ORIGINAL ARTICLE

THE SOCIAL DETERMINANTS OF INUIT HEALTH: A FOCUS ON SOCIAL SUPPORT IN THE CANADIAN ARCTIC

Chantelle A.M. Richmond

Department of Geography, University of Western Ontario, London, Canada

Received 29 September 2008; Accepted 27 August 2009

ABSTRACT

Objectives. Societies that foster socially supportive networks produce healthier populations. Social support is a significant determinant of health among Canada's Inuit population; however, little is known about the characteristics that provide access to social support among Inuit. This exploratory analysis describes how 4 types of social support (namely, positive social interaction, emotional support, tangible support and affection and intimacy) differ in relation to various determinants of health.

Study design. Micro-data from the Arctic Supplement of the 2001 Aboriginal Peoples Survey (n=26,290) was used.

Methods. Cross-tabulations and multivariate logistic regression analyses were used to examine levels (high/low) of the 4 types of social support among the full Inuit sample (n=26,290) as they relate to age, gender, geographic region, marital status, Aboriginal language use and participation in traditional harvesting activities.

Results. Certain subsegments of the Inuit population were less likely to report high levels of social support, including men, the elderly (aged 55+) and the unmarried. Some Inuit-relevant determinants were also found to decrease the odds of reporting high levels of social support, including being unable to speak or understand an Aboriginal language, not participating in traditional harvesting activities and living in Nunavik.

Conclusions. Research that frames Inuit health within the social determinants of health is in its relative infancy; however, evidence from the social epidemiological literature indicates that those with diminished access to social support also suffer poorer health outcomes. Future research should build on the findings of this study to examine how the relationship between various health outcomes (e.g., respiratory disease, suicide attempts, self-rated health) and social support may respond along a social gradient. Such analysis will build on the paucity of literature specific to
Inuit health and social conditions and set priorities for policy and programming efforts that will improve the social determinants of Inuit health.

(*Int J Circumpolar Health* 2009; 68(5): 471–487)

**Keywords:** Canadian Inuit, social support, social determinants of health, Arctic, Aboriginal health

**INTRODUCTION**

In the past century, Inuit in Canada’s Arctic regions have undergone a rapid transformation in their way of life, and the consequences for the social determinants of Inuit health have been significant (1–3). In the Arctic environment, the Inuit way of life has traditionally centred on activities related to the collection of country foods (e.g., seal, caribou, whale, duck, fish and berries). These traditional activities are important for meeting the nutritional needs of the Inuit, but, perhaps more importantly, they are vital for fostering cultural identity as well as defining social roles and obligations among Inuit. The harvesting, procurement, sharing and consumption of country foods culminate as a result of various co-operative activities that result from socially supportive roles and behaviours shared between individuals, families and communities (4–6).

However, in the past century the Arctic has undergone major cultural, political and social changes – all of which have had significant influence on Arctic way of life (2). Perhaps most significantly, as the market economy has become a more prevalent feature in the Arctic, participation by Inuit in many of their traditional activities has declined (3). The shift in their way of life, from traditional to market economy, has had considerable consequences for the social, cultural, economic and physical health of the Inuit. Concurrent with the shift away from traditional harvesting activities, patterns of health and social statistics reveal significant increases in family and community violence, drug and alcohol addictions and, perhaps most devastatingly, suicide (7). Clearly, the declining participation in traditional activities and the health and social well-being of the Inuit are related, yet the pathways and processes connecting this transition to the social determinants of Inuit health have been explored only marginally (1).

This exploratory paper seeks to better characterize the social determinants of Inuit health. In doing so, this paper draws from exploratory and multivariable logistic regression analyses of the 2001 Aboriginal Peoples Survey (APS) to examine how access to a specific social determinant of health – social support – varies across Inuit in the Arctic regions, and to assess how levels of social support relate to other determinants of health, including gender, age, geographic region, marital status, Aboriginal language ability and participation in traditional harvesting activities.

Given the significant transition currently taking place among the Inuit population and its resultant health and social consequences, a characterization of levels of social support
within this population is important, as it will identify Inuit subpopulations that are more or less likely to have access to various types of social support. Such information will be useful for policymaking in the Arctic, as many of the current health problems appear to have social and economic origins (2,7), and thus require solutions based on current realities. The organization of this paper is as follows. Before presenting the methods and analyses of the data, there are two sections. The first section outlines the geographic and demographic characteristics of Inuit populations living in the Arctic. In the second section, the concepts of the social environment, the social determinants of health and social support will be defined and explored as they relate to the study’s context.

