

Health, indigenous food security and social politics in the Arctic region (with the special focus on Murmansk oblast)

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Abstract

Social policy is directly concerned with food security issues, and the task to improve nutrition and related population health assumes increased importance given the context of Arctic globalization. It is obvious that Arctic social policies in term of food security should be distinguished from the "non-Arctic" one, and focused on identifying, assessing, monitoring and easing, if not completely eliminating the harmful impact of the risks involved. However, most studies on the subject, have focused mainly on the problem of small indigenous minorities ("indigenous food security"), meanwhile the food security issues of newcomers and, later, rooted population were not studied in such detail. Geographically, the survey covers the area of the Murmansk region, since it is fully integrated into the Arctic zone of the Russian Federation and has a number of features that distinguish it from other regions. The study was designed to identify the various risks and threats to the health of the population of the Murmansk region. The various factors that are directly related to the manner, style and quality of nutrition (as well as the "weight" of these groups of factors in human life quality in the North) have been identified. It is evident the food security is important factor tightly connected with the human life quality in the Arctic.

Key words: Arctic social policy, food security, health, health risks

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Introduction

Social policy is tightly connected with the tasks of ensuring food security and the quality of public health, which is reflected in a wide range of scientific disciplines. The most general definition of social policy is an interdisciplinary and applied subject related to the analysis of societal responses to social needs. With this study, we view social policy as a system of state measures aimed to identify, assess, monitoring and

reduce the impact (if not complete elimination) of social threats and risks.

The territories of the Arctic zone of the Russian Federation [1], due to their specific nature, are characterized by a number of specific risks and threats to human life, including in the field of food security. Obviously, the "Arctic" social policy regarding food security must be different from "non-Arctic" one and the special measures

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should be focused on identifying, assessing, monitoring and reducing the impact of harmful impacts of the relevant (Arctic) risks. In this case, it is necessary to take into account the peculiarities of human nutrition in the North.

Nevertheless, most of the research on this issue is focused on the problem of indigenous peoples, while the food security of the newcomers has not been studied in detail. Therefore, in this work the term "indigenous food security" refers mainly to rooted Northern population – local communities, both aboriginal and, more gener-

ally, rooted population, which are residing in the Arctic territories longer than in a single generation. Geographically, we focus on the territory of the Murmansk region, as the region fully integrated into the Russian Arctic Zone [6].

We attempted to identify the various risks and threats to the health of the Murmansk region population. We identified various factors that are directly related to the manner, style and quality of nutrition, as well as the "weight" of group of these factors in human life quality in the North.

Concepts, material and methods

From an economic point of view, it is necessary to take into account the socio-economic costs of ensuring human life in the Arctic Territories. Therefore, Arctic social policy can be defined as a system of measures to identify, control and reduce the impact (up to complete elimination) of risks associated with human life in the Arctic (compensating function). Thus, the main functions of Arctic social policy are:

- 1) to prevent Arctic social risks (including health risks);
- 2) to strengthen Arctic human capital.

So the basic tasks of the Arctic social policy should be based with the identification of specific Arctic risks. Their absence allows us to be based on common principles for social policy in other (non-Arctic) regions. Thus, the main task of the researcher is to identify and assess specific Arctic risks.

The natural-and-climatic and anthropogenic risk factors for the health of the population living in the Arctic are described in detail in (Chashchin et al. 2014). Detailed analysis of the factors affecting human health in the Murmansk region, conducted on the basis of an analysis of medical and demographic indicators and metadata from the scientific literature is presented in (Kasparyan 2008). The health of the population

is closely linked to the quality of food, food security and safety, so it is clear that the social policy of the Arctic with regard to food security should be distinguished from "non-Arctic" one.

Summing up the results of previous researches, it is possible to identify the following features of Murmansk region as the Arctic territory: climatic, geographical, ecological, economic, demographic, medical, administrative and organizational, *etc.* An important problem for the researcher is to identify the genesis of these risks and their relationship to each other: they can be pan-northern, national, regional, direct or indirect, qualitative or quantitative. That is why such studies should be based on the principle of a system approach.

