REFERENCES

NATIVE PEOPLES OF KAMCHATKA: EPIDEMIOLOGICAL TRANSITION AND VIOLENT DEATH

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Abstract. The process of *epidemiological transition* is one aspect of global demographic change. With industrialization, the causes of morbidity (and hence mortality) shift from infectious diseases to diseases of degeneration. This paper uses official and ethnographic data developed for the Social Transition in the North project to document the process of epidemiological transition for the Native peoples of Kamchatka. The data show that while a classic epidemiological transition is occurring in Kamchatka, death rates for indigenous people are highly volatile. The data demonstrate that this is the result of the large number of illnesses and deaths related to alcohol abuse.

Introduction

The theory of an *epidemiological transition* was first suggested by Omran (1971) to explain the reasons for and regularities in changes in mortality and morbidity rates of populations in the course of modernization. His main point is that during one stage in the development of a society there is a significantly rapid decline in the death rate and a structural change in morbidity. For example, infectious diseases are replaced by those of degeneration as primary causes of death.

Epidemiological transition is a universal process which varies among distinct populations. According to Russian demographers (Vishnevsky et al. 1991), the epidemiological transition began later in the former Soviet Union than in most of the developed world. As a result of historically established conditions and socioculturally unprepared populations, this transition is still far from complete. The population of Russia is ethnically heterogeneous. The northern region, a territory exceeding one-half the size of the country, is populated by 26 different numerically small aboriginal peoples (referred to officially as the Small Peoples of the North). By many criteria they may be considered Fourth World peoples. Naturally, their epidemiological transition is somewhat different from that of the Russian population as a whole.

In this article I analyze the criteria for the epidemiological transition among the Native peoples of Kamchatka—Koryak, Itelmen, Even, Aleut, and Chukchi. They inhabit primarily the Koryak Okrug, and the Bystrin and Aleut Districts (see Table 1). The research was conducted as part of the Social Transition in the North project which sought to compare the social, psychological, and physical health of the Native populations of Alaska and the Russian Far East.

Health Care Among the Aboriginal Population of Kamchatka

Many discussions of health and mortality of the various peoples of the Russian North have been

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Table 1. Indigenous peoples of the North (in thousands).

	1959	1970	1979	1989
RUSSIAN FEDERATION				
Northern Indigenous Peoples[1]	125.9	151.3	155.7	181.6
Koryak	6.2	7.4	7.6	8.9
Chukchi	11.7	13.5	13.9	15.1
Even	9.0	11.8	12.5	17.1
Itelmen	1.1	1.3	1.3	2.4
Aleut	0.4	0.4	0.5	0.6
KAMCHATKA OBLAST				
Total Population	220.8	278.6	385.5	471.9
Northern Indigenous Peoples[1]	8.9	10.4	10.7	12.3
Koryak	5.3	6.3	6.3	7.2
Chukchi	1.1	1.2	1.3	1.5
Even	1.1	1.4	1.4	1.6
Itelmen	1.0	1.1	1.2	1.4
Aleut	0.3	0.3	0.4	0.4
SIX NORTHERN DISTRICTS OF THE KAMCHATKA OBLAST				
Total Population	29.8	33.8	38.4	44.3
Northern Indigenous Peoples	8.5	9.8	9.6	11.2
Koryak	5.1	6.0	5.8	6.7
Chukchi	1.1	1.2	1.2	1.5
Even	1.1	1.3	1.3	1.5
Itelmen	0.9	1.0	1.0	1.2
Aleut	0.3	0.3	0.3	0.3

[1]Includes indigenous ethnic groups other than the five which are listed here.

published by physicians (an incomplete bibliography can be found in Chikin and Cheknev 1974), although most, along with other researchers, confine themselves, as a rule, to the presentation of general rates of disease and death developed from demographic indices. In the former Soviet Union, for the most part, detailed demographic investigations were limited in purpose and remained largely inaccessible to the broader scientific community (for example, Bogoyavlensky 1983, 1991; Navasardov 1985). To the best of my knowledge, of the authors whose works have appeared in published form, only Bannikova (1971, 1974), Navasardov (1968), Navasardov and Mulin (1981), and Volfson (1978) investigated the demographic parameters and created mortality tables for individual northern territories. The situations of the peoples of the Russian North changed dramatically since the completion of the above mentioned studies. Using statistical records collected by medical institutions, I have attempted to understand the impact of recent changes on the aboriginal populations of Kamchatka and to make a qualitative estimate of health status of the aboriginal population.

