate change adaptation. This is followed by a discussion of the practical contributions of the research to the development of health interventions in the Arctic. The chapter concludes by suggesting possible future research opportunities.

7.1 Summary of Key Findings

The main messages of this research can be summarized as follows:

1. **Inuit women in Ulukhaktok retain a traditional conceptualization of health that is holistic in nature with attention to the mental, emotional, physical and spiritual parts of the self and which prioritizes relationships among people as well as to place and the environment.**

The results of this research indicate that Inuit women’s conceptualization of health is holistic and eco-centric. Family, the land, healthy eating (notably country foods), an active lifestyle, happiness/positivity, community involvement and cultural connectedness are all prominent themes within this conceptualization. The themes are seamlessly interconnected to the extent that no one can be meaningfully distinguished from the others. Inuit women emphasize their relationships with others as well as to place as integral to their conceptualization of health, thus health interventions directed at Inuit women should be holistic and eco-centric.
2. **Inuit women in Ulukhaktok are sensitive to the health effects of societal and environmental changes associated that effect food security, water security and barriers to spending time on the land.**

   Although Inuit women do not explicitly identify climate change as a risk to their health, they are sensitive to some of the indirect health effects of climate change, notably, those that effect food security, water security and barriers to spending time on the land. The land is of significance for Inuit women’s health as a source of country foods, drinking water and as a therapeutic landscape and beneficial for physical, mental, emotional and spiritual health. As such, in order to support adaptation to the health effects of climate change in this instance will involve efforts to enhance the ability of women to participate in land-based activities and acquire country foods and fresh water resources.

3. **Inuit women in Ulukhaktok use both traditional health practices as well as the formal healthcare offered at the nursing station depending on the health concern they were addressing.**

   Inuit women’s approach to managing their health includes both traditional health practices as well as the formal healthcare system. However, the use of these two systems is highly dichotomous. Inuit women’s preventative health behaviours and mental and emotional supports are founded in traditional practices, while the formal health system is used predominantly in a reactive fashion to treat the physical symptoms of developed health conditions. Similarly, traditional practices are relied on heavily for Inuit women’s mental and emotional health, where as the formal healthcare system is used predominantly to treat physical symptoms and conditions. This research concludes that health interventions that incorporate both traditional practices and the formal health
system will be more responsive to the holistic conceptualizations of Inuit health with more positive outcome for Inuit women’s health.

4. **Health interventions rooted in Inuit women’s conceptualizations of health are likely to have a positive outcome for women’s health.**

   This research demonstrates that while Inuit women’s approach to health includes the use of both traditional methods and the formal healthcare system, their preventative health behaviours are founded in traditional practice. This research concludes that health interventions based on Inuit conceptualizations of health will be more sustainable, lead to more positive health outcomes and increase the adaptive capacity of Inuit women to the health effects of climate change.

7.2 **Scholarly Contributions**

   Existing research has shown Inuit to be especially sensitive to the health effects of climate change, emphasizing the need for local scale investigations of sensitivity in order to identify appropriate and responsive interventions (King et al. 2009; Ford et al. 2010; Ford 2012). The health effects of climate change are not gender neutral and authors advocate for a gendered approach to these assessments (Kukarenko 2011; Prior et al. 2013). This research responds by examining Inuit women’s conceptualizations of and approaches to health in the context of climate change.

   The findings of this research reinforce previous work on Inuit conceptualizations of health. In particular, the emphasis on connectedness among individuals and nature central to the perceptions of health recorded in this project confirm the Eco-centric nature of Inuit concepts of mental health and illness documented by Kirmayer et al. (2008). Further, these results are evidence that eco-centric concepts are foundational throughout Inuit women’s conceptualization of health, beyond solely mental well-being. Importantly,
the findings of this research corroborate the holistic and seamless nature of Inuit knowledge described by other authors (Stevenson 1996; Wenzel 1999; Usher 2000; Berkes et al. 2007; Tester & Irniq 2008).

