Chapter 2

Ethno-cultural Adaptation of the Peoples of the Arctic Region

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Summary

The Arctic regions of the world share many common characteristics but there are significant social, cultural, and political differences. The indigenous peoples of the Arctic include the Inuit and Iñupiat who inhabit the northern part of the North American continent, and Greenland; the Saami of northern Scandinavia, Finland, and the Kola Peninsula; in northern Russia the Yakuts together with some sixteen indigenous minorities, ranging from the Saami and Nenets in the west to the Chukchi and Eskimo (or Yupik) in the east; the Aleuts, Yup'ik, Athabaskans and other indigenous groups of Alaska; and in Canada the Dene and Yukon First Nations Indians, who occupy the northwest Arctic and subarctic regions along with the Métis (Figure 1·3). The indigenous peoples of the Arctic are estimated to comprise nearly 650 000 individuals, most of whom live in northern Russia. Past colonization and the resulting contact with outsiders had a major negative impact on the health of these peoples causing devastating epidemics, which resulted in severe depopulation. After a period of stabilization and recuperation, societal changes during the last 50 years have had both positive and negative impacts on health. Life expectancy has increased, infant mortality and the importance of infectious diseases have decreased dramatically, and health care has improved, while psycho-social health has generally deteriorated. Chronic diseases such as cardiovascular disease and diabetes have increased due to changing lifestyles. In some areas, the indigenous peoples enjoy the same level of health as the non-indigenous populations, but in most areas their health is significantly poorer.

2.1. Population overview

The Arctic regions of the world share common characteristics such as sparse population, a hostile climate, similar geographic features, and characteristic seasonal extremes of daylight hours. Within the Arctic, however, there are significant differences in political systems, languages and culture, and economic and service infrastructure.

The inhabitants of the Arctic include a diverse group of indigenous peoples, located near the Arctic Circle in Norway, Sweden and Finland, and in the Russian Federation from the Norwegian border to the Chukotka region, from Alaska to Canada, and eastward to Greenland. The lives of the indigenous peoples and other Arctic inhabitants are closely linked to natural resources that provide food for nourishment, and spiritual and cultural connections to the land (AMAP, 1997). Arctic indigenous peoples rely on the food that they hunt and harvest from the land, as it provides for much of their nutritional intake and their cultural identity. These natural resources may also be important for economic reasons.

Over the last 50 years, the population of most regions of the Arctic has dramatically increased. Much of this increase is due to the reduction in infant mortality, and the reduction in mortality from infectious diseases, particularly tuberculosis and the vaccine preventable diseases of childhood. Safe water supplies and improved sewage disposal have also contributed to the reduction in disease, and the development of rural hospitals, and in some regions, community-based medical services have provided improved care in the event of injuries or illness. All regions have developed greatly improved transportation infrastructure, with the resulting availability of western food items, tobacco, and alcohol on a scale not previously possible. In addition, communication technology has made western culture visible in even the most remote settlements. To facilitate the provision of services and economic opportunities Arctic indigenous populations are, in most regions, encouraged to live in fixed settlements. Survival often depends on a complex mix of government-funded economic support, combined with primarily service-based employment in schools, sanitation facilities, and transportation infrastructure. In this setting, the local culture, including related subsistence food gathering, is frequently the primary source of psycho-social support for a community. The local culture is subject to stress by competing western culture and, in some areas, commercial resource exploitation. Concerns for the security of traditional food resources due to contaminants and the presence of zoonotic and parasitic diseases associated with some traditional food species and preparations (e.g., trichinosis, echinococcosis or botulism) also increase this stress on indigenous culture. As a result, erosion of cultural support, decrease in traditional activities, and substitution of western foods for traditional foods have resulted in changes in causes of morbidity and mortality of Arctic populations. In some respects, the morbidity and mortality rates now more closely resemble western populations. However, differences between countries, and differences between cultural groups within each country, make generalizations concerning social and health changes in the Arctic indigenous peoples difficult.

