Inuit Women’s Health in Nunavut, Canada

REVIEW

INUIT WOMEN’S HEALTH IN NUNAVUT, CANADA: A REVIEW OF THE LITERATURE

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ABSTRACT

Objectives. Inuit women face challenging health and wellness issues in Northern communities. Literature examining these contexts and the processes through which health is affected is virtually non-existent. The objective of this review is to examine and consolidate the available literature on Inuit women’s health issues from the last decade in order to identify priorities for future research.

Study design. This study is a review of literature from the last decade. Inuit women’s health issues that have been raised in the literature and in various reports are examined within a health-determinants framework.

Methods. Government reports and statistics, publications by Inuit organizations and publications available on MEDLINE were examined for this review.

Results. Inuit women’s health is a crucial part of the health of their communities. Inuit women face serious health issues related to reproductive and sexual health, such as high rates of sexually transmitted infections and challenging circumstances surrounding childbirth. Wellness, suicide and stress are more significant issues for Inuit women compared with non-Inuit women. Food security and accessibility is an issue for all Northerners. Alcohol and substance abuse and exposure to violent situations endanger both the health and safety of Inuit women in many Northern communities.

Conclusions. There exists an urgent need to better understand the mechanisms through which determinants of health affect Inuit women. As well as adding to the body of knowledge on health determinants in Canada, further examining these issues will provide valuable information for health policy decision-makers and program development in the North and facilitate the direction of resources to the necessary areas of health services provision in Nunavut.

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INTRODUCTION

Good health is critical to our sense of well-being, as well as our capacity to work and care for future generations. Many Arctic residents face challenges in achieving and maintaining good health (1). In the Arctic, economic circumstances, lifestyle, exposure to severe cold and contaminants, dietary changes and geographic and political isolation pose many challenges to achieving good health (1). Indigenous peoples in this region, with their continuing ties to the land and traditional foods and with their often marginalized status, are consequently the most affected by challenging circumstances (1).

According to the Arctic Human Development Report (1), the best predictor of an individual’s health is an individual’s perception of his/her health. Northerners’ views of their health include influences from social, societal and cultural factors across the range of the determinants of health,¹ as identified by the Public Health Agency of Canada, and through recent identification of determinants of health that take into account local causality (2, 3). These health determinants include involvement in the community, family support structure and the availability of, and access to, health services that are culturally based (2). Furthermore, without taking into account the broad determinants of health perspectives when investigating the health of populations, the definition of “health” is limited to a biomedical perspective and diminishes the influence of day-to-day factors on well-being.

This article reviews the recent literature from the early 1990s to the present that specifically address issues relevant to Inuit women’s health in Nunavut, Canada. This time frame is chosen to capture research published during the period when explicit attention was beginning to acknowledge the importance of recognizing the broad range of determinants of health as part of the process of population health promotion (4, 5). This review includes literature on Inuit health research, particularly what is known about the health of Canadian Inuit women. We begin with an introduction to health determinants and then look into the geographical and historical context of Inuit living in the Canadian Arctic, with a particular focus on the Eastern Arctic.

Health determinants in the Nunavut context

Determinants of health are personal, social, economic and environmental factors that determine the health status of individuals or populations (6). A determinants of health perspective recognizes that health is affected by factors at individual, family, community and society levels of influence. When examining health through a determinants lens, elements such as the historical context of the population, access to good food and health services, as well as education, environment and job security contribute to the picture of overall health. In a workshop held in Nunavut in March 2005, representatives from a variety of fields related to health, well-being, policy and Inuit culture in Nunavut met to discuss the determinants of health for the Nunavut population. They identified the following health determinants as influencing health in Nunavut: acculturation; self-

¹The determinants of health currently recognized by PHAC (2) are gender, culture, income and social status, social support networks, social environment, personal behaviour and coping skills, health services, early childhood development, health services, physical environment and biology, and genetic endowment.
determination; education; quality of early life; productivity; income and its distribution; food security; health care services; social safety net; housing; and environment (3).

In this review, first the historical context of the Inuit in Nunavut is examined, then a series of Inuit women’s health issues that have been brought forward in reports and published literature are explored within a health-determinants framework.

**Inuit regions of Canada**

Inuit are the Indigenous inhabitants of the North American Arctic, from the Bering Strait to east Greenland, a distance of over 6,000 kilometres. Inuit also live in Russia, Alaska, Greenland and the Canadian Arctic, and share a common cultural heritage, language and genetic ancestry. Of the approximately 150,000 Inuit living in the circumpolar region, 45,000 live in Canada’s North (7). There are four regions within Canada that are traditionally inhabited by Inuit. Those regions are the Inuvialuit region of the Northwest Territories, Nunavut Territory, the Nunavik region of northern Quebec, and the Nunatsiavut region of Labrador (Fig. 1).

**Historical context**

Nearly three centuries ago, the arrival of European whalers and explorers to the Arctic marked a significant turning point in the health of Inuit. Interaction with European visitors through trade and gift exchange had both positive and negative consequences, from the exchange in goods and provisions to the introduction of alcohol, infectious diseases and lifestyle changes to Inuit communities (7–9). Since then, Canadian Inuit have undergone a tremendous cultural shift from a nomadic, subsistence lifestyle to working and living in communities year-round. Although the process of relocation to communities began as a response by Indigenous peoples to the presence of fur traders,
explorers and missionaries, it took new form with the systematic efforts of the government in the 1950s to “resettle” Canada’s North. At that time, the Canadian government implemented resettlement programs in the Eastern Canadian Arctic in an effort to (i) protect Canada’s sovereignty in the post-Second World War era; (ii) facilitate the opening of trading posts by the Hudson’s Bay company; and (iii) police, educate and provide health care for remote populations (10, 11). During the federal government’s Inuit Resettlement Program, several Inuit families and residents of Baffin Island communities were relocated to remote Nunavut communities in the High Arctic and many more were “centralized” into communities (11). In the Kivalliq region (also known as the Keewatin region) of Nunavut, Inuit camps and communities were also moved to new locations within that region (11). While the motives and rationale behind the processes implemented by the Canadian government have been argued in the Arctic, the experiences of the resettled Inuit continue to have an impact on many Nunavut residents to this day.