MATERIAL AND METHODS

Geography and demographics:
Inuit of the arctic regions of Canada
In 2006, there were 50,485 Inuit in Canada, 77% of whom resided in a number of small communities in Canada’s 4 Arctic regions: Inuvialuit, Nunavut, Nunavik and Nunatsiavut (Fig. 1). Together, the 4 Arctic regions are known as Nunaat, the Inuktitut expression for Inuit homeland. The remaining 23% of the Inuit population resides in rural and urban areas outside of Inuit Nunaat.1

Since 1975, 4 Inuit land claims have been signed across Inuit Nunaat, and these land claims were critical to the political autonomy of Inuit in these 4 regions. Nunavut is the largest and most populous of the 4 Arctic regions, and it is home to nearly half (49%) of Canada’s Inuit population (n=24,740). The 1993 Nunavut Land Claims Agreement led to the 1999 creation of Nunavut, an area spanning 2 million square kilometres. This agreement is the largest land claim settlement in the world that has been negotiated between a state and Aboriginal people. Nunavik covers 660,000 square kilometres of land in northern Quebec, and it is home to 19% of Canada’s Inuit population (n=9,590). Nunavik was established through the James Bay and Northern Quebec Agreement in 1975. The Inuvialuit region is located along the Arctic coast of the Northwest Territories, and it is home to 6% the Inuit population (n=3,030). In 1984, the Inuvialuit Final Agreement was signed, giving Inuit of the western Arctic ownership of 90,650 square kilometres of land in the Northwest Territories. Nunatsiavut is the most easterly region, and it is inhabited by 4% of the Inuit population along the northern coast of Labrador (n=2,020). Nunatsiavut was created in 2005 through the Labrador Inuit Land Claim Agreement, which includes 72,500 square kilometres of land, including the adjacent ocean zone.

One of the most compelling demographic features of the Inuit population is that it is very young and quickly growing. From 1996 to 2006, the Inuit population grew by 26%, while the general Canadian population grew by only 8%. In 2006, the median age of the Inuit population was 22 years (compared with 40 years for the general population), and large percentages of Inuit were in the youngest age groups. In 2006 for example, 25% of the Inuit population was

---

1The geographic and demographic data in this section are from the 2006 Census. Please see Aboriginal Peoples in Canada in 2006: Inuit, Metis and First Nations, Census 2006 (8), available online at http://www12.statcan.ca/english/census06/analysis/aboriginal/pdf/97-558-XIE2006001.pdf.
less than 15 years of age (compared to 11% in the non-Aboriginal population), and over 50% of the Inuit population was less than 24 years of age (compared to 31% in the non-Aboriginal population). At the same time, Inuit aged 65 and over composed only 4% of the total population, while non-Aboriginal seniors accounted for 13% in the general population. In terms of health outcomes, uneven age distribution in a population can be significant as increased pressure for key social determinants of health such as education, employment or housing may go unmet in certain segments of the population (e.g., the over-represented demographic, which in the Arctic case is youth), thereby influencing overall population health.

The social determinants of Inuit health

The social environment refers to the places in which people live, work and play. Decades of evidence suggests that societies that foster high-quality social environments produce healthier populations (9). Friendships, intimacy and supportive social networks are strong predictors of health at home, in the work environment and in the wider community context (10–12). Within the social environment, various social, economic and cultural processes work to affect
Social support in the Canadian Arctic

the health of individuals and communities. These processes refer to the social determinants of health, and they include factors such as early childhood, stress, social exclusion, work, unemployment, addiction, food, transportation and social support (13,14). The social determinants of health are an important focus for health and social scientists interested in the health of vulnerable and disadvantaged populations, such as Inuit, as evidence overwhelmingly suggests that these determinants operate along a social gradient (15). This means that those of increased socio-economic position will have greater access to social determinants (e.g., better child programming, improved transportation networks, higher quality social supports) and the resulting health benefit than those in lower socio-economic positions.

Canada's Inuit population can be considered one of the nation's most disadvantaged groups, and there is a great deal of evidence to suggest that Inuit health is being affected by poor access to the social determinants of health (1–3,16). For example, the Inuit population experiences extreme socio-economic disadvantage when compared with non-Inuit people living in Canada's Arctic regions (1,17). On average, incomes among Inuit of the 4 Arctic regions were $9,000 less than non-Inuit residents in the same regions (with variation across regions). Furthermore, Inuit in these regions experience unemployment rates that are up to three times higher than non-Inuit (17).

The resulting health and social indicators reveal vast disparities within the general Canadian population, including the nation's lowest life expectancies (18) and highest suicide rates (7,19). Inuit also experience disproportionately high rates of infant mortality and chronic illness (2), including various infectious respiratory diseases such as tuberculosis (20,21), childhood poverty (22–24), poor housing conditions (25), elevated rates of death by accident and violence and increased rates of drug abuse and alcoholism (2). Despite the poor economic conditions, however, most Inuit choose to remain in their communities. This is a trend that authors (26) have suggested is typical of many rural communities, where high salaries and upward mobility are not valued as much as other conditions, such as living in rural settings and/or being close to family and social support networks.

