T. S. Mostakhova

Mortality of Population in Northern and Arctic Regions of the Republic of Sakha (Yakutia) in the Aspect of Demographic Security

ABSTRACT

There are some problems in maintaining the demographic safety in the Republic of Sakha (Yakutia). Such integral indicators as life expectancy, depopulation index and total fertility rate can be applied as indicators of demographic safety. In aggregated form they characterize reproduction of the population, the basic concept that lies in demographic safety entity.

The Arctic is a region of prospective industrial development of natural resources. It is important to have demographic potential with the necessary quantitative and qualitative parameters.

Mortality processes are the most important in terms of demographic safety for the Arctic and Northern regions of the Republic. Current state of population mortality is estimated as representing a certain threat to the demographic security. There were positive signs for the 2009-2014 years: the number of deaths and the overall death rate were decreased. However, mortality rates are significantly higher than the average for the Republic.

The infant mortality rate, which is estimated in the world community as an indicator of social welfare society, has extremely uneven dynamics that due to the presence of demographically small aggregates. Over the years, the infant mortality rate is higher than the average for the Republic.

High mortality due to external causes of death remains the essential point in the characterization of mortality in the Arctic regions of Yakutia. In most of the Arctic and Northern regions of the Republic, the absolute number of deaths from external causes was decreased. However, stable high indicators compared with average coefficients for the Republic are marked there. For example, in the Allaihovskiy district in 2012 year mortality from suicide was above the national average of 7.75 times and in 2014 year in Anabarskiy district –7.8 times.

Elevated levels of population losses as a result of external causes of death requires special measures to preserve the demographic potential of Arctic regions, having a special geopolitical importance and representing the main resettlement area of the small-numbered indigenous peoples of the North.

Keywords: mortality, infant mortality, external causes of mortality, demographic security, the indigenous peoples of the North.

INTRODUCTION

Intensification of public attention to demographic problems is not least caused by national geopolitical interests. The Russian Federation with its vast poorly developed spaces is in a geopolitically dangerous situation being contiguous with demographically redundant states. Geopolitical security largely depends on a degree of development and population of border territories. Meanwhile, strategically important territories of the Far East lose its population. These moments make actual attention to problems of demographic security of Far Eastern regions.

The demographic security implies such a state of demographic processes, which is sufficient for reproduction of population without a significant influence of external factor and provision by human resources of geopolitical interests of state [6,22]. To assess the demographic security threshold values are applied, achievement of which means violation of normal course of development of various elements of reproduction and leads to formation of negative destructive tendencies in the provision of security [1,45]. In our opinion, as indicators of demographic security only integral indicators can be applied, which in an aggregated form characterize the reproduction of population – that main concept that is laid in the main point of demographic security. This is a lifespan, and a conditional depopulation coefficient and a total fertility rate, which are formed according to processes of mortality of population, population dynamics, and processes of fertility [3].

In an analysis of demographic security for arctic and northern regions of the Republic from the demographic processes are the most significant processes of mortality. The Arctic is a region of promising industrial development of natural resource potential, for which it is important to have demographic potential with necessary quantitative and qualitative parameters. Provision of demographic reproduction, without which it is impossible to have necessary labor potential of region, can be considered as one of factors of sustainable development of the Arctic. Another fact making actual the attention to the processes of mortality of population of this region is a fact that the main area of settlement of indigenous small-numbered peoples of the North is in the

Arctic. These peoples according to international criteria are classified as endangered ethnic groups, which causes special attention to the demographic reproduction of population.

The objective of research: to analyze the processes of mortality of population in the arctic and northern regions of the Republic of Sakha (Yakutia)

MATERIALS AND METHODS

In an analysis there were used statistical data on the mortality of population – a crude death rate, an infant mortality rate, mortality according to causes of death, including from external causes of death (murders, suicides, injuries, poisonings, etc.). Indicators of demographic security have been calculated on the basis of indicators of depopulation of population, the total fertility rate and life expectancy.

RESULTS AND DISCUSSION

In general for the Republic of Sakha (Yakutia) in preservation of demographic security there are quite definite problems, as evidenced by the dynamics of indicators of demographic security (table 1).