The peoples of the Arctic were described in detail in previous AMAP assessments (AMAP, 1997, 1998). Sections 2.1.1. to 2.1.3. provide brief descriptions based mainly on these sources.

2.1.1. Arctic North America and Greenland

There are three groups of Alaska Natives, commonly called the Aleuts, Inuit (or Eskimo), and Indians. About 73 000 individuals belonging to these groups live in Arctic Alaska, where they make up 15% of the total population. In Canada, three groups of indigenous peoples

are recognized: the Inuit, the Métis, and the First Nations, who in the Arctic include the Dene, Gwich'in and Athabaskans. Together, the indigenous groups make up 47 500 people or about half the population of Canada north of 60º N. The total population of Greenland is 56 000 of which 90% are Inuit.

Life expectancy at birth is consistently lower among the indigenous peoples of North America and Greenland than in the general populations of Denmark, Canada, and the United States. Although the incidence of and mortality from infectious diseases have decreased substantially, they remain considerably higher than in the general populations of the three countries. Mortality from accidents and suicide is high, particularly among men, and this contributes to the low life expectancy (see chapter 3).

2.1.2. Scandinavia, Finland, and the Kola Peninsula

The Saami live in northern Norway, Sweden, Finland and the Kola Peninsula of northwest Russia. The Saami population is estimated to total some 50 000 to 70 000 persons; they constitute a minority in all four areas. The Saami make up about 2.5% of the population in the Arctic areas of Norway, Sweden, Finland, and the Kola Peninsula.

There are no socio-medical differences between the Saami in Finland, Norway and Sweden and the non-indigenous population. Access to health care is identical for both population groups and life expectancy is the same.

2.1.3. Northern Russia

According to the 1989 census, the total population of Arctic Russia is approximately 2 million people, of whom approximately 67 000 are indigenous minorities: the Dolgans, Nganasans, Nenets, Saami, Khanty, Chukchi, Evenks, Evens, Enets, Yupik, Yukaghirs, Selkups, Chuvans, Mansi, Kets, and Koryaks. The Yakuts, who number approximately 350 000 people, are too numerous to be considered a minority, but their traditional way of life is similar to that of the other indigenous groups in the area.

Mortality and morbidity statistics indicate a poor health situation relative to both the general population of Russia and in comparison with other indigenous peoples of the Arctic. Life expectancy is 10 to 20 years lower than the Russian average. Injuries, infectious diseases, especially tuberculosis, cardiovascular disease, parasites, and respiratory disease are common causes of death. Many health problems are related to alcoholism. Infant mortality is very high.

2.2. Health and socio-cultural changes in the Arctic: A case study of the Inuit

This chapter cannot adequately describe all the social and cultural changes that have occurred among the Arctic indigenous peoples, but rather will use as an example the situation of the Inuit to describe briefly the effects of social and cultural change on health.

Among the indigenous North Americans, the Inuit were the first to encounter Europeans, and also the last. The first Europeans to come into contact with the Inuit were the Vikings who established a colony in Greenland toward the end of the tenth century. At its height, in the twelfth century, the population of the Norse colonies in Greenland reached as many as 5000 to 7000 inhabitants. However, for a variety of reasons, including climate change, the Viking settlements were vacated, or had died out by the late fifteenth century. By that time, European whalers had already been hunting in the Baffin Bay area off the coast of Labrador and Greenland for more than a hundred years. The exploration of the Arctic started in the sixteenth century and colonization followed. However, areas of the central Canadian Arctic and northern Greenland remained unexplored until the early part of the twentieth century.

Contact and colonization were accompanied by cultural change, which proceeded at a different pace across the circumpolar region. The Inuit adopted some items of European material culture and Christianity replaced traditional beliefs, but the hunting lifestyle remained largely intact well into the twentieth century in most regions. The population expanded rapidly during and after the Second World War, when economic development and military activities in Alaska, northern Canada and Greenland greatly increased the influence of western culture on the indigenous Inuit populations.