The first Russian healthcare services were established in Kamchatka during the nineteenth century, but it was not until the late 1920s and early 1930s that there was regular access to non-indigenous medical services. In the early years, nursing services, later followed by physician services, were established in the places where there were large concentrations of people. Those were at fish processing plants and in settlements comprised mainly of non-aboriginal recent immigrants (or Newcomers). Not until much later were small hospitals established in Native communities. The mobile medical detachments which were sent to render aid to the Native population during the mid-1920s were temporary, and the practice ceased in the 1930s. By 1940 there were approximately two dozen hospitals and an equal number of physicians in the Koryak Okrug. The advent of World War II naturally reduced the level of healthcare services, and by the middle of the 1950s the situation for northern aboriginal peoples was very grave. In 1957, the central government was forced to declare targeted actions and some extraordinarily urgent measures to improve medical services

in order to reduce morbidity and mortality rates among the Native population in Kamchatka (Decisions of the Party and the Government on Economic Problems 1968). Between 1957 and 1962 the number of physicians and hospital beds in the Koryak Okrug literally doubled. Also beginning in the late 1950s, there was a steady, although very slow and not always proportional, increase in the number of physicians and nurses at the newly built and modernized health institutions within the areas of Kamchatka where Native peoples resided. By the beginning of the 1970s the provision of the Kamchatka Native population (per 100,000) with healthcare institutions and personnel (according to the indices of the healthcare services in the former USSR) was higher than that for the nation as a whole. Although there was no separate medical system for the Native population, medical aid to the aborigines was formulated as one of the healthcare guidelines for the North generally and for Kamchatka in particular. Recently, however, because of an economic crisis which has been especially severe in the northern territories of Russia, the process of slow incremental growth in healthcare service has reversed. Medical professionals have left the region, and there has been a corresponding reduction in the number of healthcare institutions.

Archival records of medical institutions in Kamchatka date back only to the 1950s. In addition, the type and format of the available data changed so often that it is impossible to compile comparable information on types of illnesses and disease rates among the Kamchatka aborigines. Furthermore, all the indices were derived from data supplied by medical personnel and institutions which, as stated above, changed too often to be consistent. Therefore, I have chosen to restrict myself to the information on mortality, which is sufficiently standardized to describe epidemiological transition among the Native peoples of Kamchatka. In addition, I have been able to use these data to partially describe the health status of this population.

Research Methods

Death certificates in the archives of the registry offices in six administrative districts of the Kamchatka Oblast (four of which constitute the Koryak Autonomous Okrug), where the overwhelming majority of the aboriginal population resides, were examined. Death certificates in the other five districts and two towns of the oblast were not surveyed.

Data on gender, age, ethnicity, and cause of death were manually recorded for all recorded deaths among the Native population between 1958 and 1992 (and part of 1993). Altogether there were data for approximately 6000 deaths, forming the basis for this investigation. Although this article was written within the framework of the Social Transition in the North project (1992–1995), the data were collected over a period of ten years.[1]

The chronological limits of this research (1958 to 1992) were chosen for several reasons. First, was the sheer volume of the data. More importantly, 1958 was chosen as a starting point due to omissions and inaccuracies in the data for earlier years. This was also the year in which the National Agency of Statistics resumed the compilation of mortality data by ethnicity, making it possible to compare the information collected by me with official (although unpublished) mortality statistics. Furthermore, the first post-war census was made in 1959, thus providing generally accurate data on the size and structure of the Native population of Kamchatka. Unfortunately, however, some of the data available for the earliest years of consistent records are significantly deficient. Of particularly poor quality were the registry entries on causes of deaths. For the late 1950s, approximately one in every six death certificates recorded the cause of death as "disease" or "unknown." For recent years, also, ambiguous phrases are sometimes found on death certificates, such as "the cause of death is unknown" or "the corpse burnt in the herds" (meaning "in the reindeer pastures").

In considering the quality of the data it is necessary to mention that incomplete death records are more common for the Kamchatka aborigines than for the Newcomer population of the oblast or for the general population of central Russia. Particularly incomplete were the records of deaths of infants, the elderly, and nomads in the earliest periods. This incompleteness of death records has continued into the present. Sometimes a significant delay (a year or more) occurs in the registration of individual deaths. In the account of recent deaths, our ethnographic records are more complete than the official statistics which are based solely on the deaths registered in a calendar year.