In this study the system approach was applied to take into account such heterogeneous factors of living conditions of the population in the Murmansk region as the vulnerability of existing ecosystems, low population density, low transport accessibility and specific demographic processes.

The term "indigenous food security" in this work was considered taking into account specific historical features of the resettlement and development of the Kola North. The population of the Murmansk region is very heterogeneous: it consists of

indigenous small peoples of the North: the Sami, the Komi-Izhemtsev and the Kolan-Nenets, the old residents of the Kola Pomors and the newcomers, who are already rooted here not in the same generation, and also of workers' shift teams. It should be noted that the official state statistics reflects only the data on the permanent population of the region, therefore in the study under the term "food security" we refer both to the indigenous and to the rooted population, considering the general and particular features of manifestations of health disorders related to nutrition.

For the purposes of the study, various methods were used: mathematical analysis of statistical data, comparative analysis, Data Mining method used to obtain information from weakly structured sources or field research materials. Verification of the results of the study was carried out on the basis of official analytical reports on the sanitary and epidemiological situation in the Murmansk region [2, 3, 4, 5] and comparison with the results of published scientific research.

During the research, the author's methodology was used to determine the regional specifics of the medical, demographic and epidemiological situation in the Murmansk region. The basis of the methodology was

a comparative analysis of qualitative and quantitative health indicators of the population of northern and non-northern regions, which made it possible to identify the regional and northern specifics of the Murmansk region. More details are given in (Kasparyan 2008). The material for analysis was official statistics and thematic scientific publications. The timeframe for the study was limited to a period of intensive social transformation in the Russian Federation for the period 1990-2005, and then expanded to 2008-2015.

Serious difficulties of the proposed methodology were connected with lacunae in the ranks of official statistical information. The mentioned difficulties were partially overcome by using Data Mining method and expert surveys.

As indicators of population health in the region were selected: demographic indicators (type of age, structure of the population, total fertility and mortality rates); medico-demographic indicators (infant mortality rate, mortality structure by main causes, life expectancy at birth); administrative and organizational data of the health system, medical and social indicators (incidence by major nosological units, disability and mortality), *etc.*

Results

The Murmansk region occupies 0.85% of the area of Russia, the population is 757 thousand people [7]. The region is rich in natural and resource potential that is large in volume and unique in composition and quality of raw materials. A variety of natural resources, a border location, a developed industrial complex and a transport network with large seaports on the Barents and White Seas, determine the important strategic and geopolitical significance of the Kola region not only in Russia but also at the world level. The economy of the Mur-

mansk region is largely based on the use of natural resource potential, the main role is played by mineral raw materials and biological (fish) resources, which determined its industrial specialization, represented by the mining, metallurgical and fishing industry complexes.

The regional specificity of the Murmansk region is characterized by a high dispersion of settlements, a high level of urbanization (up to 97%), an "old industrial" type of economic development and a high concentration of mono-profile cities. In re-

cent years, the problems of single-industry towns in the Murmansk region have sharply escalated, the number of which is 50% of all single-city cities located in the Arctic zone of the Russian Federation (Didyk et Ryabova 2014).

Discussion

Since 1990, that is, with the beginning of economic transformations, the population of the Murmansk region began to fall sharply, and during 27 years the region lost more than 35% of it. Until now, the trend towards the depopulation of the region has not been overcome.

The social processes that took place in this period among the indigenous and rooted population of the Murmansk region were not only multidirectional, but quite conflict. If a sharp decline in the population characterizes the rooted population of the region, indigenous peoples (mostly Sami), the most intense because of its traditional methods of farming, demonstrate a fairly stable trend towards stabilization of the population, despite the fact that this ethnic group is characterized by the lowest birth rate among all the northern peoples. Note, however, that experts explain this phenomenon mainly by competing with the demographic decline due to "assimilation," inter-ethnic marriages between the Sami and other ethnic groups. (Kozlov et. al. 2012, p. 119).

Intensive industrial development of the Kola North and the accompanying urbanization have led to the degradation of ecosystems and basically pushed back the Sami Indigenous people from much of their traditional areas further away from the mines.