The social changes that resulted from contact with non-Inuit people have followed the same general outline in all Inuit communities. The changes can generally be divided into three phases: 1) an initial period of profound and disruptive transformation, 2) a period of relative stability and, 3) a second period of intense transformation and adaptation (Bjerregaard and Young, 1998). The initial phase was the period from the first contact until essentially the whole Inuit society had adopted Christianity. This took place at different times, in West Greenland from the mid-seventeenth to the mid-nineteenth century, but much later in other regions. The third phase started in the 1950s and is still ongoing. Over a very short period, the subsistence-oriented traditional way of life has given way to wage earning and a western lifestyle.

2.2.1. Phase 1 and 2

The size of the Inuit population in North America, including Greenland, was estimated to be about 74 000 during the sixteenth to eighteenth centuries. The population declined throughout the nineteenth century and by 1900 it is believed to have reached its nadir at 35 000. The population slowly recovered during the twentieth century, reaching 52 000 by 1950 and reaching the pre-contact level by 1970 (Ubelaker, 1992). Introduced diseases, especially infectious diseases, played a major role in the post-contact depopulation. Influenza, smallpox, and measles spread rapidly through populations that had no prior immunity.

Specific information is available from a few locations. Before contact, approximately 4000 people inhabited St. Lawrence Island. In 1878, a combination of famine and epidemic struck the island and two thirds of the population perished. The population decline continued, to 222 in 1917, since when the population has still not recovered to its pre-contact size. In Canada, the Inuvialuit suffered severe depopulation due to diseases introduced by American whalers in the late nineteenth century.

The first epidemic (of smallpox) was reported in Greenland in 1734 only a few years after the coloniza-

tion. It was followed by the epidemic of 1800 in which the population of entire districts perished. During the following centuries recurrent epidemics of respiratory infections, influenza, smallpox and typhoid fever killed a substantial proportion of the population. The last epidemic of smallpox took place in 1852 although a few isolated cases were seen later (Gad, 1974; Bertelsen, 1943).

A number of major epidemics swept through most Inuit communities of Alaska. The indigenous people of Alaska have borne an exceptionally heavy burden of disease and disability since early contact (Fortuine, 1975). With the arrival in Alaska of the Russians and other European explorers, beginning in the mid-eighteenth century, new factors began to influence the traditional way of life.

In Alaska syphilis was the first major disease to spread, reaching epidemic proportions in the Aleutian Islands and in southeastern Alaska during the Russian period. Two epidemics rank among the most significant single events in the history of the peoples they affected. The first was the smallpox epidemic of 1835 to 1840, and the second was the influenza epidemic, 'The Great Sickness' of 1900. Thousands of people died, and entire villages were wiped out. Another influenza epidemic struck in 1918 to 1919 (Fortuine, 1975).

When exactly tuberculosis was introduced is uncertain, but by the late eighteenth century it was well established in the general population and remained active for the next 150 years. The tuberculosis epidemic reached its peak after the end of the Second World War, and was associated with one of the highest death rates from tuberculosis recorded worldwide. Gonorrhea and alcohol abuse were also prominent causes of major ill health in Alaska during the nineteenth century (Fortuine, 1989).

The disruptive first phase of social change was followed by some years of relative tranquility. During this second phase of development, epidemics of respiratory infections, diarrhea, whooping cough, diphtheria, rubella, mumps, and poliomyelitis, to name but a few, continued to be common. For several epidemic diseases the Arctic populations were too small to act as reservoirs for the infectious agent and the diseases were reintroduced from outside at different times. Typhoid fever, dysentery, hepatitis, and meningitis were endemic. Starvation and chronic malnutrition were still common but tuberculosis was the most serious threat to public health. Nevertheless, despite all this, fertility increased while mortality decreased, resulting in a general growth of the population during the second period.