The dynamics of absolute death rates and the total mortality ratio are shown in Figure 1. Using Chiang's (1984) method and applying a computer program (kindly provided by V. M. Shkolnikov of the Institute for Economic Forecasting of the Russian Academy of Science's Centre of Demography and Human Ecology), abridged life tables for the Native peoples of northern Kamchatka were calculated for four-year periods including each of the four national censuses conducted since World War II (1958–1961, 1968–1971, 1977–1980, and 1987–1990). These are presented in Table 2. In preparing these tables, along with the data on the cause of death (from the death certificates) we used census

records to record information on the gender and age structure of the population. Other pertinent data were not available.[2]

The small (in absolute) numbers of deaths among Native peoples presents the probability of large errors in the data. The standard deviations of the calculated mean values are also high. In order to improve the reliability of the data, I compiled mortality tables (Table 3) for the entire Native population of northern Kamchatka[3] for four-year periods. I am fully aware, however, that this population is far from homogeneous. While taking into consideration the multiplicity of factors which may decrease the accuracy of the life tables (including the above mentioned incomplete and inexact records of cause of death), I made no attempt to achieve maximal correctness, nor would I have

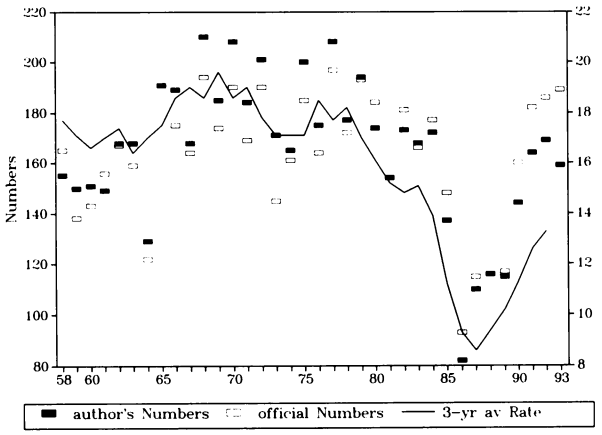

Figure 1. Deaths of Kamchatka Natives, 1958–1993 (n = 5933).

Table 2. Life expectancy at birth (in years).

	1958–61	1968–71	1977–80	1987–90
TOTAL POPULATION OF THE RUSSIAN FEDERATION				
both genders	67.6	68.5	67.6	69.7
males	63.0	63.1	61.7	64.5
females	71.5	73.3	73.1	74.5
TOTAL POPULATION OF THE KAMCHATKA OBLAST				
both genders	62.0	62.2	62.6	67.2
males	57.3	56.6	57.3	62.9
females	67.0	68.7	68.4	71.7
INDIGENOUS PEOPLES OF THE SIX NORTHERN DISTRICTS OF KAMCHATKA				
both genders	46.2	42.4	45.1	57.5
males	43.6	39.4	41.4	52.9
females	48.8	45.7	49.0	61.9

Table 3. Recorded deaths of indigenous Northern peoples of Kamchatka (for the calculation of abridged life tables).

	1958–61	1968–71	1977–80	1987–90
0–4 years	214	132	74	45
5–14 years	32	29	20	15
15–29 years	65	74	103	78
30–44 years	94	170	152	72
45–59 years	98	219	189	79
60–74 years	80	131	179	133
75 years +	21	29	36	63
Total	604	784	753	485

succeeded in doing so. The data were, however, sufficient to disclose the peculiarities of the epidemiological transition in northern Kamchatka. Thus, life tables were constructed for the same four periods by the causes of death. Only five causes are depicted: (1) infectious and parasitic diseases (infections); (2) neoplasms and cardiovascular diseases; (3) respiratory diseases; (4) accidents, poisonings, homicides, and suicides (accidents or trauma); and (5) other or unknown.

I then compared the life tables. This provided a standardized comparison of the rate and structure of mortality in various age groups by causes of mortality. Thus, I was able to construct an illustration of mortality changes, or to be more precise, the changes in life expectancy of the Native peoples of Kamchatka during the 1960s, 1970s, and 1980s (see Table 2).

The results of these comparisons are also illustrated in Figures 2–5,[4] where the changes in life expectancy at birth during each decade are displayed by age group and by cause of death. The years of life expectancy growth (a decline in the rate of mortality) are given as positive values of "Y" (above the ordinate axis), and the reduction of life expectancy (an increase in the mortality rate) is presented as negative "Y" values (below the ordinate axis). The algebraic sum of all increases and losses in individual age groups by individual death causes is equal to the change of the life expectancy of the total population by all death causes.