Table 1

Dynamics of indicators of demographic security in the Republic of Sakha (Yakutia)

Indicators	Threshold value	1990	2000	2005	2009	2010	2014
Depopulation coefficient	1	0.345	0.709	0.708	0.586	0.583	0.483
Total fertility rate	2.15	2.46	1.77	1.74	2.00	2.01	2.25
Life expectancy, number of years	75	66.24	63.66	64.68	66.42	66.75	69.81
Deviation of actual indicator from threshold value, %							
Depopulation coefficient	100	34.5	70.9	70.8	58.6	58.3	0.483
Total fertility rate	100	114.4	82.3	80.9	93.0	93.5	104.7
Life expectancy, number of years	100	88.3	84.9	86.3	88.7	88.9	93.08

The problems of demographic security are particularly relevant for the arctic and northern regions of the Republic having particular importance in a geopolitical sense for the Republic, and for the entire Russian Federation. Practice shows that the demographic problems for the northern territories not only retain their significance, but also worsen [2].

Unlike a birth rate, where the situation is sufficiently safe, the processes of mortality of population are the biggest threat for the demographic reproduction. In the dynamics for 2009-2014 there are positive changes, namely a decrease of number of the deceased and the crude death rate. But a level of mortality considerably exceeds an average level in the Republic; and in certain regions an excess is very significant. For example, in 2013 the death rate in Eveno-Bytantaysky District was almost 80% higher than the regional average, in Allaikhovsky District - by 68%. In 2012 in the same district the excess amounted to 55.9%. As a result the high mortality rate determines a lag of the arctic regions in a level of natural increase: in general in the Republic it was 8.8‰, in the arctic regions it was only 7.3‰. This situation is typical for the arctic regions over a sufficiently long period of time [4, 32].

An ambiguous situation is observed in a sphere of infant mortality, which in the world community is regarded as an indicator of social well-being of society. The dynamics of this indicator in certain areas is extremely uneven, which is associated in some way with presense of demographically small aggregates. But over the years the mortality rate of children under the age of 1 year was higher than the average in the Republic (table 2).

Table 2

Dynamics of infant mortality rate in arctic districts of the Republic of Sakha (Yakutia), 2010-2014

	2010	2011	2012	2013	2014
Abyysky	14.9	13.2	0.0	14.3	0.0
Allaikhovsky	0.0	18.5	0.0	20.0	18.0
Anabarsky	18.2	14.7	15.6	12.7	13.0
Bulunsky	16.0	20.0	14.0	7.0	0.0
Verkhnekolymsky	0.0	0.0	14.5	0.0	0.0
Verkhoyansky	12.5	5.0	4.7	9.1	12.3
Zhigansky	20.8	0.0	11.4	0.0	0.0
Momsky	12.0	0.0	29.4	11.5	10.1
Nizhnekolymsky	41.5	12.8	13.3	12.2	0.0
Olenyoksky	20.2	0.0	9.9	20.2	0.0
Srednekolymsky	7.2	13.8	6.9	0.0	0.0
Ust-Yansky	20.8	19.2	31.5	16.1	7.3
Eveno-Bytantaysky	0.0	35.7	0.0	31.2	16.4
On average for group	14.2	11.8	11.6	11.9	5.9
Total for the Republic of Sakha (Yakutia)	7.2	6.3	9.6	9.6	7.9

As an essential point in a characteristic of mortality in the arctic regions of Yakutia high mortality due to the external causes of death remains. During 2010-2014 the mortality indicators due to these reasons per 100,000 people in all regions of the Arctic (with few exceptions) were higher than the average for the Republic (table 3). Moreover, in some regions this excess was exceptionally high: in 2012 in Allaikhovsky District the mortality from the external causes was higher than the average republican level by a factor of 3.63, in 2014 by a factor of 3.02.

Table 3

Dynamics of death rates of population in northern and arctic districts of the Republic of Sakha (Yakutia) due to external causes of death for 2010-2014 (per 100,000 people)