Why focus on social support?

While many authors have described the significance and importance of social networks (6,27), social cohesion (26), kinships (28) and family/community social structure in the daily lives of Inuit people (29–31), few authors have framed social support as a determinant of Inuit health (32,33). Social support refers to the resources of one's social ties (34,35), and there are 4 widely recognized types of social support: positive interaction (e.g., attending a social event); emotional support (e.g., seeking advice); affection and intimacy (e.g., love and/or intimacy from a spouse or loved one); and tangible support (e.g., material aid, such as borrowing money or sharing food).

Social support is a widely recognized determinant of health. Increased access to the various types of social support enables individuals and communities to better avoid or buffer consequences associated with the social environments within which they live (36). In the Arctic, for example, community freezers and other types of food-sharing programs have been shown to improve food security (e.g., see 27). Social supports can also work to minimize or buffer the consequences of disease.
Once it occurs, for example, through improved healing times after illness or surgery (37). In fact, studies illustrate that those without a socially supportive network face increased risk of premature mortality, poorer pregnancy outcomes, reduced survival after major illness and poorer mental health (38).

Within the context of Canada’s wider Aboriginal population (First Nations, Métis and Inuit collectively), Richmond et al. (32,33) identified social support to be a significant dimension and determinant of health. Based on various statistical analyses of the 2001 Aboriginal Peoples Survey, the authors found that those who reported high levels of social support were more likely to report their health as excellent or very good (rather than good, fair or poor) than were those who reported low levels of social support. In the same analyses, the authors found that Aboriginal women were significantly more likely than men to report high levels of emotional support, affection and intimacy. When examining how rates of social support vary across Canada’s 3 Aboriginal populations however, Richmond et al. discovered levels of social support to be significantly and consistently lower among Inuit than among First Nations or Métis (32). In a related analysis, Richmond et al. examined the dimensions of health among Inuit elders (>60 years) (33). One of the key dimensions of elder Inuit health was “social limitations due to physical function.” This dimension of health was represented by a negative association between physical function and community participation, thereby demonstrating the limitation that ageing and deteriorating physical function places on the ability of Inuit elders to be socially active in their community.

While these 2 analyses were largely exploratory, they illustrate that certain segments of the Inuit population (e.g., the elderly, men) may experience lower levels of social support. Given what is known about the health-enhancing properties of social support, there is a demonstrated need for further research on social support among Inuit, in particular as it relates to various health determinants such as age, gender, geographic region, marital status and participation in traditional activities. The objectives of the current analysis are twofold: (1) to describe levels of social support among Inuit in Canada’s 4 Arctic regions; and (2) to examine the role of various health determinants as they relate to levels of social support among Inuit. These exploratory analyses will identify segments of the Inuit population who experience decreased access to social support. Such information will be especially relevant for Inuit social policy, and it will help to identify areas of future research and policy development that can measure the impact of targeted programs which build socially supportive practices into the everyday lives of Inuit people.

Data, methods and analyses
To explore how levels of social support among Inuit vary in relation to a number of health determinants (e.g., age, gender, geographic region), a series of descriptive and multivariable logistic regression analyses were applied to data from a weighted sample of Inuit adults (n=26,290) who participated in the Arctic Supplement of Canada’s 2001 Aboriginal Peoples Survey (APS). The APS is a post-censal survey designed to describe the demographic and social conditions of participating Aboriginal Canadians. The broad geographical scope of the survey provides significant oppor-
tunity for describing spatial patterns of health and social well-being among Aboriginal Canadians. The current analyses represent 26,290 individuals from 53 Inuit communities across 4 Arctic regions, including 6 Inuvialuit communities, 5 Nunatsiavut communities, 15 Nunavik communities and 27 Nunavut communities.

**Key dependent variables**
Social support, the key dependent variable of the logistic regression models, was measured by indices of 4 types of social support: positive interaction, emotional support, tangible support and affection and intimacy. There were 3 questions each for positive interaction and emotional support, 1 for tangible support and 1 for affection and intimacy. Respondents indicated how often each type of support was available to them when they needed it. Those who responded “some of the time” or “almost none of the time” were considered to have low levels of social support. Those who responded “most of the time” or “all of the time” were considered to have high levels of social support. See Table I for a list of the social support measures.

**Key independent variables**
The descriptive and multivariable logistic regression models examined how high levels of these 4 types of social support would be affected by a set of variables, including gender,
age, geographic region, marital status, Aboriginal language ability and participation in traditional harvesting activities. These variables and their categories are listed in Table II. In all, 4 models were tested, 1 model for each type of social support measured in these analyses: positive interaction, emotional support, tangible support and affection and intimacy. Each model included the full (weighted) Inuit sample (n=26,290) and tested how high levels of each type of support would be affected by various determinants of health. The findings of these analyses are presented in 2 parts; the first part outlines the descriptive results (e.g., cross-tabulations) and the second part outlines the results of the 4 logistic regression models.