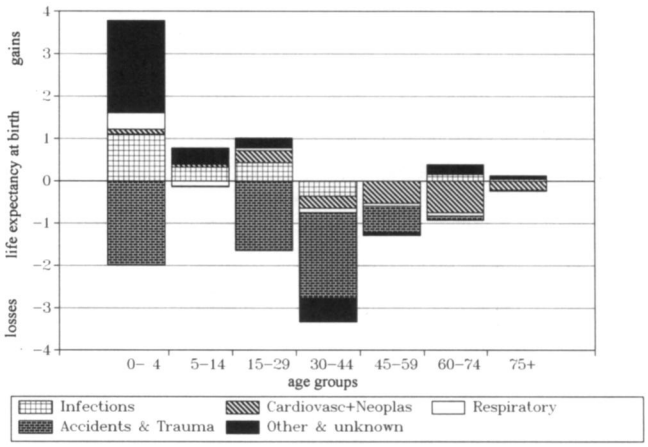

Figure 2. Changes in life expectancy, 1968–71 compared to 1958–61.

Mortality Changes

How, then, did the causes of mortality and life expectancy for the Small Peoples of Kamchatka change over the period surveyed? A comparison of two four-year periods a decade apart (1958–1961 and 1968–1971) reveals a steep decline in mortality for children aged birth to four years, and a modest but perceptible decrease in mortality rates for older children and young adults (Fig. 2). These decreases are attributed to the reduction of mortality from infectious diseases and other or unknown causes. As noted above, during the late 1950s, the cause of death was not recorded for approximately one-sixth of aboriginal Kamchatkans. Considering that the official registry entries for those years list "disease" rather than "accident" as the cause of death for the majority of cases, I assume that those deaths were caused by infectious diseases (and to a lesser extent by respiratory diseases). The improvements in life expectancy were somewhat greater for young women than for young men. Among people over the age of 30 there was little or no increase in life expectancy. This corresponds to the theoretical suppositions of epidemiological transition.

The above suggests positive changes in the health status of Kamchatka Natives: decreased mortality rates and increased life expectancy. However, if one considers the age groups for which the death rate increased, the greatest losses in life expectancy during that decade were incurred by babies and persons over 15, especially those between the ages of 20 and 54. Among them, women had an even greater increase in mortality than men. The primary causes of this decline in life expectancy were trauma, accident, homicide, and suicide, which I have termed collectively *violent death*. Consequently, there was a statistically insignificant decrease in overall mortality rate among infants, while the mortality rate of all groups above the age of 20 showed a clear increase.

This is obviously inconsistent with the theory of the epidemiological transition, especially considering the decline in life expectancy which occurred during that decade. Even bearing in mind the incomplete records of death and exaggerated life expectancy during earlier periods, as well as statistical errors which may have resulted from the small population numbers, the absence of positive changes in mortality rates for the Native peoples of Kamchatka is incontestable.

Demographic changes seen among the aboriginal population of Kamchatka, like those of all the other peoples of northern Russia, were not caused by internal changes characteristic of most traditional societies. The majority of conditions for and causes of demographic changes were brought in from the outside. Nay, they were imposed. The extension of Soviet Medicaid, European hygienic knowledge and habits, the establishment of a healthcare system, etc.; in a phrase, everything that was, by the Soviet socio-scientific cliché, formulated as "healthcare of the numerically small peoples" was part of the policy of state paternalism. This policy was finally articulated in the late

1950s. One concise expression of this policy can be found in the Decisions of the Central Committee of the Communist Party of the Soviet Union and the Council of Ministers of the USSR of March 16, 1957 (Decisions of the Party and the Government on Economic Problems 1968: 331–336). While the policy did contribute to a decline in morbidity from infectious diseases, there were negative consequences as well. These included the disruption of the traditional economy and the destruction of the traditional social organization of the northern peoples through forced migrations and deportations. All of the nomadic peoples of Kamchatka were forcibly settled by the end of the 1950s. In addition, the state policy of "mastering of the territory and natural resources of the North" (a far greater priority than healthcare of the indigenous peoples of the North) was highly detrimental to both the northern ecosystem and the northern peoples. The strange dynamics of mortality in the 1960s were one result. The trends described above, however, continue into the present and retain an influence on the lives and life expectancies of northern Native peoples.