Today, many traditional activities are being set aside to allow more room for contemporary lifestyles; for example, camping on the land and hunting and fishing tend to be mostly reserved for the spring and summer months and must be balanced with family members’ employment in the different sectors of the economy (12). Additionally, one outcome of community living and greater contact with southern Canadians has been medical acculturation and the transition from traditional to contemporary or modern bio-medicine. This has changed traditional approaches to disease and infirmity for Inuit. For example, maternity care and childbirth were historically a family supported process rooted in the home. Today, not only is maternity care directed by health care providers but also birth often occurs away from the community in regional centres or in cities in southern Canada (e.g., Winnipeg, Ottawa and Yellowknife) where families rarely have the opportunity to be involved in the event (13).

In summary, over the last several decades Inuit of Northern Canada, as with other Indigenous groups in Canada, have experienced, and are continuing to experience, a shift in their way of living and in their traditional practices. What differentiates the experience of Inuit in Canada is the extremely rapid transition of the last 5 to 7 decades compared with the centuries-long process among other Canadian Indigenous peoples (3).

Inuit health research
For the purposes of this article, women’s health is defined as mental and emotional health, physical health and social well-being, and not merely the absence of disease and infirmity. When health is defined this way, cultural and social practices become critical contributing factors to health (1). The current state of the health of Canadian Inuit is under investigation by researchers, government departments and Inuit organizations in Canada. However, this investigation has often taken a disease-based focus and has explored differences between Indigenous and non-Indigenous people, clustering important geographical and historical influences under an “Aboriginal peoples” label.3

Young reviewed 254 articles pertaining to the First Nations, Inuit and Métis populations in Canada. Of the articles reviewed, 122 (48%) were relevant to Canada’s Inuit population, which constitutes a significant over-representation of Inuit studies in the literature given their relative proportion in the Indigenous popula-
tion in Canada (16). The review suggests, however, that the proportion of health research conducted on topics of primary concern to Inuit communities themselves is disproportionately low. For example, only 3% of publications deal with the issue of tobacco use, although the prevalence of smoking is very high among Nunavut residents (64.8%) (16). Of particular relevance to this article is the conclusion by Young that highlighted the paucity of research examining Indigenous women’s health issues in general.

Other research has emphasized the anthropological study of Inuit (17), the examination of the role of contaminants in the Inuit diet (18–22) and the study of genetics (16, 23). Research investigating the prevalence of chronic diseases such as cancer and cardiovascular disease has been increasing (21, 24–26). Diabetes, particularly type 2, has become a research subject of interest in Inuit populations (22, 23, 27), given the fact that the rates of type 2 diabetes among the First Nations population are three to five times higher than among the rest of Canadians (28). These rates have not, as yet, been mirrored in the Inuit population. These publications study culture, disease and risk for poor health without acknowledging the role of gender, social and physical environment and other determinants of health as playing a role in Inuit wellbeing. Overall, while there are a number of published studies examining the health of Canadian Inuit, there is a gap in research that examines the full range of the determinants of health, particularly social determinants among the Inuit or in any other Indigenous population in Canada (16).

**Inuit women’s health: identification of current foci**

The rapid shift in health practices described in an earlier section frames the discussion of women’s health issues in Nunavut, as does the influence of a population health promotion approach. Of the research published since the early 1990s that examined health among the circumpolar Inuit population, less than 50 articles were found that specifically addressed women’s health issues. These studies primarily addressed issues related to women’s biology and reproduction, such as pregnancy, childbirth, exposure of the mother and foetus to contaminants, nutrition, and substance use. The handful of studies conducted among an identifiable population in Nunavut examined midwifery and shifts in traditional birthing practices in the region – such as historical events that have led Northerners away from the tradition of midwifery – and evaluated the Rankin Inlet Birthing Centre in the Kivalliq (central) region of Nunavut (29, 30).

In 2004, the federal Department of Indian and Northern Affairs conducted a meeting at which several health issues for Indigenous women in Canada were raised. The health issues identified and discussed were adequate housing, early childhood programs, abuse and family violence, women in urban areas,
foetal alcohol spectrum disorder and the rate of change from a traditional to a modern way of living (31). A recent meeting in Nunavut with a range of stakeholders identified several determinants of health for Nunavummiut (an Inuktitut word meaning “People of Nunavut”) that include many of the same issues: quality of early childhood, acculturation, income and housing, education, food security and access to health services (32).

The proceedings from the National Inuit Health Information Conference produced by Inuit Tapiriit Kanatami and Pauktuutit Inuit Women’s Association identified the following as important health issues for Inuit women in Canada (34): breast health; reproductive health (i.e., sexually transmitted infections, birth control and family planning, abuse and assault); life changes (menopause); childbirth (away from families) and children’s health; parenting, traditional values and raising children; balance of work and family; caregiving for aging parents and services for elders; housing and economic development; food security; mental health and depression; primary role for health and well-being; addictions and substance abuse; and foetal alcohol spectrum disorder. The issues identified highlight concerns that are related to disease and illness as well as to health determinants and well-being.