RESULTS

Descriptive patterns of social support among Inuit

The cross-tabulations (Table III) point to some known associations between high levels of various types of social support and health determinants that have been established in the Canadian Aboriginal population (33). Inuit women were significantly more likely than Inuit men \( (p<.01) \) to report high levels of all types of support. In terms of age, the likelihood of reporting high levels of all types of social support increased with age. Those in the 45–54 year age category were most likely to report high levels of all types of social support, and elderly Inuit (aged 55+) were least likely of all age groups to report high levels of all types of social support. Married Inuit were significantly more likely \( (p<.01) \) to report high levels of all types of social support than were single Inuit.

With regard to geographic region, there was a clear and consistent pattern in the report of high levels of all types of social support across the 4 Arctic regions. Inuit in the Nunatsiavut region were significantly more likely \( (p<.01) \) to report high levels of all types of social support than any other region, followed by Inuvialuit, Nunavut and Nunavik. The gap between reported levels of high social support among Inuit of Nunatsiavut and Inuit of Nunavik was largest for tangible support at 33\% \( (p<.01) \).

In terms of the cultural determinants of Inuit health, those who speak or understand an Aboriginal language were significantly more likely \( (p<.01) \) to report high levels of all types of social support than those who do not speak or understand an Aboriginal language. On average, Inuit who speak an Aboriginal language were 20\% more likely \( (p<.01) \) to report high levels of all types of social support than were those who did not speak an Aboriginal language. Finally, while no significant differences were found between high levels of social support and participation in harvesting activities (hunting, fishing, gathering), those Inuit who had participated in harvesting activities in the past year were marginally more likely to report high levels of tangible support than those who had not.

Logistic model results

Comparable with the descriptive results, in all 4 adjusted models of high social support, women were significantly more likely than men to report high levels (Fig. 2). In fact, Inuit women were nearly 1.5 times more likely to report high levels of both tangible support and affection and intimacy than men were.
Table II. Measures incorporated in the study, 2001 Aboriginal Peoples Survey.

| Health determinant | Variable categories (reference categories are bolded) |
|--------------------|--------------------------------------------------------|
| Positive interaction, emotional support, tangible support, affection & intimacy | **High levels, low levels** |
| Gender | Male, female |
| Age | 15–24, 25–34, 35–44, 45–54, 55+ |
| Geographic region | Inuvialuit, Nunavut, Nunatsiavut, Nunavik |
| Aboriginal language use | Does not speak/understand, does speak/understand |
| Marital status | Married, single |
| Traditional harvesting activities | Did not hunt in last year, did hunt in last year |
| | Did not fish in last year, did fish in last year |
| | Did not gather in last year, did gather in last year |
| | Did not trap in last year, did trap in last year |

Table III. Percentage of Inuit in arctic regions of Canada (n=26,290) reporting high levels of various types of social support by selected health determinants: 2001 Aboriginal Peoples Survey.

| Variable | Positive interaction (%) | Emotional support (%) | Tangible support (%) | Affection & intimacy (%) |
|----------|--------------------------|-----------------------|----------------------|--------------------------|
| **GENDER** | | | | |
| Male | 73 | 60* | 62* | 71* |
| Female | 75 | 65 | 67 | 76 |
| **AGE** | | | | |
| 15–24 | 74 | 61 | 63 | 71 |
| 25–34 | 75 | 63 | 64 | 76 |
| 35–44 | 75 | 64 | 65 | 77 |
| 45–54 | 78 | 65 | 68 | 76 |
| 55+ | 66 | 58 | 65 | 69 |
| **ARCTIC REGION** | | | | |
| Nunatsiavut | 84* | 79* | 87* | 88* |
| Inuvialuit | 81 | 72 | 76 | 83 |
| Nunavut | 73 | 60 | 62 | 73 |
| Nunavik | 68 | 55 | 54 | 66 |
| **MARITAL STATUS** | | | | |
| Married | 79 | 68 | 71* | 81 |
| Single | 71 | 46 | 61 | 70 |
| **ABORIGINAL LANGUAGE USE** | | | | |
| Speaks/understands | 85 | 81 | 61* | 88 |
| Does not speak/understand | 72 | 59 | 88 | 71 |
| **HARVESTING ACTIVITIES** | | | | |
| (past year) | | | | |
| Did not hunt | 76 | 62 | 64 | 75 |
| Hunted | 76 | 64 | 65 | 75 |
| Did not fish | 76 | 64 | 61* | 76 |
| Fished | 72 | 62 | 66 | 72 |
| Did not gather | 70 | 59 | 61* | 70 |
| Gathered | 71 | 60 | 67 | 72 |

* p > .01 ($\chi^2$ test)
Figure 2. Adjusted Odds Ratios for reporting high levels of social support among Inuit men and women.