The mortality changes which occurred in the next decade are shown in Figure 3. The morbidity and mortality changes during the 1970s led to a mean increase in life expectancy of 2.7 years, from 42 to 45 years; not enough to justify optimism. While overall mortality changed only slightly, there was a significant redistribution in the life expectancies and causes of death among the different age groups. A comparison of mortality rates between 1977 and 1980 with those from 1968 to 1971 reveals that babies and infants (birth to four years) experienced the greatest reduction in the rate of mortality. This was due to the decline in violent deaths and in those related to respiratory and "other" causes. Notable, too, is a decrease in the mortality rates of adults between the ages of 30 and 59 attributed to infectious diseases and "unknown" causes. However, for these same groups of adults, as in the preceding decade, the number of violent deaths and the total mortality remained the same or increased somewhat. Although the mortality among middle-aged people of the whole population remained practically unchanged during the 1970s, that stability resulted from mortality increases among men and decreases among women.

In spite of seemingly opposite results in the mortality dynamics of the 1960s and 1970s—during the 1960s life expectancy decreased almost four years, compared to a three-year gain in the 1970s—the trend of changes in the mortality structure by age and cause of death remained steady. Mortality due to infections, respiratory diseases, and "unknown" causes declined especially among children under ten. Youths between ten and 24 years did not benefit as much. This corresponds to the theoretical predictions of epidemiological transition. In contrast to the expected pattern of epidemiological transition, an increase in morbidity and mortality due to degenerative diseases (neoplasms and cardiovascular diseases), there was also a tremendous unexpected rise in the number of deaths from violence. The unprecedented growth in violent death counteracted the effect of the mortality decrease mentioned above. It must be reiterated that this is a deviation from the general theory of epidemiological transition and is peculiar to the mortality dynamics of the aboriginal residents in Kamchatka of that period.

An abrupt decline in mortality occurred in the 1980s. Life expectancy between 1987 and 1990 increased by more than 12 years over the previous period of 1977 to 1980 (see Fig. 4). This increase in life expectancy was similar to that observed among the Native peoples of Alaska and Greenland during the 1950s. In Kamchatka it corresponded with a sharp decline in the overall mor-

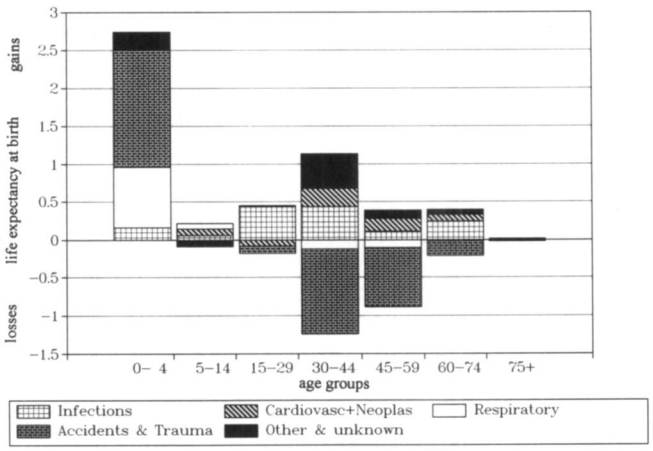

Figure 3. Changes in life expectancy, 1977–80 compared to 1968–71.

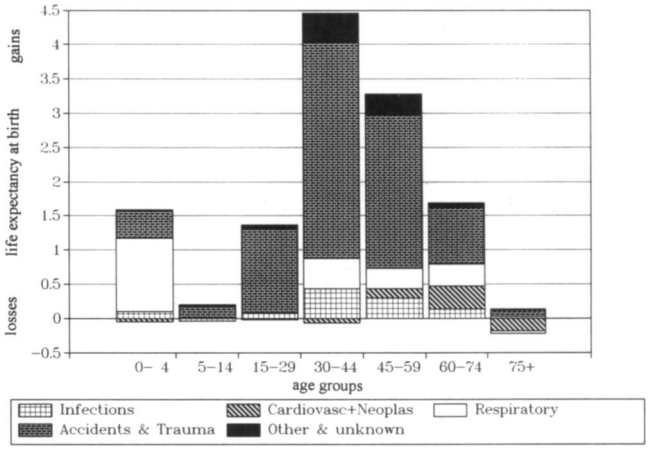

Figure 4. Changes in life expectancy, 1987–90 compared to 1977–80.

tality rate and a reorganization of the structure of mortality by cause and age.