The pan-northern specificity of the Murmansk region is related to the characteristic tendencies in the demographic structure of the population. The processes of population aging in the North are more intense than in the southern regions.

The majority of the Sami forced to resettle throughout the 20th century (Allemann 2013, Wheelersburg et Gutsol 2010). For indigenous peoples, whose basic diet consists, ideally, of products of local origin, this meant a deterioration in the conditions of traditional farming, fishing, hunting and the quality of pasture for reindeer. In turn, the rooted inhabitants of this territory are also vulnerable to complex processes of adaptation and social integration. Human life on the Kola North directly depends on the quality of imported food products (up to 90% of the total), and in some areas - from the conditions of northern delivery.

Such a different direction of the socio-economic processes mentioned above leads to an aggravation of the conflict zone between the indigenous and rooted population of the region, destroys its social structure, which in general is characteristic of other northern territories. All these conflict relations should be taken into account in the targeted social programs of social development in the North.

Thus, in the Murmansk region at the moment have been formed two social commonality, greatly varying among themselves, indigenous people and rooted (formerly new-comers) population. The main distinguishing characteristics are as the following:

Attribute	Indigenous people	Rooted (formerly new-comers) population
% of whole population	app. 2%	98%
Reflection in medical statistics	“Invisible” in official statistical sets	Inside the statistics sets
Main economic activity	Tundra reindeer hunters Seasonal hunting on sea animals Large-scale reindeer herding	Mining and processing industry Fish industry
Main northern impact factor	“Westernization”	Polar tension syndrome
Result health condition	STRESS	

Table 1. The difference in ingenious (Sami) and rooted (newcomers) population of the Kola Peninsula.

Despite the above presented differences the resulting factor of the Northern influence for both of social groups is strong and long-lasting (chronic) stress, having a significant impact on population health status.

On a number of parameters, the territories of the Arctic are classified as zones of severe discomfort, and some areas are characterized by extreme conditions of human activity. The risk factors are heterogeneous, which allows them to be grouped together. Being based on the functions of social pol-

icy, they can be broken down into factors that can be reduced or eliminated (and therefore prevented), and factors that cannot be avoided.

The quality of nutrition of the population of the Murmansk region, directly or indirectly, is affected by many factors that are heterogeneous in nature. The following groups of factors can be distinguished (Chashchin et al. 2014, Kasparyan 2007, 2008):

I. Unrecoverable:

1.1. Natural and climatic:

- cold, burdening the course of pathologies and exposure to toxic substances;
- deficiency of solar insolation, resulting in a deficiency of vitamin D;
- long snow period, which accumulates a significant amount of harmful precipitating substances;
- limited circulation and mobility of groundwater.

1.2. Anthropogenic

- global transport and accumulation of toxic substances in ecosystems;
- high content of toxic substances in marine fish and mammals.

II. Disposable in whole or partially:

2.1. Natural and climatic:

- deficiency of vitamins in local types of food;
- low level of drinking water mineralization;
- deficiency of fiber in the diet.

2.2. Anthropogenic:

- accumulation of toxic substances in settlements and around;
- low sanitary level.

2.3. Medico-demographic:

- accelerated processes of aging of the population;
- disorders of fat and carbohydrate metabolism;
- endocrinopathy.

2.4. Socio-economic:

- low income level;
- high cost of living;
- social degradation;
- low level of accessibility and quality of medical care.

In assessing the risks to the health of the population of the Murmansk region, based on statistical reports on morbidity, the risk factors were grouped into three groups: socio-economic (including anthropogenic, associated with the economic specificity of the region), climatic-and-geographic, medico-demographic and socio-cultural. The analysis of the statistical series was carried out in accordance with groups of factors for the period 2000-2005. Analysis of the series for 2005-2015 was complicated, first of all, due to connection with the transition to new forms of statistical reporting in the field of health care and, secondly, because of the absence of continuous series of data in official statistics. Nevertheless, the data set is quite sufficient to determine the main trends in the dynamics of the above factors.