Some of the issues that have been raised in various reports and in the published literature are examined here in further detail. Literature that has been published by populations outside the Canadian Inuit women’s community (i.e., Alaskan Native) is drawn upon to illustrate issues that similarly affect both populations but for which there is no literature available for Canadian Inuit women.

Sexual health, pregnancy, childbirth (traditional vs. contemporary) and adoption

As of the year 2000, there was a higher rate of chlamydia, a sexually transmitted infection, among Inuit women (3623.4/100,000) as compared with Canadian women (211.8/100,000) (35). In addition, specific strains of human papillomavirus (HPV), a sexually transmitted infection that can genital warts and cancer of the cervix, have been found. In a report profiling cancer rates in the period 1992–2001 in Nunavut, the most common cancer among women was cancer of the cervix, which accounted for 30% of all (malignant and in situ) cancers diagnosed (36). Approximately 75% of cervical cancer cases were diagnosed in women between the ages of 20 and 39.

A study conducted by Muggah et al. examined women delivering infants preterm at the Baffin Regional Hospital in Iqaluit. In a retrospective examination of data from 938 births at the hospital between 1999 and 2000, 95% of the mothers were Inuit women (n = 835). In this study, premature delivery of an infant less than 37 weeks of completed gestation occurred much more frequently among Inuit women living in the Baffin Region as compared with women in the general Canadian population. The premature delivery rate of close to 18% was almost three times the national average (38). The authors also identified several sociodemographic risk factors for preterm delivery,

4Pauktuutit leads and supports Canadian Inuit women in policy development and community projects in all areas of interest to them, for the social, cultural, political and economic betterment of the women, their families and communities. Pauktuutit fosters greater awareness of the needs of Inuit women, advocates for equity and social improvements and encourages their participation in the community, regional and national life of Canada (33).
including substance use, young age, single marital status and poor nutrition, and found that these risk factors occurred more frequently among Inuit women as compared with non-Inuit women.

Many mid-life (40 to 65 years) Inuit women in Nunavut were born in qammait (large tents) in outpost camps on the land or in communities as the Inuit were resettled. As mentioned earlier, pregnant women are now required to leave smaller communities for bigger communities or go to southern hospitals with more advanced health care weeks before the birth of their child. This process was put in place to address the poor pregnancy outcomes among Indigenous women throughout Canada. The government terms the process “obstetric evacuation”; however, in the proceedings of a meeting about Indigenous women and health, one traditional Mohawk midwife familiar with the practice in other rural areas of Canada termed the process “obstetric exile” to illustrate the impact she believes this procedure has on the women who experience obstetric evacuation (31). In a study of nursing perspectives on public health programming in Nunavut (2003), community health nurses were asked to identify reasons women in Nunavut were reluctant to leave their communities to give birth (39). They highlighted four common reasons: (i) women are unable to bring a birthing coach, their partner or children when they leave the community and childcare for older children is often an issue; (ii) women are not given the choice as to where they deliver; (iii) women do not receive prenatal teaching, support or recreation during the weeks before delivery; and (iv) women feel isolated while away from their homes and families (39). In the proceedings of an Indian and Northern Affairs meeting on Indigenous women and health (2004), it was reported by one participant that just as the residential school experience has left many scars on successive generations of Indigenous people in Canada so too will the practice of obstetric evacuation (31).

In traditional Inuit custom adoption, Inuit families give a child to family members, such as an aunt and uncle or to grandparents. In Inuit society, this practice is without the guilt and stigma sometimes associated with adoption in mainstream Canada or within other cultures. Birth parents often see their adopted children daily and have close relationships with them. Custom adoption is an old tradition and there are many motives behind it. If a family, for example, had too many births too close together and felt they wouldn’t be able to feed all their children, they might give one away to someone better able to care for it; or, a family with children all of one sex might decide to adopt a child of the opposite sex (40). Custom adoption has strengthened community ties, helped create families and ensured that children have had the best possible home. In a Nunavut-based newspaper article printed in 2000, however, some community members expressed a concern that custom adoption is becoming a way to deal with unwanted pregnancies in Nunavut (41). This concern was also reflected in recent research in Iqaluit (42, 43).

Alcohol and substance abuse
Alcohol and substance abuse have been identified as a serious problem among many Indigenous groups in the circumpolar region (44–46). Nunavut has the third highest proportion of heavy drinkers over the age of 12 compared with all other provinces and territories, as reported by the Canadian Community Health
Survey (2003) (35). Nunavut’s proportion of heavy drinkers is 31.0%, third only to the NWT at 39.9% and Newfoundland at 32.2% (35).

Alcohol abuse contributes substantially to rates of death from all types of injury, liver disease (cirrhosis), homicide, suicide, other types of psychiatric illness and foetal alcohol spectrum disorder (47). While there is little literature available that examines this issue among Canadian Inuit, the subject has been studied quite extensively in Alaska. In a cross-sectional survey of 200 Alaskan Native men and women (103 male, 97 female) in residential treatment for alcohol dependence, 49% of the women reported experiencing some form of personal violence and, the authors state, in general their victimization was related to drinking both by themselves and by the perpetrators (48). The question remains as to whether drinking immoderately is the consequence or cause of some health-related and wellness issues for these women.

**Tobacco use, smoking and environmental tobacco smoke (ETS)**

Tobacco use and environmental tobacco smoke (ETS), commonly known as second-hand smoke, are the leading causes of preventable death in Canada (59). Although the prevalence of smoking has been decreasing over the past two decades, mortality and morbidity related to tobacco use remains very high, especially among Canadian Indigenous peoples (50). Lung cancer is the most common cancer in Nunavut, accounting for 39% of the invasive cancer cases in a 10-year period (36, 51). Nunavut also has the highest proportion of smokers over the age of 12 in all of Canada. According to data provided by the Nunavut Bureau of Statistics, 64.8% of Nunavut’s population over 12 years of age reported being smokers, which is an alarmingly high rate given that the next highest proportions of smokers over 12 years of age were 36.6% and 27.5% in the Northwest Territories and Yukon Territory, respectively (35).