In this period, the death rate fell for almost all age groups. The decline was especially notable among the age groups (20 to 49 years) where it had grown during the preceding two decades. This is attributed to the steep decline in violent deaths. Eight of the 12.4 years added to life expectancy may be attributed directly to the lower mortality from traumas, suicides, and homicides. A substantial decline was also observed in mortality from respiratory diseases among children under the age of four and from infectious diseases and "unknown" causes among 25 to 54 year olds. People in their middle years appeared to have gained most from the mortality declines of the 1980s. This contrasts with the previous periods when mortality fell only among infants and teenagers. The increases in life expectancy were again greater for middle-aged women than for middle-aged men. Among children and the elderly, no difference by gender was noted in life expectancy improvements.

It would be impossible to predict the changes in mortality apparent in the late 1980s from those seen for the aborigines of Kamchatka during the previous period. In my opinion the mortality dynamics of the 1980s were the result of several unusual factors. The first factor (not necessarily first in importance) was an improvement in medical services and the provision of medical equipment and personnel in the northern regions. This trend was in existence well before the 1980s and it appears that sustained effort at last led to the intended result.

The second factor contributing to the decline in mortality was increased attention to the problems of the northern peoples at the beginning of the decade, with a series of attendant decrees and decisions by the state authorities.

The third and perhaps the strongest factor contributing to lowered mortality was a forceful campaign against drunkenness and alcoholism. This played a tremendous role in diminishing violent mortality (not only among the northern peoples but throughout the whole of Russia). During 1986, the second year of the campaign, the number of violent deaths among the Native peoples of Kamchatka was only slightly above 80, compared to roughly 200 a year in the late 1970s. In the next three years (1987–1989), total mortality grew somewhat, but nevertheless remained low.[5]

At first glance the achievements of the 1980s appear to differ greatly from the situation in the preceding decade, and even more from the 1960s, but this is an illusion. During the period between 1959 and 1990 almost all changes in mortality were triggered by variations in the violent death rate. The increase in violent deaths was primarily responsible for high mortality rates during the 1960s and 1970s, while the decrease during the 1980s resulted in a corresponding decrease in overall mortality. What is the mortality trend for the entire period studied (1958–1990)? The picture obtained through a comparison of mortality tables at the two ends of this 30-year period (Fig. 5) almost ideally illustrates the thesis of the epidemiological transition theory; however, within these three decades, many deviations from the theoretical expectations were noted.

In comparing the period 1987–1990 to the earlier period of 1958–1961, life expectancy increased by 11.3 years. The death rate fell for all age groups except the oldest (above 75). In all age groups mortality caused by infectious diseases and "unknown" reasons decreased greatly. The largest increase in life expectancy was observed for children four years old or less. The death rate among children due to respiratory diseases was also significantly reduced. For children under 15, mortality from all causes fell, even while mortality rates due to some causes rose among the groups older than 15 years. For people between the ages of 15 and 39, death rates resulting from accidents and trauma increased. An increase in mortality rates due to cardiovascular disease occurred for those over 40. The rise in life expectancy among females was 13.1 years, while that for males was 9.3 years, and is attributed largely to improvements among children and among 35 to 59 year olds. For the other age groups, the reduction in mortality rates was roughly equal for males and females. Figure 5 supports the position that, despite recognized variations and a generally slow rate, the epidemiological transition among the peoples of northern Kamchatka progressed within the theoretical framework formulated by Omran (1971). In reality, however, this is not the case. Mortality was lowered at the end of the 1980s primarily due to the powerful influence of the anti-alcohol campaign.

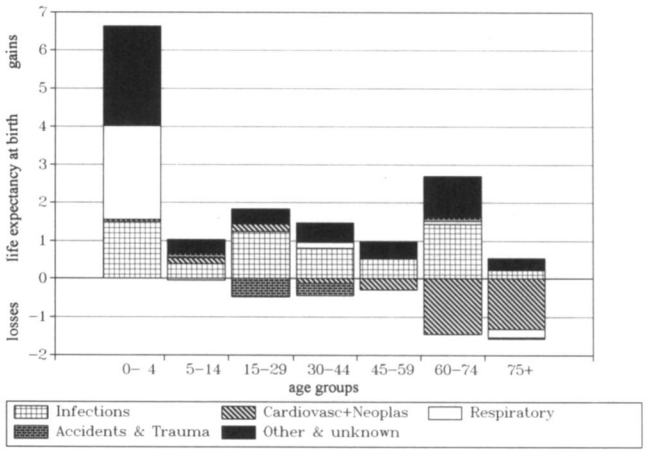

Figure 5. Changes in life expectancy, 1987–90 compared to 1958–61.