Figure 3. Adjusted Odds Ratios for reporting high levels of social support among the Inuit by age.

Figure 4. Adjusted Odds Ratios for reporting high levels of social support among the Inuit in the Arctic regions.
In the adjusted model, there was quite a difference in the way age played a role in relation to reported levels of social support. In the descriptive analyses, levels of all types of social support increased with age. In the 4 adjusted models, however, levels of social support tended to decrease with age. Specifically, when compared with the reference group (i.e., Inuit aged 15–24), Inuit in all subsequently older age groups were significantly less likely to report high levels of both positive interaction and tangible support (Fig. 3). One major anomaly relates to high reported levels of tangible support among Inuit aged 55+, for whom there was no statistically significant difference with those aged 15–24. In terms of the effect of age on the report of high levels of emotional support along with affection and intimacy, there was no statistically significant difference between Inuit aged 25–34 and Inuit 35–44. However, Inuit in subsequently older age groups (45–54, 55+) were significantly less likely to report high levels of emotional support and affection and intimacy.

In terms of the difference in reported levels of social support across the 4 Arctic regions, the trend we saw in the descriptive analyses held its pattern in the 4 adjusted models (Fig. 4). For all 4 types of social support, Inuit in the Nunavik region were significantly less likely to report high levels of social support than those living in Inuvialuit. Inuit living in Nunatsiavut and Nunavut were less likely (though not significant) than Inuit living in Inuvialuit to report high levels of positive interaction and emotional support. Inuit in Nunatsiavut were more likely (not significant) to report high levels of tangible support and affection and intimacy than Inuit living in Inuvialuit.

Marital status was significantly related to the report of high levels of all types of social support (Fig. 5). Single Inuit were, on average, 50% less likely to report high levels of all types of social support. In fact, single Inuit were less than half as likely (OR 0.46, CI: 0.36–0.58) to report high levels of affection and intimacy when compared with married Inuit. This may be a surprising outcome, as rates of common law relationships are quite high among Inuit and, in fact, the percentage of single Inuit in this sample was 59%.

The relationship between language and social support was the most remarkable finding of the analyses (Fig. 6). For example, compared with Inuit who do not speak or understand an Aboriginal language (9% of the sample), those who do are 1.7 times more likely to report high levels of positive social interaction, and four times more likely to report high levels of tangible support. Clearly, language plays a significant role in the maintenance of strong, supportive ties among Inuit.

The final results of the 4 models describe the relationship between participation in traditional harvesting activities and high reported levels of social support. The association was particularly strong among those who had reported having trapped game in the last year. Those who had trapped in the last year were significantly more likely than those who had not trapped to report high levels of all 4 types of social support. Hunting was significantly related to high levels of positive social interaction and tangible support, and gathering was significantly related to high levels of tangible support, along with affection and intimacy. There was no significant difference in levels of social support between those who had and had not fished in the last year.
Social support in the Canadian Arctic

Figure 5. Adjusted Odds Ratios for reporting high levels of social support among married and single Inuit.

Figure 6. Adjusted Odds Ratios for reporting high levels of social support among the Inuit by Aboriginal language.

Figure 7. Adjusted Odds Ratios for reporting high levels of social support among the Inuit who participate in traditional activities.
DISCUSSION

This paper has sought to better characterize the social determinants of Inuit health through a focus on social support. Drawing from exploratory and multivariable logistic regression analyses of the 2001 Aboriginal Peoples Survey (APS), this paper has illustrated how high levels of four types of social support (i.e., positive interaction, emotional support, tangible support, and affection and intimacy) vary across Inuit in Canada's Arctic regions. Special emphasis was placed on understanding how various health determinants – including gender, age, geographic region, marital status, Aboriginal language ability and participation in traditional harvesting activities – are able to predict levels of the 4 types of social support.

Identity formed through social support

The findings reported here detail some trends of social support as they have been identified in studies with other populations, such as that of young age (39), marriage (40) and female gender (41). These 3 determinants were significantly related to the increased likelihood of reporting high levels of all types of social support within the Inuit population. As noted by Stryker and Burke, sense of identity is formed within the context of meaningful social ties, for instance in our roles as friend, wife or mentor, and there are various health benefits to be achieved through these roles (e.g., self-esteem, feelings of competence) (42). These social ties provide individuals with feelings of love, empathy and belonging as they encourage individuals to participate in health and social behaviours (e.g., diet or exercise, visiting with friends), and through the sharing of information to take advantage of opportunities and/or material resources (e.g., job postings, babysitters). Given what we know about the health benefit achieved through one’s access to social support, these findings are important as they have characterized various segments of the Inuit population (elderly, unmarried, men) who are less likely to report high levels of the 4 types of social support and who therefore may not have the same health benefits as those who report high levels of social support.