Exposure to ETS is also known to increase risk of respiratory and other infections in children in Canada (49). ETS poses a significant public health concern given the proportion of the Nunavut population that are smokers.

**Contaminants, diet and nutrition**

Indigenous peoples throughout North America and other parts of the world have experienced changes in their food-use patterns and nutritional status over the last century. Documented changes include a decrease in the use of locally harvested traditional, cultural food, commonly referred to as country food in Northern Canada (20). These changes are paralleled by an increase in the use of food provided in markets and stores. Traditional diets, composed of high fat and protein with minimal carbohydrate intake, are rapidly being replaced by a diet comprising processed and store-bought foods. As discussed earlier, food insecurity is a concern in Nunavut, and access to high-quality, nutritious store-bought foods is difficult in many remote and isolated communities. In a descriptive study that combined both retrospective chart review and a cross-sectional follow-up survey, 245 Cree mothers with 9-month-old infants in rural northern Quebec were asked about infant feeding practices and the health of their infant, and were asked the question, “Do you ever worry you don’t have enough money

\(^{3}\)Heavy drinking is defined as consuming 5 or more drinks on one occasion, 12 or more times a year, among current drinkers (35).
to buy your children food to eat?" Affirmative responses to the question were considered by the authors to be evidence of anxiety about food supply. One-fifth of the participants in the study reported experiencing anxiety regarding their food supply (52). The Cree population in this rural northern Quebec community experience many of the same challenges in obtaining reasonably priced, nutritious foods that are experienced by Nunavut residents (53). Traditional Indigenous dietary patterns continue to adapt to contemporary social circumstances and the traditional diet continues to have less prominence. Duhaime et al. suggest that special attention needs to be given to the quality and accessibility of store-bought foods in these remote communities (19).

Over the past two decades, there has also been growing concern regarding the levels of contaminants in country foods and the potential toxins to which Northerners may be exposed when consuming these foods (1). The Northern Contaminants Program (NCP), a branch of the federal Department of Indian and Northern Affairs Canada (INAC), was established in 1991 in response to studies that found questionable levels of contaminants in the arctic ecosystem (54). Many of these contaminants have no arctic sources, yet some are found at high levels in animals at the top of the arctic food chain and in humans. The three main contaminant groups of concern are persistent organic pollutants (POPs), heavy metals and radio-nuclides (54).

In a qualitative study by Egan, Inuit women’s perceptions of health risks from potential contamination of the arctic food chain were explored through in-depth interviews with 47 women in an undisclosed Canadian Arctic community. The author found that many of the Inuit women they interviewed suggested that pollution can appear in a variety of forms, from visible air and water contaminants and possible invisible contaminants in arctic wildlife, to pollution of the human body through drug and alcohol consumption (55). The author concludes that Inuit concepts of pollution are influenced by complex sociocultural factors arising from historical and contemporary community life. This study highlights the way Inuit view the world, how they view the concept of pollution and the connection between body, land and spirit, and how they view the threat to health posed through a number of mechanisms related to contamination.

There is limited epidemiological information available regarding levels of contaminants in Nunavut’s population; however, concern regarding contaminants has been particularly well researched in the Nunavik region of northern Quebec. In 1992 Dewailly et al. conducted a cross-sectional study to evaluate blood levels of lead and mercury in 492 Inuit adults of Nunavik (209 men, 283 women). Exposure to lead and mercury levels is hypothesized to be particularly high among populations who consume marine animals (i.e., fish, ringed seal, narwhal, walrus and beluga whale), as lead and mercury are widespread environmental contaminants in aquatic environments (56). The authors found that 26% of 18- to 44-year-old women had blood levels of lead and mercury concentrations that exceeded those that have been reportedly associated with subtle neurodevelopmental deficits in other populations (56). As Inuit in Nunavut consume the same diet and share the same waters as Nunavik residents, the results of this study are a concern for Nunavut residents as well.
As a result of this and other research, the regional government implemented a plan to encourage Nunavik residents to replace country foods with store-bought foods in their diet (19). This has caused some controversy among policymakers, researchers and community residents.

In a study assessing the impact of this policy on the Nunavik population, Duhaime et al. stated that the consumption of country foods has many health, social, economic and cultural benefits, such as participating in traditional activities and in community feasts. They concluded that it is important to fully understand the levels of contaminants in country foods and the risk they may or may not pose to humans, before implementing such policies throughout the Arctic (19).

Regardless of whether available food is from traditional sources or shipped in to communities in the North, it is readily apparent that early childhood development (including preconception) along the lifecourse to healthy aging are impacted by poor access to safe and healthy food and unsafe environmental conditions, particularly in the physical environment, that are influencing poor health outcomes. The issues related to contamination of food sources and the environment, whether from artificial or natural sources, illustrate the complexity of the determinants of health and the tensions that may arise when traditional practices are affected by acculturation.

**Mental health, wellness, suicide and stress**

Mental health plays a significant role in the overall health of women. In an editorial on women’s mental health, Goodman discussed mental health in terms of depression and suicide, mood disorders, eating disorders and hormone-related mood fluctuations, such as menopause and premenstrual symptoms (57). Mental illness is under-diagnosed by doctors, and the World Health Organization (WHO) reports that less than half of those who meet the diagnostic criteria for psychiatric disorders are identified by doctors (58). While some literature does not distinguish between mental health and wellness, there are very important delineations between the two concepts. “Mental health” is often used in a clinical context, such as in reference to depression, mood disorders and similar clinical conditions (57). Wellness, however, is a concept that is much more all-encompassing and holistic and reflects the broad range of factors that determine health. Wellness affects every part of our daily lives, and how well we feel every day plays a major role in our health and how we get along with others or react to events. Wellness is an interactive process of becoming aware of and practising healthy choices to create a more successful and balanced lifestyle, and includes the social, spiritual, physical, intellectual and emotional aspects of life.