The high life expectancy recorded for that period was largely temporary. Since 1990 (and the end of the anti-alcohol campaign), mortality rates have again risen. It appears that the 1980s were merely a bright, possibly atypical, stage in the complicated process of changing mortality among the Native peoples of Kamchatka. Thus, it is not possible to sum up mortality changes for the 30 year period and to consider the related epidemiological transition to have been completed. Even for the whole of Russia, demographers speak of an incompleteness of the epidemiological transition (Vishnevsky et al. 1991). This is especially the case when referring to the peoples of the North. Moreover, under the conditions of current and possible future socioeconomic crises, the most pessimistic forecasts are likely.

Even during 1986, the year of the lowest mortality, violent deaths accounted for one-quarter of all mortalities (25.6%) for Natives in the six northern districts of Kamchatka. For Russia as a whole, violence was the cause of less than 10% of deaths. During some of the years at the end of the 1970s, more than half of all the deceased had died from traumas and accidents,[6] and for the entire period studied accidents and traumas were the cause of approximately 36% of all deaths.

If we consider the violent death structure by various causes (Fig. 6), the primary cause appears to be "alcohol poisoning," accounting for more than one-quarter of all the violent deaths. It should be noted here, however, that the practice of registering death connected with alcohol in Russia differs from that in other countries (Mesle et al. 1994). In Kamchatka, drownings, suicides, and freezings also contribute significantly to violent deaths. Mortality connected with traffic accidents (included in the "other" category) did not exceed 1.5%. The percentage of deaths officially attributed to alcohol, then, is artificially low. Although not recorded as alcohol-related, a great many drownings, freezings, suicides, and homicides occur in connection with alcohol abuse. Between 1987 and 1991 we conducted a survey of deaths caused by trauma among the Native population of the North, including Kamchatka (Bogoyavlensky and Pika 1991; Pika et al. 1991; Pika 1993), and discovered that more than half of suicides, three-quarters of the homicides, and half of all the rest of the violent deaths (excluding the alcohol poisonings which were obviously caused by alcohol abuse) had occurred during or immediately following alcohol consumption.

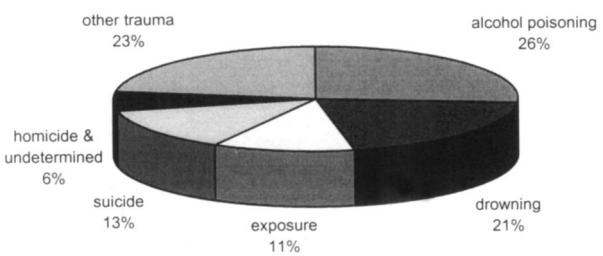

Figure 6. Violent deaths of Kamchatka Natives, 1958–1993.

The following case provides one example of the manner in which the official records are misleading as to the role of alcohol in the mortality rate. In this particular event, seven Koryak and two Russians simultaneously perished after drinking brake fluid presuming it to be an alcoholic beverage. Since the brake fluid was not officially considered a substitute for alcohol, those deaths were registered as "other casual poisonings" and would have been recorded in our classification as "other violent deaths." If the ratios determined in the 1987–1991 study are correct, then between 60 and 70% of all violent deaths among people of the Russian North were related to alcohol abuse. However, at the very minimum, one-quarter of deaths among the Native residents of Kamchatka resulted directly from alcohol intoxication. This is an artificially low figure, as many non-traumatic deaths (such as many labeled as cardiovascular) may also be traced to long-term alcohol abuse.

Summary

Let us review the distinctive features of the epidemiological transition of the peoples in northern Kamchatka. Morbidity and mortality from infectious diseases remained high, and infant mortality never fell below 35 to 40 per 1000 births throughout the period studied. These phenomena are the most characteristic feature of this transition. More importantly, accidents, poisonings, homicides, and suicides became, and have remained, the primary causes of death. By and large, the positive changes in health status and mortality rate which occurred among the northern Native peoples as a result of social and economic development were eliminated by an increase in mortalities from trauma. The rate of trauma at any one time was the primary cause of variation (both increases and decreases) in the rate of mortality. Given the enormous number of trauma-induced deaths, the overall change in mortality by other causes is quite small.