The research makes important methodological contributions. It demonstrated the effectiveness of line drawing techniques when interviewing adults and its utility in cross-cultural contexts for communicating experience and perception, especially for communities with story telling customs and traditions. Additionally, this study contributed methodologically to the field of climate change adaptation research by further demonstrating the value of ethnographic methods that do not pre-determine climate change to be a priority but rather allows participants to identify what conditions are relevant and important to them.

7.3 Practical Contributions

In addition to scholarly contributions, this research has practical application for future adaptation initiatives and health interventions in Ulukahktok. Many authors acknowledge the importance of adaptation to the health effects of climate change in the Arctic and have stressed that for adaptations to be both effective and sustainable they must be developed with communities and reflect community priorities (Ford et al. 2009; Kral et al. 2011; Pearce et al. 2011; Cunsolo-Willox et al. 2012; Big-Canoe & Richmond 2014; Ford et al. 2014). By identifying local perspectives of health and health practices this study is able to specify strategic entry points for health interventions to increase adaptive capacity in Ulukhaktok. For example, this research documents that formal mental health supports available in the community are ineffective and underutilized where as engagement with family and community is essential in this regard and central to
Inuit women’s conceptualization of well-being. This suggests that mental health interventions that are focused on family and that are community-centric will be most impactful. Existing programs such as the annual Summer Family Camp is an example of a strategic intervention that allows families the opportunity to spend time together as well as engage with the land. Expanding this program to reach more families and occur more frequently throughout the year could enhance the capacity of the community to alleviate and/or address some of the mental health effects associated with climate change.

Additionally, by identifying determinants of adaptive capacity this research is able to suggest entry points for strategic initiative to enhance the community’s adaptive capacity to respond to the health effects of climate change. For instance, economic stress was identified as a determinant of adaptive capacity in that it limits Inuit women’s ability to access healthy foods, including produce and country food. Food sharing traditions remain commonplace and are a key source of adaptive capacity. Support for infrastructure such as a community freezer and greenhouse represent strategic policy entry points for initiatives that would help in the production and distribution of food within the community.

7.4 Opportunities for Future Research

The individual components of this assessment could feasibly be expanded upon in future research to provide a more detailed understanding of each element and a more comprehensive characterization of Inuit women’s sensitivity to the health effects of climate change. For example, public health agencies could explore any of the themes identified in Inuit women’s conceptualization of health, outlined in section 5.1, in more detail to inform effective health promotion initiatives; health departments have expressed
interest in integrating local perspectives into healthcare practices to develop culturally responsive and effective systems.

The limitations of this study also present opportunities for future research. One limitation is that this study only includes women over the age of 18 and does not capture the experiences of younger women. Future research that includes the perspectives of women under 18 years of age would provide further insight and a more complete understanding how Inuit women conceptualize health and health concerns relevant to them. Another limitation of this study is that it includes only women’s perspectives. As mentioned previously men and woman are presumed to have different experiences and perceptions of health risks related to climate change and will apply different adaptation strategies and as such a gendered approach to climate change health research is promoted (Costello et al. 2009; Parbring 2009; Kukarenko 2011). However, although a number of projects exploring the impacts of and adaptation to climate change in Ulukahktok which include or focus on men have been completed (Pearce 2006; Ford et al. 2008; Pearce 2008; Collings 2009; Pearce et al. 2009; Andrachuk & Pearce 2010; Pearce et al. 2010; Wesche and Chan 2010; Pearce et al. 2011a; 2011b; Collings 2011) none have specifically examined men’s health in the context of climate change. Such a project would compliment the current study for a more complete understanding of Inuit sensitivity to the health effects of climate change and inform the development of targeted and effective health initiatives.

As this research was conducted as an isolated case study there is an opportunity for future comparative studies to be completed within the Canadian Arctic and the Circumpolar region more generally. Such projects would be of benefit to the
communities involved by identifying effective adaptation strategies among them that could be adopted elsewhere.