Districts	2010	2011	2012	2013	2014	2014/2010
Abyysky	225.1	205.1	323.4	164.7	376.4	1.67
Allaikhovsky	261.4	302.1	621.3	391.2	462.3	1.77
Anabarsky	370.2	433.9	205.3	440.7	323.2	0.87
Bulunsky	448.4	388.0	327.0	149.1	195.0	0.43
Verkhnekolymsky	210.2	151.2	177.9	160.0	205.7	0.98
Verkhoyansky	334.6	302.1	245.5	210.9	244.7	0.73
Zhigansky	256.9	303.5	93.4	234.3	210.9	0.82
Momsky	268.8	317.0	160.3	139.9	256.4	0.95
Nizhnekolymsky	512.8	239.5	177.9	338.2	202.9	0.40
Olenyoksky	389.0	486.9	516.2	349.4	299.5	0.77
Srednekolymsky	341.9	204.0	271.2	341.5	91.9	0.27
Ust-Yansky	284.4	340.4	260.1	509.2	254.6	0.90
Eveno-Bytantaysky	349.9	351.9	284.7	71.5	250.3	0.72
On average for group	327.2	309.7	281.9	269.3	259.5	0.79
Total for the Republic of Sakha (Yakutia)	195.4	181.8	171.3	160.5	152.9	0.78

Although in most arctic and northern regions of the Republic the mortality due to the external causes decreased, nevertheless consistently high indicators during 2010-2014 were

registered in Abyysky, Allaikhovsky, Anabarsky, Verkhoyansky, Nizhnekolymsky, Olenyoksky and Ust-Yansky Districts. In 2 regions an increase of mortality from the external causes was noted – Abyysky and Allaikhovsky Districts.

In a structure of mortality from the external causes in the Republic of Sakha (Yakutia) the suicides and murders take up a major share (in 2014, respectively, approximately 22% and 16%). In the arctic and northern group of regions this indicator is even higher: the suicides are on average 24%, the murders are 18%.

In the dynamics the share of the arctic and northern regions in the total number of the deceased from the suicides decreased from 17.6% to 12.3% of all deaths from the suicides in the Republic of Sakha (Yakutia). Although the overall dynamics is positive, but the mortality of population from suicides in the arctic regions consistently higher compared to the average level in the Republic with only very few exceptions (Table 4).

Table 4

Mortality of population of northern and arctic districts from suicides for 2010-2014 (per 100,000 people)

Districts	2010	2011	2012	2013	2014	2014 / 2010
Abyysky	67.5	45.6	46.2	47.0	70.6	1.046
Allaikhovsky	0.0	33.6	310.7	71.1	106.7	3.176*
Anabarsky	142.4	173.6	88.0	88.1	264.4	1.857
Bulunsky	145.7	107.8	130.8	34.4	80.3	0.551
Verkhnekolymsky	0.0	21.6	44.5	22.9	22.9	1.060*
Verkhoyansky	93.4	23.8	16.4	59.1	25.3	0.271
Zhigansky	93.4	140.1	23.3	23.4	46.9	0.502
Momsky	67.2	45.2	0.0	0.0	23.3	0.347
Nizhnekolymsky	21.4	43.5	22.2	45.1	0.0	2.107**
Olenyoksky	46.8	121.7	196.7	99.8	124.8	2.667
Srednekolymsky	151.9	12.7	90.4	78.8	13.1	0.086
Ust-Yansky	111.3	113.5	91.1	53.6	40.2	0.361
Eveno-Bytantaysky	174.9	70.4	35.6	35.8	71.5	0.409
On average for group	85.8	73.3	84.3	50.7	68.5	0.798
Total for the Republic of Sakha (Yakutia)	40.8	39.7	40.1	35.8	33.9	0.831

*2014/2011

**2013/2010

And in individual districts and in particular years, as in the case of infant mortality, the excess is very considerable. For example, in 2012 the death rate due to the suicides in Allaikhovsky District was above the average republican coefficient by a factor of 7.75, in 2014 in Anabarsky District - by a factor of 7.8. A decrease of mortality indicator from the suicides in 2014 compared with 2010 was registered in most regions of arctic and northern groups.

Another significant cause of population deaths from the external causes are the murders. A relative share of arctic and northern regions in the total number of the deceased from the

murders in the Republic of Sakha (Yakutia), unfortunately, rose from 11.2% in 2013 to 16.7% in 2014. In general in the Republic the mortality as a result of murders constantly decreases from 34.3 per 100,000 population in 2010 to 21.9 in 2014, i.e., by 36.2%. In the arctic and the northern districts the dynamics is very uneven (table 5).