There is evidence to suggest that accidents and other traumas were primary causes of death in the traditional period as well. Ethnographic reports indicate the practice of "voluntary deaths" by the sick and elderly as well as the employment of infanticide by both Chukchi and Eskimos. The Chukchi believed that a violent death was prefer-

able to one from disease or old age, and attributed deaths caused by disease to the attacks of ghosts (Bogoraz 1934:108). The Eskimo who resided north of Kamchatka in Chukotka felt that all those who had died a violent death went to heaven, irrespective of the person's character. The same belief did not extend to those who had died of disease or old age (Ushakov 1990:154). A similar view was held by the Koryak, who believed that individuals who were killed in war or who had committed suicide went to heaven while those who died a natural death were devoured by evil earth-bound ghosts (Slyunin 1900:390). It is also reported that Itelmens and Kamchadals were forbidden to save a drowning person, else the rescuer was doomed to wreck (Krasheninnikov 1949:411). The same prohibition existed among the Koryak, who regarded the drowning victims to be doomed by ghosts (Gurvich and Kuzakov 1960:86).

Bogoraz referred to "voluntary death" as a usual event among the Chukchi, occurring at the request of an individual who was prepared to die. In these cases the relatives of elderly or seriously ill people would kill them. This type of death was considered preferable to suicide (Bogoraz 1934: 108). A similar custom existed among the Koryak up to the 1930s (Gurvich and Kuzakov 1960:86).

Researchers of the aboriginal peoples of Kamchatka (and of the neighboring oblasts) note that suicides were also quite common. "The Chukchi, in general, exhibit an inclination toward suicides . . . A Chukchi may kill another human being or himself for a trifle" (Bogoraz 1934:26). The Kamchadals preferred suicide to disease, imprisonment, or even "boredom and uneasiness" (Krasheninnikov 1949:368, 403), and according to Father Innokentiy, the Atkhin (ancestors of the Aleuts of the Commander Islands in Kamchatka), "in a state of strong emotions, would deprive themselves of their lives, e.g. because of grief or compassion about the deceased" (Veniaminov 1840:9).

Such traditions, or their vestiges, undoubtedly influence the contemporary pattern of violent mortality. However, violence in the traditional cultures was ritualized, which kept it within limits (Batianova 1993), and of course, it was not violence that determined the level and fluctuations in mortality rates at that time. In all probability it has been the devastation of the traditional cultures which created a situation of overwhelming *traumatogenic self-annihilating* behavior. I use the term "self-annihilating" to refer not only to single victims, but also to the Native peoples as a whole. Contemporary violence among the Native peoples of Kamchatka is, for the most part, directed toward other aborigines. It is rarely directed against the Newcomer population. The overwhelming majority of Native murder victims (in the cases known to me), were killed by other Native people. This type of violence most commonly involves men and frequently occurs in small settlements where employment opportunities are extremely limited.[7]

With the anti-alcohol campaign, the 1980s became the years of a sweeping decrease in the rate of mortality, while mortality rates rebounded in the first part of the 1990s (Mesle et al. 1994). The Kamchatka Oblast has always had one of the lowest levels of life expectancy in Russia.

As is shown above, self-annihilating behavior often occurs in association with alcohol abuse or with alcohol serving as a catalyst to violence. Therefore, while it is possible to speak about violent traditions in the aboriginal culture, it must be noted that drunkenness was introduced to the Native peoples with the arrival of and social disruption created by the Newcomers. It is also necessary to mention that the Newcomers are frequently far from law-abiding advocates of sobriety themselves.

It seems to me that a combination of all the above causes has brought about the current violent mortality and its dynamic as a decisive factor in the epidemiological transition of the Native population of Kamchatka. It is unfortunately due to this violence that the death rate of the Native peoples of Kamchatka is among the highest of all ethnic groups of Russia.

End Notes

1. The data available at the registry offices of the statistical agencies were computerized in 1988. While we had access to this computerized data, problems with software forced us to continue to record data by hand.

2. It is also necessary to mention another source of inaccuracy in the data. Characteristics of the deceased (such as ethnicity and age) are recorded in the death certificates based on official documents such as passports (at least, it is supposed to be done that way). Census data, however, are usually recorded based on the self-identification of the individuals counted. Possible inconsistencies between these two sources, especially for age and ethnicity have introduced additional error into our tables.

3. These include Koryak, Chukchi, Even, Aleut, and Itelmen.

4. The life tables were analyzed by 5-year age groups and by gender. These have been collapsed in the figures in order to make the results clearer.

5. The sale of alcoholic beverages in Kamchatka practically stopped during the period of the anti-alcohol campaign.

6. Violence accounted for 48.6% of deaths of Kamchatka Natives between 1977 and 1990.

7. But one should not forget that a slow decline in life expectancy, increased violent mortality between 1960 and 1970, and increased consumption of alcohol were characteristic of the Russian population as a whole.

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