The analysis showed that the influence of a group of socio-economic and climatic-geographical factors is growing, while the importance of the group of medico-demographic and socio-cultural factors is slowly decreasing. Growth in groups of socio-economic (0.3%) and climatic-geographical factors (0.75%) among the rooted population is caused by processes of depletion of adaptive resources, a decrease in the body's resistance, deterioration in food and nutrition, chronic morbidity (late diagnosis and low availability of qualified medical care) and increasing the burden of disease.

The same group of factors among indigenous peoples is due to the growing type of accumulation of harmful substances in the populations of marine animals and deer, which are the basis of nutrition of this population group. In addition, a product such as fish of local origin, which constitutes an essential part of the diet of northern peoples, begins to present a certain danger due to the accumulation of toxic substances (Kozlov et al. 2008a). However, the researchers note a trend towards a reduction in fish consumption by indigenous peoples of the north in general (Kozlov et al. 2012), and the Sami in particular (Kozlov et al. 2008b, Allemann 2013), which somewhat reduces the toxicological risks, but does not contribute to the formation of a healthy diet. As a result, the severe economic decline of the late 20th and early 21st centuries led to the fact that:

1. Consumption of staple food in the Murmansk region does not meet the recommended medical standards;

2. The diet of residents of the Far North, both in composition and quality of consumed products, do not meet the recommended standards [8].

As a result, population health of the population of the Murmansk region is characterized by a distinct tendency towards an increase in cancer morbidity, especially of the intestinal tract, and poisoning.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	increase to 2007, %
Circulatory system diseases	263.5	525.7	263.4	255.9	284	286.6	299.7	300.2	305	15.75
inc. high blood pressure	92.4	90.8	96.1	94	108.9	112.6	118.6	118.4	119.7	29.55
inc. cardiac ischemia	58.9	56	60.4	59	66.5	67.8	67.9	68.1	65.9	11.88
Anaemia	6.8	6	6.5	6.6	7.9	8	8.9	8.9	9.7	42.65
Endocrine system diseases, metabolic disease	80	70.8	74.1	72.9	91.1	95.2	85.8	100.1	108.4	35.50
inc. obesity	7.4	7.2	6.1	7	7.8	7.9	8.2	8.3	10.1	36.49
Digestive diseases	95.6	85.7	91.7	90.8	104.6	107.7	130.6	130.8	140.1	46.55
inc. gastric and peptic ulcer	18.1	15.3	15.4	14.6	15.1	14.7	14	14	13.8	-23.76
Pancreatic disease					12.8	12.8	14.2	14.3	15.6	21.88

Table 2. Morbidity of the adult population of the Murmansk region, associated with malnutrition, ‰ [2, 3, 4, 5].

As a result of an unbalanced diet for the last eight years, the incidence of gastrointestinal diseases (+46.5%), anemia (+42.65%) and obesity (+36.7%) has sharply increased in the Murmansk region. Additional reasons that affect the level of nutrition among the rooted population are high salt intake and low level of physical activity, which is directly related to lifestyle. It has resulted in such pathological conditions as dyslipidemia, hyperglycemia, excessive

weight and high blood pressure.

"Westernization" of indigenous life style, as well as processes of pollution of their habitat, the spread of persistent toxic substances and global warming lead to specific trauma, such as endocrine manifestations of the metabolic syndrome.

Both categories of the population suffer from the growth of high blood pressure, coronary heart disease, diabetes and vitamin D deficiency.

Conclusion

The results of the study describe the medical and demographic situation in the Murmansk region, related to the quality of nutrition in this region. A sharp increase in the incidence of diseases of the gastroin-

testinal tract requires the adoption of urgent preventive measures. It points to the need for scientific development of the relevant areas of Arctic medicine at the regional level as a health protection system

that is most effective for the conditions of the Far North.

From the above analysis it is obvious that it is necessary to include food quality assurance programs and sufficient diversity for the population of the North, to intensify activities in the field of social policy in this area. The purpose of government programs should be to reduce, if not eliminate, the risks and threats associated with food safety, taking into account the characteristics of nutrition of indigenous and

rooted populations. In addition, it is necessary to organize continuous monitoring of the quality and safety of food products of both local and imported products. For the sake of justice, it should be noted that positive changes are taking place in this respect, which, we hope, will significantly improve the quality of the population's health in the Murmansk region and will help to preserve the human capital of the Far North.