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APPENDIX 1: Interview guide

What does it mean to Inuit women to be healthy?
What things about living here affect women’s health?
What are Inuit women worried about for their health?

Inventory 1: Basic Demographics
• Age
• Marriage status
• Children?
• Status in household?
• Employment?
• Education?

Inventory 2: Conceptualizing Health
• What do you need to live a healthy life?

• Can you tell me about a woman in the community who is healthy/living a healthy life?

• Can you tell me about a woman in the community who is unhealthy/not living a healthy life?

• Tell me about your drawings.

Inventory 3: Current Vulnerability
What is affecting women’s health?
• Are you currently dealing with any health concerns?

• What are some health issues that you’ve had to deal with in the past?

• How do you treat yourself when you’re not well?

• When was the last time you went to the Health Centre?

Inventory 4: Future Vulnerability
• Are there any things you aren’t dealing with now but you’re worried about for the future?

• Can you rank those/Which is most worrisome? What worries you the most? Why?

• What can be done to deal with some of these future challenges?
APPENDIX 2: Interview Consent Form

Consent Form
(Available in both in English and orally in Inuinnaqtun)

Inuit Women’s Conceptualizations of and Approaches to Health in Adaptation to Climate Change

What is the research about?
Objective: This research aims to document and examine Inuit conceptualizations of and approaches to health and adaptation to health-risks associated with climate change.

Who is involved?
Research team: Linnaea Jasiuk and Tristan Pearce

Your rights:
I have been fully informed of the objectives of the project being conducted. I understand these objectives and consent to participating in an interview for the project. I understand that steps will be undertaken to ensure that my information will remain confidential unless I consent to being identified. I also understand that if I wish to withdraw from the study, I may do so at any time until the completion of the study without repercussions. I understand overall information from the focus groups may not be revoked, but individual comments will be deleted.

☐ I want my identity to be non-confidential
☐ I want my identity and the information I provide to be confidential
☐ I have read the letter of consent and clearly understand my rights and responsibilities concerning the research
☐ I confirm that I am over the age of 16

☐ I give permission for audio recording
☐ I give permission for a copy of the audiotape to be left securely in the community

NAME (Please print): __________________________

Signature: __________________________ Date: ____________

Signature of witness: ________________ Date: ____________
APPENDIX 3: Line drawings completed by interview participants

‘A Healthy Woman’ (top) vs. ‘An Unhealthy Woman’ (bottom) as drawn by Tiffani Nigiyok, 18

‘A Healthy Woman’ (left) vs. ‘An Unhealthy Woman’ (right) as drawn by Caitlyn Ogina, 18
‘A Healthy Woman’ as drawn by Bryann Memogana, 19

‘A Healthy Woman’ as drawn by Kari Goose, 20
‘An Unhealthy Woman’ as drawn by Kari Goose, 20

‘A Healthy Woman’ as drawn by Micah Okheena, 22
‘A Healthy Woman’ as drawn by Dana Ilasiak, 23

‘An Unhealthy Woman’ as drawn by Dana Ilasiak, 23
‘A Healthy Woman’ as drawn by participant, 23

‘An Unhealthy Woman’ as drawn by participant, 23
‘A Healthy Woman’ (left) vs. ‘An Unhealthy Woman’ (right) as drawn by Michelle Kitekudlak, 34

‘A Healthy Woman’ (left) vs. ‘An Unhealthy Woman’ (right) as drawn by Darlene Nigiyok, 35
‘A Healthy Woman’ as drawn by Gilbert Olifie, 41

‘An Unhealthy Woman’ as drawn by Gilbert Olifie, 41
‘A Healthy Woman’ as drawn by Trudy-Ann Akoakhion, 42

‘An Unhealthy Woman’ as drawn by Trudy-Ann Akoakhion, 42
‘A Healthy Woman’ as drawn by Joanne Ekpakohak, 43

‘An Unhealthy Woman’ as drawn by Joanne Ekpakohak, 43
‘A Healthy Woman’ as drawn by Roberta Memogana, 43