2.2.2. **Phase 3**

By the end of the Second World War, the regions inhabited by the Inuit differed considerably with respect to their degree of integration into modern western society. However, in all Inuit communities it is the last 50 years that have completed the change from the relatively isolated, self-reliant communities based on hunting and fishing that existed at the time of the first contact with Europeans to communities that are integrated within their respective national states.

Among the most important changes that have affected health are the transition from subsistence hunting and fishing to an economy based on wage earning, a comprehensive change of infrastructure and housing, generally brought about with the Inuit as spectators, and increased contact with the rest of the world through travel, radio and television, plus an unprecedented population growth and relocation to larger communities. Last but not least, non-Inuit people have poured into the Inuit communities and taken over many of the well-paid jobs and influential positions that were created in the modernization process. Through self-government and Home Rule the Inuit are gradually redressing the balance and taking charge of their present and future. Other changes with more direct effects on health and disease are dietary changes, along with an increased reliance on store bought food, a more sedentary lifestyle, increased access to alcohol and tobacco, and improvements in comprehensive health care.

During the first few years after the Second World War, mortality decreased dramatically while fertility continued to increase resulting in a sharp increase in population size. This was a period of receding epidemics. However, measles epidemics occurred for the first time in many places and caused numerous deaths. During the 1950s tuberculosis and acute infections lost their importance as causes of death. Mortality decreased until around 1970, first rapidly, then later at a relatively steady rate (Bjerregaard and Young, 1998).

Since the 1970s, suicide rates have increased. Suicide rates are exceptionally high in the circumpolar indigenous populations and are higher among the Greenlanders than among the Inuit of Alaska and Canada (see chapter 3). Contrary to the pattern in most western countries, where the suicide rates increase with age, it is predominantly young people, and more often men than women, who commit suicide in the circumpolar populations. The temporal association of the rising suicide rate with rapid societal development in many communities lends itself to a causal relationship, but it is not clear what specific aspects of the modernization process increase suicidal behavior in young people.

2.2.3. **Consequences of recent societal development on health**

In much of the literature, rapid socio-cultural change is invariably seen as detrimental to physical and mental health. Change, however, is in itself not necessarily stressful (Bjerregaard and Curtis, 2002). In the recent history of indigenous peoples change has often been associated with powerlessness and frustration, but it has also offered increased opportunities for survival and economic as well as cultural development. This section describes some examples of recent changes in Inuit societies resulting in negative health consequences and some resulting in positive health consequences (Bjerregaard and Young, 1998).

The change from an economy based on hunting to modern wage earning has resulted in a decreased mortality from accidents. The traditional Inuit life was extremely perilous and many hunters died at an early age leaving wives and children in poor social conditions. With modern hunting methods and weaponry, combined with traditional methods, the hunter-gatherer role is overall more successful than in previous centuries. However, an increase in accidental deaths from all-terrain vehicles and snow machines is seen in Alaska (Smith and

Middaugh, 1986; Landen *et al.*, 1999). Alcohol plays a major role in overall accident causation.

Housing conditions, sanitation, and food security have generally improved. Household sizes are smaller and houses are larger with more rooms, thus decreasing the transmission of infectious diseases, in particular tuberculosis and other respiratory infections. Sanitation has improved in towns and most villages, thereby decreasing exposure to several microorganisms. Nutrition has generally improved, if not qualitatively then at least with respect to reliability. Seasonal starvation has disappeared from all Inuit communities thus increasing general resistance to infections.

Increased contact with the rest of the world through travel and migration has brought a number of infectious diseases to the Inuit communities that had previously been relatively spared; these include measles, gonorrhea, syphilis, and HIV/AIDS.

The influx of non-Inuit people, rapid growth of the Inuit populations, and increasing population concentration in larger communities of up to several thousand inhabitants have profoundly altered the social structure of Inuit communities. Together with other socio-cultural changes this has resulted in acculturative stress and increased prevalence of mental health problems, including suicide.