References

- ALLEMANN, L. (2013): The Sami of the Kola Peninsula. About the life of an ethnic minority in the Soviet Union. *Samisk Senters Skriftserie*, 19: 1-157.
- CHASHCHIN, V. P., POPOVA, O., ODLAND, Y.U., GUDKOV, A. B. and KOVSHOV A. (2014): Kharakteristika osnovnykh faktorov riska narusheniy zdorov'ya naseleniya, prozhivayushchego na territoriyakh aktivnogo prirodopol'zovaniya v Arktike. *Ekologiya cheloveka*, 1: 3-12. (In Russian).
- DIDYK, V. V., RYABOVA L. A. (2014): Monogoroda rossiyskoy Arktiki: strategii razvitiya (na primere Murmanskoy oblasti). *Ekonomicheskiye i sotsial'nyye peremeny: fakty, tendentsii, prognoz*, 4 (34): 84-99. (In Russian).
- KASPARYAN ZH. E. (2007): Severnaya Spetsifika: Problemy Invalidnosti I Zadachi Formirovaniya Sotsial'no-Ekonomicheskoy Politiki VMurmanskoy Oblast'/Sever. URL: http://www.kolasc.net.ru/russian/sever07/sever07_2.pdf. (In Russian).
- KASPARYAN ZH. E. (2008): Vyyavleniye regional'noy spetsifiki invalidnosti s tsel'yu razrabotki effektivnykh mer sotsial'no-ekonomicheskoy politiki v Murmanskoy oblasti. Sotsial'naya rabota v XXI veke: sovremennyye metody i tekhnologii: mat. Vseross. nauchn.-prakt. konf. – Novosibirsk: izd-vo NGTU, pp. 101-108. (In Russian).
- KOZLOV, A., BORINSKAYA, S., VERSHUBSKY, G., VASILYEV, E., POPOV, V., SOKOLOVA, M., SANINA, E., KALJINA, N., REBRIKOV, D., LISITSYN, D. and YANKOVSKY, N. (2008a): Genes related to the metabolism of nutrients in the Kola Sami population. *International Journal of Circumpolar Health*, 67 (1): 56-66.
- KOZLOV, A., LISITSYN, D. V., KOZLOVA, M. A., BOGOYAVLENSKIY, D. D., BORINSKAYA, S. A., VARSHAVER, E. A., VERSHUBSKAYA, G. G., KAL'INA, N. R., LAPITSKAYA, E. M. and SANINA, E. D.-M. (2008b): Kol'skiye saamy v menyavanii mire. Kollektivnaya monografiya Institut Naslediya, IL «ArktAn-S», 101 p. (In Russian).
- KOZLOV, A. I., KOZLOVA, M. A., VERSHUBSKAYA, G. G. and SHILOV, A. B. (2012): Zdorov'ye korenogo naseleniya Severa RF: Na grani vekov i kul'tur. RIO PGGPU Perm'. pp. 165-173. (In Russian).
- WHEELERSBURG, R. P., GUTSOL, N. (2010): Traditional Saami reindeer herding village resource territories on the western Kola Peninsula, Russia. *Polar Record*, 46(03): 222-232.

Web sources / Other sources

[1] Arctic zone of the Russian Federation means a part of the Arctic which includes, in full or in part, the territories of the Republic of Sakha (Yakutia), Murmansk and Arkhangelsk provinces,

Krasnoyarsk territory, Nenets, Yamal-Nenets and Chukchi autonomous districts (Russian Federation Policy for the Arctic to 2020).