Inuit-specific trends of social support: language and participation in traditional activities

The findings reported here also point to some Inuit-specific, culturally determined patterns of social support that are related to Aboriginal language use, geographic region and traditional harvesting activities. The identification of these Inuit-specific patterns of social support are important, as social determinants of health research exclusive to Inuit populations in Canada are almost non-existent (3,17). The findings related to harvesting activities and geographic region are particularly important, as it appears that the socio-economic context within which they occur (e.g., along the social gradient) may be, to a large extent, at the root of the emergent patterns of social support. These findings are discussed in the paragraphs that follow.

With regard to Aboriginal language use, those Inuit who speak or understand an Aboriginal language are significantly more likely to report high levels of all types of social support. While the majority of respondents (86%) stated that they speak or understand an Aboriginal language, it must be acknowledged that there are some Inuit who do not. In fact, it was on this particular health determinant
that the difference in levels of social support was so incredibly vast. Being able to speak or understand an Aboriginal language increased the odds of reporting high levels of tangible support by four times, compared to Inuit who do not speak an Aboriginal language. While it is promising that recent results of the 2006 APS indicate that nearly 4 in 10 (38%) Inuit children indicated that they had an Inuk teacher in their final year of school (1), there are various reasons that Aboriginal language use by Inuit may be declining, including the shift to the market economy and urbanization. In light of the strong relationship between language and social support among Inuit, efforts to promote Inuit language retention will be vital for maintaining social relationships and integration with other Inuit.

There was a consistent and significant relationship between participation in traditional harvesting activities and high levels of all types of support among Inuit respondents. Those who reported having participated in various harvesting activities were more likely to report high levels of social support. Given the special relationship between the Inuit and the resources of the land and sea (5), perhaps this should not come as a surprise. Indeed, other authors have described the significance of the social relations that underlie the production of food in the traditional economy (e.g., sharing expenses to get out on the land; see Wenzel [6]), and reciprocally, of the importance these traditional activities have for reinforcing social ties and relationships between individuals, their families and communities in the North (4,30,43,44).

However, according to the Inuit Tapiriit Kanatami, participation by Inuit in many of their traditional activities has declined in recent years, as increasing numbers of Inuit shift to contemporary lifestyles and participate in various sectors of the wage economy, and as it becomes more expensive to get out on the land (45). This means that participation by Inuit in traditional activities must be balanced with other economic activities, and may only be practised at certain times of the year (such as the spring and summer months) rather than throughout the year (2). Given the strong covariation between social support and traditional activities as identified in this analysis, it will be important for health and social policy planners to create health promotion events that centre on promoting traditional harvesting activities throughout the year, including social activities that get people out on the land, and through subsidizing Inuit participation in traditional harvesting activities. Such a practice will allow for a year-round consistency of participation in traditional activities by all Inuit, in spite of new economic and educational demands that can take them away from these activities that are so central to the cultural and social cornerstones of Inuit identity (17).

Geographic region and the social gradient in health

Another Inuit-specific finding of this analysis identified Inuit of the Nunavik region to be significantly less likely to report high levels of all types of social support than were Inuit of Inuvialuit. To date, the Inuit health literature has tended to focus on comparisons between Inuit and non-Inuit populations, with little or no effort used to examine how social and economic conditions may vary within the Inuit regions. While there is little Inuit-specific data through which the current results may be interpreted across geographic regions, findings from
a recent analyses on the social determinants of Inuit health (1) corroborate these results. In Tait’s recent description of the health and social conditions of Inuit (1), for example, she reported an over-representation by Nunavik relative to the other 3 Arctic regions on various determinants. For instance, Nunavik had the lowest percentage of adults reporting their health at excellent or very good at 39%, compared with highest percentage of 58% in Nunatsiavut. Nunavik also had the highest percentage of daily smokers at 73%, followed by Nunavut at 64%, Inuvialuit region at 61% and Nunatsiavut at 57%. In terms of housing, Nunavik had the highest percentage of home rentals (as opposed to home ownership) at 95%, followed by Nunavut (71%), the Inuvialuit Region (59%) and Nunatsiavut (29%). Finally, and perhaps most telling, are data related to income levels as they vary among Inuit across the Arctic regions (17). Incomes were highest among Inuit of the Inuvialuit region at $21,249, followed by Inuit in Nunavut ($19,686), Nunavik ($19,054) and Nunatsiavut ($17,089). Combined, these statistics provide the foundation for a narrative that may help explain how the social gradient works to affect access to the social determinants of health among Inuit in the Arctic and, in particular, how the current health and social realities of Inuit in Nunavik may be shaped by their lower position on the social gradient, relative to Inuit living in the other 3 Arctic regions.