Dietary changes leading to an increased reliance on store bought food, an increasingly sedentary lifestyle, and increased access to tobacco have resulted in the emergence of chronic diseases well known in western societies, e.g., obesity, diabetes, atherosclerotic heart disease, and dental caries.

Increased access to alcohol and tobacco has led to an excessive use of these substances in most Inuit communities. Although in some regions alcohol importation to villages is not allowed, alcohol abuse is, in general, a major contributing factor to the high prevalence of violence, suicide and social pathologies among the Inuit. In some communities, alcohol addiction is considered to be the main health problem.

Last but not least, along with infrastructural and socio-cultural changes, the Inuit have achieved general access to modern health care systems. Although accessibility to health care services is less for Inuit living in villages than for the predominantly urban populations in the southern regions of Arctic countries, and although tertiary level care usually involves travel to hospitals in the south, the health care services have been important in reducing morbidity and mortality from tuberculosis and several other infectious diseases, in reducing perinatal mortality, and in improving dental health. The health care services have also played a substantial role in improving the quality of life for many people due to early treatment of disabling diseases.

2.2.4. Lifestyle changes, cardiovascular disease, and diabetes

Traditionally, the Inuit appear to have been protected from atherosclerotic diseases and diabetes. This may have been the result of a lifestyle and diet which had been characterized by a high intake of marine mammals and fish, a high level of physical activity, and low tobacco consumption, all of which contribute to a low cardiovascular risk profile. Recent studies indicate that, like certain other indigenous populations, the Inuit may be genetically predisposed to atherosclerosis thus supporting the idea that the low prevalence of disease must be caused by a protective lifestyle (Bjerregaard and Young, 1998; Hegele *et al.*, 1997).

Recently conducted dietary surveys indicate that consumption of marine mammals and fish is greater among the older members of the population, and considerably less among some of the younger members of the same population. Nevertheless, young Inuit still consume more marine food than the average westerner (see chapter 7).

It is reasonable to believe that the mechanization of many tasks and the change to sedentary occupations have not been sufficiently counterbalanced by physical activities during leisure time. The widespread use of tobacco is another factor with a significant impact on the disease and mortality pattern. Cigarette smoking is a major contributory factor in several cancers. It is also an important contributing factor to cardiovascular disease and chronic lung disease, both of which are emerging health problems among the Inuit.

The traditional diet is nutritious and is believed to reduce the risk of developing atherosclerosis and diabetes. From this perspective it is disturbing to note a decreasing preference for traditional food items among the younger adults. Further details of this transition from traditional to non-traditional diets can be found in chapter 7.

Furthermore, as a result of global pollution by polychlorinated biphenyls, pesticides and mercury, the marine mammals that make up a substantial proportion of the traditional diet of the Inuit have become contaminated. Blood concentrations of several organochlorine compounds and mercury are often above established levels of concern for Inuit in Greenland and eastern Canada (see chapter 5). Potential health consequences include sex hormonal effects, damage to the immune system, and transgenerational effects (see chapter 6). Clinical overt damage to health, however, has not yet been demonstrated (AMAP, 1998).

2.3. Conclusions

The indigenous peoples in the Arctic are in most countries a minority of the population. Their living conditions, dietary habits, employment, subsistence activities, and access to health care often differ from those of southern populations. In most regions of the Arctic, the health of the indigenous peoples is worse than that of the general population of the countries in which they live, although the gap has narrowed considerably in recent years.

During the last 50 years the indigenous peoples in the Arctic have experienced large increases in life expectancy as a result of decreasing infant mortality and the successful prevention and treatment of many infectious diseases, among other things. Whether health in general has improved or declined due to the recent societal changes depends on whether the positive or negative is emphasized; a simple answer is impossible to give. It is undeniable that physical survival has increased in all age groups, but it has probably been at the expense of mental and social health. The disease pattern of the future will depend on whether the current lifestyle trends can be shifted in a more healthy direction. The rapid changes in culture and disease spectrum require a major change in health care for those indigenous peoples concerned.