‘A Healthy Woman’ (left) vs. ‘An Unhealthy Woman’ (right) as drawn by Laverna Klengenberg, 44
‘A Healthy Woman’ as drawn by Irene Akhiatak, 44

‘An Unhealthy Woman’ as drawn by Irene Akhiatak, 44
‘A Healthy Woman’ (top) vs. ‘An Unhealthy Woman’ (bottom) as drawn by Joann Ogina, 50
'A Healthy Woman' as drawn by Mary Okheena, 53

'An Unhealthy Woman' as drawn by Mary Okheena, 53
‘A Healthy Woman’ as drawn by Helen Kitekudlak, 55

‘A Healthy Woman’ as drawn by Annie Goose, 66
Out on the land with family is a healing and healthy lifestyle.
APPENDIX 4: University of Guelph Research Ethic Board Approval

RESEARCH ETHICS BOARDS
Certification of Ethical Acceptability of Research Involving Human Participants

APPROVAL PERIOD: March 17, 2014
EXPIRY DATE: March 17, 2015
REB: G
REB NUMBER: 14MR004
TYPE OF REVIEW: Delegated Type 1
PRINCIPAL INVESTIGATOR: Pearce, Tristan (tpearce@uoguelph.ca)
DEPARTMENT: Geography
SPONSOR(S): CIHR Climate Change and Health Adaptation Program for Northern First Nations and Inuit Communities
TITLE OF PROJECT: Inuit Traditional Knowledge and Adaptation to the Health Effects of Climate Change

The members of the University of Guelph Research Ethics Board have examined the protocol which describes the participation of the human participants in the above-named research project and considers the procedures, as described by the applicant, to conform to the University’s ethical standards and the Tri-Council Policy Statement, 2nd Edition.

The REB requires that researchers:
- Adhere to the protocol as last reviewed and approved by the REB.
- Receive approval from the REB for any modifications before they can be implemented.
- Report any change in the source of funding.
- Report unexpected events or incidental findings to the REB as soon as possible with an indication of how these events affect, in the view of the Principal Investigator, the safety of the participants, and the continuation of the protocol.
- Are responsible for ascertaining and complying with all applicable legal and regulatory requirements with respect to consent and the protection of privacy of participants in the jurisdiction of the research project.

The Principal Investigator must:
- Ensure that the ethical guidelines and approvals of facilities or institutions involved in the research are obtained and filed with the REB prior to the initiation of any research protocols.
- Submit a Status Report to the REB upon completion of the project. If the research is a multi-year project, a status report must be submitted annually prior to the expiry date. Failure to submit an annual status report will lead to your study being suspended and potentially terminated.

The approval for this protocol terminates on the EXPIRY DATE, or the term of your appointment or employment at the University of Guelph whichever comes first.

Signature: Date: March 17, 2014

L. Kucynski
Chair, Research Ethic Board-General
APPENDIX 5: Northwest Territories Scientific Research License

2014

Northwest Territories Scientific Research Licence

Issued by: Aurora Research Institute – Aurora College
Inuvik, Northwest Territories

Issued to: Dr. Tristan D Pearce
University of Guelph
Department of Geography
Guelph, ON
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Affiliation: University of Guelph, Department of Geography

Funding: Canadian Institute for Health Research (CIHR)

Team Members: Colleen Parker; Linnaea Jasiuk; Genevieve Lalonde; Rowan Schindler; Ellie Stephenson; Adam Kudlak

Title: Inuit Traditional Knowledge for Adapting to the Health Effects of Climate Change (IK-ADAPT)

Objectives: To examine how food security is affected by climate and socio-economic changes, and adaptation options; to examine Inuit conceptualizations on and approaches to health in the context of climate change impacts on health; and to examine perceptions of learning success among younger generation Inuit.


Location: Ulukhaktok

Licence No. 15402 expires on December 31, 2014
Issued in the Town of Inuvik on January 21, 2014

* original signed *

Doug Robertson,
Director, Aurora Research Institute