[2] O sanitarno-epidemiologicheskoy obstanovke v Murmanskoy oblasti v 2010 godu / Upravleniye Rospotrebnadzora po Murmanskoy oblasti; pod red. k.m.n. zasluzhennogo vracha RF L.A.Lukichevoy. Murmansk, 2010. URL: http://51.rospotrebnadzor.ru/document/doclad/-/asset_publisher/Js74/document/id/127849;jsessionid=1E3006AC6CFEE5082598B6728F1133F4?redirect=http%3A%2F%2F51.rospotrebnadzor.ru%2Fdocument%2Fdoclad%3Bjsessionid%3D1E3006AC6CFEE5082598B6728F1133F4%3Fp_p_id%3D101_INSTANCE_Js74%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-1%26p_p_col_pos%3D1%26p_p_col_count%3D2 (accessed: 26.03.2017)

[3] O sanitarno-epidemiologicheskoy obstanovke v Murmanskoy oblasti v 2012 godu / Upravleniye Rospotrebnadzora po Murmanskoy oblasti; pod red. k.m.n. zasluzhennogo vracha RF L.A.Lukichevoy. Murmansk, 2013. URL: http://51.rospotrebnadzor.ru/document/doclad/-/asset_publisher/Js74/document/id/127849;jsessionid=1E3006AC6CFEE5082598B6728F1133F4?redirect=http%3A%2F%2F51.rospotrebnadzor.ru%2Fdocument%2Fdoclad%3Bjsessionid%3D1E3006AC6CFEE5082598B6728F1133F4%3Fp_p_id%3D101_INSTANCE_Js74%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-1%26p_p_col_pos%3D1%26p_p_col_count%3D2 (accessed: 26.03.2017)

[4] O sanitarno-epidemiologicheskoy obstanovke v Murmanskoy oblasti v 2013 godu / Upravleniye Rospotrebnadzora po Murmanskoy oblasti; pod red. k.m.n. zasluzhennogo vracha RF L.A.Lukichevoy. Murmansk, 2014. URL: http://51.rospotrebnadzor.ru/document/doclad/-/asset_publisher/Js74/document/id/127849;jsessionid=1E3006AC6CFEE5082598B6728F1133F4?redirect=http%3A%2F%2F51.rospotrebnadzor.ru%2Fdocument%2Fdoclad%3Bjsessionid%3D1E3006AC6CFEE5082598B6728F1133F4%3Fp_p_id%3D101_INSTANCE_Js74%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-1%26p_p_col_pos%3D1%26p_p_col_count%3D2 (accessed: 26.03.2017)

[5] O sanitarno-epidemiologicheskoy obstanovke v Murmanskoy oblasti v 2014 godu / Upravleniye Rospotrebnadzora po Murmanskoy oblasti; pod red. k.m.n. zasluzhennogo vracha RF L.A.Lukichevoy. Murmansk, 2015. URL: http://51.rospotrebnadzor.ru/document/doclad/-/asset_publisher/Js74/document/id/127849;jsessionid=1E3006AC6CFEE5082598B6728F1133F4?redirect=http%3A%2F%2F51.rospotrebnadzor.ru%2Fdocument%2Fdoclad%3Bjsessionid%3D1E3006AC6CFEE5082598B6728F1133F4%3Fp_p_id%3D101_INSTANCE_Js74%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-1%26p_p_col_pos%3D1%26p_p_col_count%3D2 (accessed: 26.03.2017)

[6] Osnovy gosudarstvennoi politiki Rossiiskoi Federatsii v Arktike na period do 2020 goda i dal'neishuyu perspektivu [Principles of Russian Federation State Policy in the Arctic up to 2020 and Further], utv. Prezidentom RF 18.09.2008. Pr-1969. [In Russian]. Russian Federation Policy for the Arctic to 2020.

[7] Otsenka chislennosti postoyannogo naseleniya na 1 yanvarya 2017 goda i v srednem za 2016 god. Rosstat. URL: http://www.gks.ru/free_doc/new_site/population/demo/PrPopul2017.xls, (accessed: 26.03.2017).

[8] Socio-economic strategy of Murmansk region till 2025. (Extracts from the "Socio-economic strategy of Murmansk region till 2025" Translation from Russian to English: Anna Trubkina, Finnarents), 2011. / URL: <http://www.barentsinfo.org/loader.aspx?id=db2be5c2-8ef4-43da-9b92-3c7a1c08655a> (accessed: 26.03.2017).