A study conducted by Lavallee and Bourgault comparing Santé Quebec survey data (collected between 1990 and 1993) from three populations – James Bay Cree (n = 1999), Inuit of Nunavik (n = 1567) and southern Quebec residents (n = 23,564) – found that Inuit women in Nunavik were more likely than non-Indigenous southern Quebec women to experience lifetime suicidal thoughts (13.9% compared with 8.4%) and lifetime suicidal attempts (14.4% compared with 4.5%). The same study, however, found that Inuit women were less likely to report high levels of psychological stress than non-Indigenous southern Quebec women (25.5% and 30.4%, respectively) (59).
The Santé Quebec survey also illustrated that suicidal thoughts were reported more often by females than males (17.1% for women, 15–24 years; 5.1% for males, 15–24 years); however, Tester argues this fact does not imply that young Inuit women are more vulnerable to suicide, because disclosure is more common among Inuit women than men (4).

Using data available from the Canadian Community Health Survey, Lagoise and Nowdlak note that the proportion of women over 18 years of age in Nunavut who reported experiencing “quite a lot of life stress” was 21.2%, compared with 15.6% of male respondents. In the Northwest Territories, however, this comparison differed, with men reporting experiencing “quite a lot of life stress” (23.0%) more often than women (19.3%). In both Territories, however, these proportions are lower than the Canadian national statistics of 25.0% for women and 23.9% for men who responded to the same question (35).

Suicide is a serious issue of concern in Inuit communities. In an article examining the social constructions of Inuit suicide, Tester et al. examined statistics from the former Northwest Territories (including Nunavut), as well as from Nunavik and Greenland. They found the rate of suicide in the area comprising the former Northwest Territories (NWT) in 1999 was six times greater than southern Canada (4). The Baffin region of the NWT had the highest male suicide rate at 133.9/100,000 individuals, and the highest female suicide rate at 47.1/100,000 individuals. Within the area comprising the former NWT Inuit accounted for 87% of all suicides, which is high considering Inuit comprised approximately 35% of the Territorial population, according to the 1996 Census. A 12-year analysis revealed that suicide rates in the Nunavut region have risen over time, and that rates in the western part of the former NWT had declined. Rates in Nunavut have risen dramatically from 48.7/100,000 (1985–1987) to 66.7 in the following 4 years, 75.1 (1991–1993) and 85.5/100,000 from 1994 to 1996 (4).

**Violence and trauma**

Domestic violence is a serious problem for many women around the world. The National Centre for Injury Prevention and Control at the Centre for Disease Control in the United States identifies four areas of intimate partner violence: physical violence; sexual violence; threats of physical or sexual violence; and psychological/emotional abuse (60). Domestic violence can occur between family members and/or partners, also called intimate partner violence (IPV). IPV can occur among heterosexual or same-sex couples and does not require sexual intimacy. IPV can vary in frequency and severity. It occurs on a continuum, ranging from one hit that may or may not harm the victim to chronic and severe battering (repeated abuse is also known as battering, which means “that batters or violently assails with blows”) (61).

While there is published literature that examines domestic violence among the First Nations populations in Canada and Native American populations in the United States, the literature relevant to Arctic communities is very small. In a review of the health of Indigenous peoples of the Arctic, Bjerregaard et al. found that “interpersonal violence in all its forms (homicides, assaults, abuse), with or without sexual context, directed at strangers or family members, is now an issue of major public health concern in most circumpolar indigenous communities”. The authors discuss different possible explanations for violence in...
these communities, such as the stress of rapid social change and an inadequacy of traditional conflict resolution behaviours in the new, more urbanized environments (26). Additionally, while both men and women suffer from intimate partner violence, a greater proportion of women than men are victims. In a Greenland study analysing population health survey data from 1993–1994, Sundaram et al. found that among 18–24 year olds, 58.8% of females and 44.0% of males reported lifetime experience of violence and/or threats of violence (669 female and 604 male respondents) (62).

In Nunavut, there is little data on the actual numbers of men and women experiencing violence and/or living in violent situations; however, the local health authorities recognize that while they have little pertinent data on the subject, it is a significant concern for many in Nunavut (63). In recent interviews with women in the Territory about their health, many spoke of violence in their communities, noting the influence of traditional gender roles, childhood abuse and coping with trauma as influential factors (42).

Risk factors for cardiovascular disease and diabetes

Available data on cardiovascular disease risk among Inuit are conflicting, given today’s clinical understanding of the risk factors for the disease. For example, the Lavallee and Bourgault study discussed earlier found that Inuit women of Nunavik were less likely than southern Quebec women to have high blood pressure (4.8% compared with 12.8%) or high cholesterol (14.6% compared with 17.7%), but were more likely to have excess weight (defined as a BMI greater than 30) (23.9% compared with 12.3%) and be physically inactive (47.9% compared with 26.4%) (59). There are many similarities between the Nunavik region of northern Quebec and Nunavut when comparing community size, infrastructure and recreational activities available in the communities.

High rates of type 2 diabetes in the First Nations population in Canada have prompted research into the prevalence of diabetes among Inuit. It has been documented that Inuit have a lower prevalence of diabetes and age-adjusted mortality from cardiovascular disease than the general population (28). In a Canadian study using data from a cardiovascular survey conducted in 1989–1991, 168 Inuit participants (48.2% women) and 53 Caucasians (38.5% women) were compared. Inuit participants were found to have lower prevalence of metabolic syndrome (13.1%) than their Caucasian counterparts in the study (20.8%) (28).