Table 5

Mortality of population of northern and arctic districts from murders for 2010-2014 (per 100,000 people)

Districts	2010	2011	2012	2013	2014	2014 /2010
Abyysky	67.5	22.8	23.1	47.0	141.1	2.090
Allaikhovsky	130.7	33.6	69.0	35.6	71.1	0.544
Anabarsky	0.0	57.9	29.3	88.1	0.0	1.522*
Bulunsky	89.7	64.7	98.1	34.4	22.9	0.255
Verkhnekolymsky	21	21.6	66.7	45.7	91.4	4.352
Verkhoyansky	54.5	55.6	73.7	25.3	33.8	0.620
Zhigansky	70.1	46.7	46.7	46.9	0.0	0.669**
Momsky	67.2	67.8	22.9	46.6	69.9	1.040
Nizhnekolymsky	42.7	65.3	44.5	22.5	90.2	2.112
Olenyoksky	24.3	73.0	0.0	49.9	25.0	1.029
Srednekolymsky	63.3	25.5	51.7	13.1	26.3	0.415
Ust-Yansky	49.5	12.6	39.0	80.4	67.0	1.354
Eveno-Bytantaysky	35.0	70.4	142.3	0.0	71.5	2.043
On average for group	55.0	47.5	54.4	41.2	54.6	0.993
Total for the Republic of Sakha (Yakutia)	34.3	27.9	28.0	26.2	21.9	0.638

*2013/2011

**2013/2010

Despite the decline of indicator on the whole in the Republic, in most regions of arctic and northern group the mortality due to the murders increased and in some areas very considerably.

For example, in Nizhnekolymsky District by a factor of 2.112, in Abyysky District – by a factor of 2.090, Eveno-Bytantaysky District – by a factor of 2.043.

The mortality of population of northern and arctic districts from accidental alcohol poisonings does not have a sufficiently large contribution to the total number of the deceased. On the whole in the Republic the share of the deceased for this reason amounted to 4% of the total number of the deceased from the external causes, and in the arctic and northern regions – 2%. The mortality due to this cause of death in the arctic and northern regions is not recorded every year: in 2010 in 6 regions out of 13, in 2011 - in 3, in 2012-2014 – 3 regions. But during 2010-2014 the death rates due to this cause of death were higher than the average for the Republic of Sakha (Yakutia).

Likewise episodically as the mortality from accidental alcohol poisonings, the mortality due to transport injuries is registered. In the structure of external causes in the arctic and northern regions a share of death cases of population from all types of transport injuries is on average 5% (for comparison, the Republic of Sakha (Yakutia) – 10%), which is completely explainable by a low level of transport development in the North. During 2010-2014 individual death cases due to transport reasons were registered and not in all regions (only in 9 of 13 northern and arctic districts). As in the mortality from alcohol poisonings, in case of registration of mortality from transport injuries in the arctic and northern regions its level was higher than on the average in the Republic. But in our opinion this is explainable to a greater extent by a paucity of these regions, specificity of demographically small aggregates.

The attention to questions of demographic security of the Arctic is made actual by the fact that it is inhabited by the indigenous small-numbered peoples of the North, which by international standards are classified as the endangered ethnic groups with a population of no more than 50,000 people. The increased mortality, especially from the external causes of death, should cause a chain of other actions in a population policy – a development of individual measures on preservation of demographic potential of indigenous small-numbered peoples of the North, creation of socio-economic conditions of increased comfort, etc. However, the places of compact living of these peoples not only lack a higher quality of life, but, on the contrary, are more disadvantaged in terms of social infrastructure [5]. Meanwhile, the places of compact living of peoples of the North originally had a goal to create special conditions for a recovery of

demographic well-being of these peoples. There is no doubt that a lag of social infrastructure exerts a quite definite influence on a course of demographic processes.

CONCLUSIONS

In the Republic of Sakha (Yakutia) there are quite definite problems in the preservation demographic security. The present state of processes of mortality in the northern and arctic regions can be assessed as representing certain threats for the demographic security. The arctic and northern regions are characterized by higher indicators of population mortality especially due to the external causes of death. An increased level of population losses as a result of external causes of death requires adoption of special measures on the preservation of demographic potential of the arctic regions having the particular geopolitical significance and representing the main area of settlement of indigenous small-numbered peoples of the North.

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The author

Mostahova Tatyana Semenovna, Doctor of economic sciences, Scientific Secretary of the Yakut scientific center of the SB RAS, senior researcher of the Department of regional economic and social research of the Yakut Scientific Centre SB RAS, Petrovskij St. 2, c. 212, Yakutsk, Russia.