Conclusions
The objective of this paper was to describe how the reported levels of 4 types of social support (positive social interaction, emotional support, tangible support and affection and intimacy) vary within the Inuit population and, specifi-
of disease when it does occur (10,14,37). However, we must be cautious in our claims about the independent effect of social support for improving health, as this determinant of health is known to operate along a social gradient (13,36), meaning that those higher on the economic scale are better positioned to achieve health benefits from social supports than are those of lower socio-economic status. In the current analysis, it has been hypothesized that the effect of the social gradient may be largely responsible for the poorer health and social realities experienced by Inuit in Nunavik relative to that experienced by Inuit in the other 3 Arctic regions. The social gradient is a pervasive force in shaping the health of populations, and even among the Inuit, one of Canada’s most disadvantaged populations, unequal access to the social determinants of health appears to exist.

Research that frames Inuit health within the social determinants of health is in its relative infancy (1,16,22), and the findings presented here form just the tip of the iceberg. Drawing from data of the 2006 Aboriginal Peoples Survey, or through in-depth, qualitative approaches, future research should build on the analyses presented here to examine the associations between various health outcomes (e.g., respiratory disease, suicide attempts, self-rated health) and levels of social support among Inuit, while at the same time accounting for socio-economic variables (e.g., income) that may explain how the social determinants of health are influential along a social gradient. Such analysis will build on the dearth of literature specific to Inuit health and social conditions, and will help to better characterize and prioritize policy and programming efforts that can aid vulnerable groups in the Arctic.

REFERENCES

1. Tait, H. 2008. Aboriginal Peoples Survey: Inuit Health and Social Conditions. Ottawa: Statistics Canada; 2006. 28 pp.
2. Bjerregaard P, Young K, Dewailly E, Ebbesson S. Indigenous health in the Arctic: an overview of the circumpolar Inuit population. Scand J Public Health 2004; 32(5):390–395.
3. Healey G, Meadows L. Inuit women’s health in Nunavut, Canada: a review of the literature. Int J Circumpolar Health 2007;66(3):199–214.
4. Inuvialuit Regional Corporation, 2007. Food fact sheet. [cited 2009 Jun 3] Available from: http://www.irc.inuvialuit.com/culture/foods.html
5. Stairs A, Wenzel G. “I am I and the environment”: Inuit hunting, community, and identity. Journal of Indigenous Studies 1992;3(1):1-92.
6. Wenzel G. Animal rights, human rights: ecology, economy and ideology in the Canadian Arctic. Toronto: University of Toronto Press; 1991. 206 pp.
7. Kirmayer L, Fletcher C, Boothroyd LJ. Suicide among the Inuit of Canada. In: Leenaars AA, Kräl MJ, Dyck RJ, editors. Suicide in Canada. Toronto: University of Toronto Press; 1999. 189–211.
8. Canada. 2006. Aboriginal Peoples in Canada in 2006: Inuit, Métis and First Nations, Census, 2006. [cited 2009 Jun 3]. Available from: http://www12.statcan.gc.ca/english/census06/analysis/aboriginal/pdf/97-558-XIE2006001.pdf
9. Yen IH, Syme SL. The social environment and health: a discussion of the epidemiologic literature. Annu Rev Public Health 1999;20:287–308.
10. Berkman LF, Glass T, Brisette I, Seeman TE. From social integration to health: Durkheim in the new millennium. Soc Sci Med 2000;51:843–857.
11. Kawachi I, Colditz GA, Ascherio A, Rimm EB, Giovannucci E, Stampfer MJ, et al. A prospective study of social networks in relation to total mortality and cardiovascular disease in men in the USA. J Epidemiol Community Health 1996;50:245–251.
12. Berkman LF, Syme SL. Social networks, host resistance and mortality: a nine year follow-up of Alameda County residents. Am J Epidemiol 1979;109:186–204.
13. Marmot M, Wilkinson RG. Social determinants of health. 2nd. ed. Oxford: Oxford University Press; 2006. 380 pp.
14. Marmot M. Social determinants of health inequalities. Lancet 2005;365(9464):1099–1104.
15. Bartley M, Plewis I. Accumulated labour market disadvantage and limiting long-term illness: data from the 1971–1991 Office for National Statistics Longitudinal Study. Int J Epidemiol 2002;31(2):336–341.
16. Richmond C, Ross NA. The determinants of First Nation and Inuit health: a critical population health approach. Health Place 2009;15(2):403–411.
17. Inuit Tapiriit Kanatami. 2007. Inuit Statistical Profile. [cited 2009 Jun 3]. Available from: http://www.itk.ca/sites/default/files/Inuit-Statistical-Profile.pdf
Social support in the Canadian Arctic