While these risk factors for cardiovascular disease and diabetes are still being researched, the evidence thus far indicates that some risk factors, such as high blood pressure and cholesterol, may not yet be as big a concern among Inuit as it is among the First Nations and Metis population in Canada, whereas other risk factors like physical inactivity pose a stronger threat. Past research has clearly identified increased risk of CVD for those in lower-income levels than those in medium- and high-income levels (5). As noted above, issues around food security and nutrition are also linked to the risk of certain diseases, including CVD and diabetes that are linked to BMI. Given the time lag between changing ways of life and the development of related

*A cluster of symptoms defined by the authors that include a variety of criteria such as elevated fasting blood sugar; high blood pressure; elevated triglycerides and HDL cholesterol; and large waist circumference.
disease, it will be important to carefully monitor prevalence of metabolic syndrome and other health risks to support health promotion strategies for Inuit women and their families.

**Inuit women’s health: The need for context in examining health and well-being**

“[T]here is little Inuit-specific health data available in general, and even less specifically about Inuit women. Women play an integral and essential role in Inuit families and communities, traditional harvesting and the traditional economy. It is therefore important that Inuit women be involved in identifying health priorities from the beginning.” (34)

Many of the health issues outlined above describe health through the lens of medical-biological health, disease and risk factors for disease. These issues are common to many communities around the world – what differentiates these issues among populations is the context in which they are set and the mechanisms through which the determinants of health operate in them. There is increasing evidence in diverse geographical locations and population groups that well-being and its health component are much more complex than much of our current insight suggests. Our culture, gender, job status, family life and childhood combine with other aspects of our environment and community to contribute to our well-being. Researchers must examine the underlying factors in communities that contribute to, for example, food insecurity, economic insecurity, suicide, abuse and addictions. Research must be conducted *with* communities instead of *on* them for progress to be seen on many of the issues that are health concerns for Northern communities.

**Summary**

Inuit women’s health is a crucial part of the health of their communities. Inuit women face serious health issues related to reproductive and sexual health, such as high rates of sexually transmitted infections and challenging circumstances surrounding childbirth. Wellness, suicide and stress are more significant issues for Inuit women compared with non-Inuit women. Food security and accessibility is an issue for all Northerners, however, it is a particular concern for Inuit women as they often have sole responsibility for children and, therefore, have many mouths to feed (64). Alcohol and substance abuse and exposure to violent situations endanger both the health and safety of Inuit women in Nunavut. The challenging circumstances facing Inuit women and their health are numerous; however, literature examining these contexts and processes through which health is affected is practically non-existent. In addition, there is little if any literature examining the positive aspects of women’s health, including their strengths, community involvement, family, relationships, wisdom and knowledge. It is also important to examine Inuit women’s health, and Inuit health in general, in the context of the circumpolar Inuit and Arctic regions, and not subsume their experiences into the “Aboriginal” health literature in Canada.

**DISCUSSION**

This review, based on currently available literature from the last decade and a half, illustrates the paucity of research on Canadian Inuit women’s health and the need for both more research and different approaches to research to support the health and well-being
of Inuit women and their communities. For example, while statistics exist that document the current prevalence of some diseases, injury and trauma, childbirth and other health-related issues, there is little contextual information available to help explain the complex relationships between the determinants of health and the day-to-day well-being of Inuit women. For example, what effect does exposure to contaminants at early stages of gestation have on both the mother’s and child’s health in the long and short term? What impact will ongoing issues related to mental health, wellness and suicide have on women and their families in the long term? Will dietary changes due to food availability and worries about food security increase stress for women in Nunavut? Given existing concerns about illness related to metabolic syndrome, what strategies would be appropriate and acceptable to reduce this risk for Inuit women? What effects do smoking, alcohol consumption and limited access to important nutritional sources of vitamins and minerals have on musculoskeletal health, including early development of debilitating conditions such as osteoporosis? Questions need to be asked regarding how local solutions and adaptations can be made to develop approaches, programs and practices that support a traditional way of life yet maintain health. And finally, given that Nunavut is not populated only by Inuit women, future research could include all members of the community – men, women, children, elders – creating data to support population health promotion that is inclusive and that acknowledges their needs as well.

We have suggested a few areas of research that could support the development of resources that address health issues and include local causality and context. A discussion of the practical issues related to research in the Arctic, including distance, financial cost and research capacity is beyond the scope of this review, but need to be acknowledged. Proposed research in circumpolar health must clearly illustrate the benefit to communities even as we argue for its urgent need. With communities actively partnering in research, and with links to resources in the South, research on the determinants of health can move forward in the North. As well as adding to the body of knowledge on health determinants in Canada, answering questions relevant to Northern populations will provide valuable information for health policymakers and for program development, and will facilitate the delivery of resources to the necessary areas of health service provisions in Nunavut.

REFERENCES

1. Arctic Council. Arctic Human Development Report; 2004; 155-168. Reykjavik, Arctic Council.
2. Public Health Agency of Canada (PHAC). What determines health? Health Canada, Government of Canada. 2005. Accessed: May 13, 2006: http://www.phac-aspc.gc.ca/ph-sp/phdd/determinants.
3. Nunavut Department of Health and Social Services (NDH&SS). Social Determinants of Health in Nunavut - Workshop report March 8-10, 2005 Iqaluit NU. 1-27. Government of Nunavut.
4. Tester FJ, McNicoll P. Isumagijaksaq: mindful of the state: social constructions of Inuit suicide. Soc Sci Med 2004; 58(12): 2625-36.
5. Evans, R.G., Marmor, T. & Barer, M. (Eds) Why Are Some People Healthy and Others Not?: The Determinants of Health of Populations. New Jersey: Aldine Transaction. 378 pp.
6. Robinson Vollman, A., Anderson, E. T., & McFarlane, J. Canadian Community as Partner. Philadelphia: Lipincott Williams and Wilkins 2004. 512 pp.
7. World Health Organization (WHO). The determinants of health. 2006 Accessed March 20, 2007: http://www.who.int/hia/evidence/doh/en/
8. Morrison D Canadian Inuit History: A Thousand Year Odyssey. 2005. Canadian Museum of Civilization Online Resource (www.civilization.ca) Accessed: January 29, 2005
9. Inuit Tapiriit Kanatami (ITK) Meeting of Two Worlds. 2005. Accessed March 20, 2007: http://www.itk.ca/english/inuit_canada/history/worlds.htm.
10. Kirmayer LJ, Brass GM, Tait CL. The mental health of aboriginal peoples: Transformations of identity and community. Can J Psychiatry 2000; 45: 607-616.

11. Indian and Northern Affairs Canada (INAC) (1996). Encouraging self-sufficiency: dispersing the Baffin Island Inuit. Report of the Royal Commission on Aboriginal Peoples (Canada) Volume I - Looking Forward Looking Back, Part 2: False Assumptions and a Failed Relationship, Section 2.2 To Improve the Lives of Aboriginal People, Chapter 11 - Relocation of Aboriginal Communities: Accessed March 3, 2006: http://www.ainc-inac.gc.ca/ch/rcap/ss/gs38_e.html

12. Inuit Tapiriit Kanatami (ITK). Inuit Today. 2005. Accessed March 20, 2007: http://www.itk.ca/5000-year-heritage/inuit-today.php

13. Midwives Association of the NWT. Presentation from the Midwives Association of the Northwest Territories and Nunavut to the Commission on the Future of Health Care in Canada in May 16, 2002 in Yellowknife, NT (available I in print!).

14. Oxford English Dictionary. Acculturation. 2nd Edition. 1989 Oxford: Oxford University Press.

15. Stern PR & Condon RG. Puberty, pregnancy, and menopause: lifestyle acculturization in a Copper Inuit community. Arctic Med Res 1995; 54(1): 21-31

16. Young TK. Review of research on aboriginal populations in Canada: relevance to their health needs. BMJ 2003; 327(7412):419-22.

17. Wachowich N, Awa AA, Katsak RK, Katsak SP. Saqiyuq: Stories from the Lives of Three Inuit Women. 1999. McGill-Queen's University Press. 368 pp.

18. Dallaire F, Dewailly E, Muckle G, Vezina C, Jacobson SW, Jacobson JL, Ayotte, P. Acute infections and environmental exposure to organochlorines in Inuit infants from Nunavik. Environ Health Perspect 2004; 112(14): 1359-65.

19. Duhaime G, Chabot M, Frechette P, Robichaude V, Proulx S. The Impact of dietary changes among the Inuit of Nunavik (Canada): A socioeconomic assessment of possible public health recommendations dealing with food contamination. Risk Anal 2004; 24(4): 1007-18.

20. Kuhnlein HV, Soueida R, Receveur O. Dietary nutrient profiles of Canadian Baffin Island Inuit differ by food source, season and age. J Am Diet Assoc 1996; 96(2): 155-62.

21. Young, TK. Contributions to chronic disease prevention and control: studies among the Kivalliq Inuit since 1990. Int J Circumpolar Health 2003; 62(4): 323-30.

22. Young, TK, Chateau D, Zhang M. Factor analysis of ethnic variation in the multiple metabolic (insulin resistance) syndrome in three Canadian populations. Am J Human Biol 2002; 14(5): 649-58.

23. Hegele RA, Genes, environment and diabetes in Canadian aboriginal communities. Adv Exp Med Biol. 2001;498:11-20.

24. Nielsen NH, Storm HH, Gaudette LA, Lanier AP. Cancer in Circumpolar Inuit 1969-1988: A summary. Acta Oncol 1996; 35(5): 621-8.

25. Healey SM, Aronson KJ, Mao Y, Schlecht NF, Mery LS, Ferenzcy A, Franco EL. Oncogenic human papillomavirus infection and cervical lesions in aboriginal women of Nunavut, Canada. Sex Transm Dis 2001; 28: 694-700.

26. Bjerregaard P, Young TK, Dewailly E, Ebbesson SO. Indigenous health in the Arctic: an overview of the circumpolar Inuit population. Scan J Public Health 2004; 32: 390-5.

27. Naylor JL, Schaera CD, Mayer AM, Lanier AP, Treat CA, Murphy NJ. Diabetes among Alaska Natives: A review. Int J Circumpolar Health 2003; 62(4): 363-87.

28. Pollex RL, Khan HM, Connelly PW, Young TK, Hegele RA. The metabolic syndrome in Inuit. Diabetes Care 2004; 27(6): 1517-8.

29. Chamberlain M, Nair R, Nimrod C, Moyer A, England J. Evaluation of a midwifery birthing center in the Canadian north. Int J Circumpolar Health 1998; 57 (Suppl 1): 116-20.

30. England JL. Rankin Inlet Birthing Project: outcome of primipara deliveries. Int J Circumpolar Health 1998; 57 (Suppl 1): 113-5.

31. Indian and Northern Affairs Canada. Proceedings - Indigenous women and health, 2004. http://www.ainc-inac.gc.ca/rr/spch/unp/pf04/pro1_e.html

32. Nunavut Department of Health and Social Services (NDH&SS). Tuberculosis in Nunavut. http://www.gov.nu.ca/hsssite/tb.shtml Copyright 2000 (accessed March 1 2006). Government of Nunavut.