18. Wilkins R, Uppal S, Finès P, Senécal S, Guimond E, Dixon R. Life expectancy in the Inuit-inhabited areas of Canada: 1989 to 2003. Health Rep 2008;19(1):1–13.
19. Tester FJ, McNicol P. Ismagjajaksaq: mindful of the state: social constructions of Inuit suicide. Soc Sci Med 2004;58(12):2625–2636.
20. Nguyen D, Proulx JF, Westley J, Tibert L, Dery S, Behr MA. Tuberculosis in the Inuit community of Quebec, Canada. Am J Respir Crit Care Med 2003;168(11):1353–1357.
21. Grygier PS. A long way from home: the tuberculosis epidemic among the Inuit. Montreal: McGill-Queen’s University Press: 1994. 272 pp.
22. National Collaborating Centre for Aboriginal Health. Poverty as a social determinant of First Nation, Métis and Inuit health: Fact Sheet. [cited 2009 Jun 3]. Available from: http://www.nccah-ccnsa.ca/myfiles/nccah-factsheet-web-SDOH-POVERTY.pdf.
23. Shah CP, Kahan M, Krauser J. The health of children of low-income families. CMAJ 1987;137(6):485–490.
24. Trocmé N, Blackstock C. Community-based child welfare for aboriginal children: supporting resilience through structural change. Soc Pol J NZ 2005;24:12–33.
25. Kovesi T, Gilbert NL, Stocco C, Fugler D, Dales RE, Guay M, et al. Indoor air quality and the risk of lower respiratory tract infections in young Canadian Inuit children. CMAJ 2007;177(2):155–160.
26. Duhaime G, Searles E, Usher PJ, Myers H, Frechette P. Social cohesion and living conditions in the Arctic: from theory to measurement. Soc Indic Res 2004;66:295–317.
27. Collings P, Wenzel G, Condon RG. Modern food sharing networks and community integration in the central Canadian Arctic. Arctic 1998;51(4):301–314.
28. Willmott W. The flexibility of Eskimo social organization. Anthropologica 1960;2:48–57.
29. Searles E. Fashioning selves and tradition: case studies on personhood and experience in Nunavut. Am Rev Can Stud 2001;31(1–2):121–136.
30. Usher PJ, Duhaime G, Searles E. The household as an economic unit in Arctic Aboriginal communities, and its measurement by means of a comprehensive survey. Soc Indic Res 2003;61:175–202.
31. Lonner TD. Subsistence as an economic system in Alaska: theoretical observations and management implications. In: Langdon SJ, editor. Contemporary Alaskan Native economies. Lanham, Maryland: University Press of America; 1986. 15–28.
32. Richmond C, Ross NA, Bernier J. Exploring Indigenous concepts of health: the dimensions of Métis and Inuit health. In: White J, Beavon D, Wingert S, Maxim P, editors. Aboriginal policy research: directions and outcomes. Volume 4. Toronto: Thompson Educational Publishing; 2007. 3–13.
33. Richmond C, Ross N, Egeland G. Societal resources and thriving health: a new approach for understanding the health of Indigenous Canadians. Am J Pub Health 2007b;97(10):1827–1833.
34. House JS. Work, stress and social support. Reading, MA: Addison-Wesley; 1981. 156 pp.
35. Cassel J. The contribution of the social environment to host resistance. Am J Epidemiol 1976;104:107–123.
36. Lynch JW, Kaplan GA, Salonen JT. Why do poor people behave poorly? Variations in adult health behaviours and psychosocial characteristics by stages of the socioeconomic lifecycle. Soc Sci Med 1997;44(6):809–819.
37. Link BG, Phelan J. Social conditions and fundamental causes of disease. J Health Soc Behav 1995;35:80–94.
38. Berkman LF. The role of social relations in health promotion. Psychosom Med 1995;57:245–254.
39. Turner RJ, Marino F. 1994 Social support and social structure: a descriptive epidemiology. J Health Soc Behav 1994;35(3):193–212.
40. House JS, Landis KR, Umberson D. Social relationships and health. Science 1988;29:540–545.
41. Shumaker SA, Hill DR. Gender differences in social support and physical health. Health Psychol 1991;10:102–111.
42. Stryker S, Burke PJ. The past, present and future of an identity theory. Soc Psychol Q 2000;63:284–297.
43. Canada. 2001. Harvesting and community well-being among Inuit in the Canadian Arctic: Preliminary findings from the 2001 Aboriginal Peoples Survey—Survey of Living Conditions in the Arctic. [cited 2009 Jun 3]. Available from: http://www.statcan.ca/english/freepub/89-619-XIE/89-619-XIE2006001.pdf.
44. Royal Commission on Aboriginal Peoples. 1996. Volume 4: Part six: The North. Ottawa: The Commission. [cited 2009 Jun 3]. Available from: http://www.ainc-inac.gc.ca/rcap/ssjdm6_e.html.
45. Inuit Tapiriit Kanatami. 2005. 5,000 years of Inuit history and heritage. [cited 2009 Jun 3]. Available from: http://www.itk.ca/sites/default/files/5000YearHeritage.pdf.