33. Pauktuutit Inuit Women’s Association, 2007. http://www.pauktuutit.ca; Accessed: January 29 2007.

34. Inuit Tapiriit Kanatami (ITK), 2001. Proceedings from the National Inuit Health Information Conference: Inuit defined health information needs and directions.

35. Langoise S, Nowdlak M. Selected statistics related to the social determinants of health (presentation). 2005. Nunavut Bureau of Statistics, Government of Nunavut.

36. Healey SM, Plaza D, Osborne G. A ten year profile of cancer in Nunavut: 1992-2001. Nunavut Department of Health and Social Services, 2003.

37. Wenman WM, Joffres MR, Tataryn IV, & Edmonton Perinatal Infections Group. A prospective cohort study of pregnancy risk factors and birth outcomes in Aboriginal women. CMAJ 2004;171(6): 585-9.

38. Muggah E, Way D, Muirhead M, Baskerville B. Prevention of cervical lesions in aboriginal women: Impact disempanising the Baffin Island Inuit community. Arctic Med Res 1995; 54(1): 21-31

39. Pollex RL, Khan HM, Connelly PW, Young TK, Hegele RA. The metabolic syndrome in Inuit. Diabetes Care 2004; 27(6): 1517-8.
42. Healey GK. An Exploration of Determinants of Health for Inuit Women in Nunavut. Masters thesis. Unpublished Thesis: University of Calgary, 2006.

43. Healey GK, Meadows LM. Culture and Identity: An important determinant of Inuit women's health. J Aboriginal Health 2007, in press.

44. Bjerregaard P, Curtis T, Borch-Johnsen, K, Mulvad G, Becker U, Andersen S, Backer V. Inuit health in Greenland: a population survey of life style and disease in Greenland and among Inuit living in Denmark. Int J Circumpolar Health 2003; 62 (Suppl 1): 3-79.

45. Cass A. Health outcomes in Aboriginal populations. CMAJ 2004; 171(6): 597-8.

46. Parks CA, Hesselbrock MN, Hesselbrock VM, Segal B. Gender and reported health problems in treated alcohol dependent Alaska natives. J Stud Alcohol 2001; 62(3): 286-93.

47. Young TJ. Native American drinking: a neglected subject of study and research. J Drug Educ 1991; 21(1): 65-72.

48. Hesselbrock, VM, Hesselbrock MN, Segal B. Alcohol dependence among Alaska Natives and their health care utilization. Alcohol Clin Exp Res 2003; 27(8): 1353-55.

49. Canadian Council for Tobacco Control. Tobacco prevention - Frequently asked questions. National Clearinghouse on Tobacco and Health, Canadian Centre for Substance Abuse, 2005. http://www.cccc.ca (accessed: September 2005).

50. Indian and Inuit Health Committee of the Canadian Pediatrics Society. Tobacco use among Aboriginal children and youth. Paediatr Child Health 1999;4: 277-81.

51. Friiborg J, Koch A, Wohlfarht J, Storm HH, Melbye M. Cancer in Greenlandic Inuit 1993-1997. Int J Circumpolar Health 2004; 63 (Suppl. 2): 195-8.

52. Willows ND, Iserhoff R, Napash L, Leclerc L, Verrall T. Anxiety about food supply in Cree women with infants in Quebec. Int J Circumpolar Health 2005; 64(1): 55-64.

53. Kuhnlein HV, Receveur O, Chan HM, Loring E. Assessment of dietary benefit/risk in Inuit communities. Centre for Indigenous Peoples’ Nutrition and Environment (CIINe) and Inuit Taptiit Kanatami, 2000. Montreal, McGill University. 377 pp.

54. Indian and Northern Affairs Canada (INAC). Introduction, Northern Contaminants Program: Operational Management Guide, 2006. http://www.ainc-inac.gc.ca/ncp/opmgmgu_e.html

55. Egan C. Points of view: Inuit women’s perceptions of pollution. Int J Circumpolar Health 1998; 57 (Suppl 1): 550-4.

56. Dewailly E, Ayotte P, Bruneau S, Lebel G, Levallois P, Weber JP. Exposure of the Inuit population of Nunavik (Arctic Quebec) to lead and mercury. Arch Environ Health 2001; 56(4): 350-7.

57. Goodman JH. Women’s Mental Health. J Obstet Gynecol Neonatal Nurs 2005; 34(2): 245.

58. World Health Organization (WHO). Gender and women’s mental health, 2005. Accessed: January 29, 2007: http://www.who.int/mental_health/prevention/genderwomen/en/ Amount of pages?

59. Lavallee C, Bourgault C. The health of Cree, Inuit and southern Quebec women: similarities and differences. Can J Public Health 2000; 91(3): 212-6.

60. National Centre for Injury Prevention and Control. Intimate partner violence. Centre for Disease Control (CDC), 2006. Place of publishing, amount of pages? http://www.cdc.gov/ncipc/factsheets/ipvoverview.htm (accessed April 6 2006)

61. Oxford English Dictionary. Battering. 2nd Edition. Oxford: Oxford University Press, 1989.

62. Sundaram V, Curtis T, Helweg-Larsen K, Bjerregaard P. Can we compare violence data across countries? Int J Circumpolar Health 2004; 63 (Suppl. 2): 389-93.

63. Osborne G (personal communication). Deputy Chief Medical Officer of Health, Nunavut Department of Health and Social Services, Iqaluit NU, 2004.

64. Aylward J (personal communication). Executive Director, Qulliiit Nunavut Status of Women Council, Iqaluit, NU, 2005.

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