HEALTH AND ENVIRONMENT: THE URGENT PROBLEM OF MODERN INTERDISCIPLINARY RESEARCH[1]

The problem of the relationships between humans and the environment is becoming increasingly urgent, which is reflected in studies of medical geographers, anthropologists, and scientists of other disciplines. The scope includes theoretical and experimental research on natural and anthropogenic risk factors, medico-geographical consequences of regional changes of the environment, population health of urbanized territories, background factors promoting the spread of infectious and parasitic diseases, organization of health care, etc. The interest to this problem has increased as a result of new challenges of the last decades, namely, global change of natural environment, increased population migration, appearance of a new group of "emerging" diseases, etc. The results of these research efforts have been presented at numerous medico-geographical and environmental anthropology conferences.

One of the sections of the Regional Conference of the International Geographical Union (IGU) held in Moscow in August of 2015 was devoted entirely to the issue of "Health and Environment." The section hosted 28 oral and 7 poster presentations from 12 countries.

Prior to the Regional Conference, the IGU Commission "Health and Environment" conducted a scientific and practical seminar on medical geography and human ecology in the city of Vladimir. Such workshops are a long-standing tradition of the Commission which organizes them immediately prior to the congresses or regional conferences in the hosting country. The 2015 seminar was organized by the Faculty of Geography of the Lomonosov Moscow State University and the Department of Biology and Ecology of A.G. and N.G. Stoletov Vladimir State University. The seminar was attended by 45 scientists from 7 countries; 19 oral and 11 poster presentations were made; the themes of the presentations were related to the most important modern problems.

One of the main traditional research areas is the effect of various environmental factors on the population health, which covers both the role of the individual components and their combined effects. Many researchers addressed one of the most important issues of this field of studies – the meteorological factor. The presentations included works on the bio-climatic and meteorological conditions in the Central (E. Kulagina et al.) and the North-Western regions of Russia (E. Semina et al.; M. Trubina) and on heat waves in the Kuban region (E. Carvajal Ciomina et al.). Natural hazards in Europe were analyzed by E. Semina et al. The role of geochemical factors (the content of arsenic in drinking water) in the spread of skin tumors was discussed by Y. Xia using Inner Mongolia as an example. Influence of a complex of environmental factors on the population health of an industrialized area was demonstrated on the example of the Vladimir region (Trifonova et al.). The study noted that in recent years there has been a continuous increase in the incidence rate in the populations of all age groups, which the authors attributed mainly to poor environmental conditions. Local geographical factors and their impact on health in Chechnya were analyzed by H. Eldarova.

Allergy has long been one of the most common problems of the population of

[1] The review is based on the Book of Abstracts of International Geographical Union (IGU) Commission on Health and Environment Pre-Conference Meeting on Medical Geography and Human Ecology, 13–16 August 2015, Vladimir, Russia. Vladimir, 2015. – 35 p. and the IGU 2015 Book of Abstracts, International Geographical Union: Moscow, 2015. – pp. 516–556.

developed countries. The role of biotic factors was demonstrated in the study on the distribution range of plants-allergens in Russia (Dikareva, Rumyantsev) who studied the main pattern of their distribution. A presentation by O. Konstantinova et al. was devoted to intoxication from snake-bites in the Republic of Guinea. The use of folk remedies by local communities was discussed on the example of the population in Maharashtra, India (Ravindra G. Jaybhaye, Bhaskar I. Gatkul). These interdisciplinary studies, based on traditional methods of biogeography, ecology, and human health geography, are a good example of cooperation between experts in different areas.

One of the problems of human ecology on the agenda at the beginning of the XXI century is the problem of population aging. This issue has been studied relatively well in China, where the share of the older population is growing because of the government demographic policy. There is now a substantial territorial differentiation of elderly population and its growth rate (Y. Cheng et al.). A faster growth of the elderly population is observed in rural areas, while the quality of life for people over 65 is much higher in large cities, due to the greater availability of medical care, medical drugs, and higher quality food. Natural and socio-economic factors play the significant role: a greater percentage of older people are in areas with a mild climate and a well-developed social infrastructure. The role of lifestyle for healthy aging is emphasized by W. Wang et al.; L. Wang et al. Spatial aspects of the health of older people in big cities are considered by S. Yang, Q. Zhu who used one of the world's largest cities, Beijing, as an example. The influence of environmental factors was analyzed as a factor of the longevity phenomenon. The conference also discussed the results of studies on similar problems in Europe (for example, Luxembourg by B. Koeppen et al.). The purpose of this kind of research is the creation of forecasts and making the information available to public authorities to improve the population policy and health protection measures.

Another important topic in modern research on medical geography and human ecology is urban health. Spatial and temporal patterns of population growth in large cities in China were discussed by Wang Wuyi et al. Conventional studies have focused on different aspects of the relationship of the environment and health. The results of assessment of the impact of air pollution on environmentally-dependent diseases were presented by Wang Wuyi et al. (Y. Cheng et al. and Xiaofeng Gao, Huiping Liu. The relationships between disease incidence in various population groups and the location of large industrial enterprises for a large industrial center (the city of Voronezh, Russia) were discussed by S. Kurolap et al. The scientists demonstrated that the use of GIS technology is a reliable tool for presentation of spatial differentiation of disease incidence and can be used in development of long-term health care programs for the populations of large cities.

A study conducted in St. Petersburg among the students who come to study from various regions with different climatic conditions and cultural and ethnographic characteristics focused on problems of physical and psychological adaptation (Y. Scoryk et al.). The urban environment has an impact on the physical and psychological state, however, this issue remains poorly understood.

Mortality is one of the key indicators of the state of public health. The territorial differences in the distribution of this indicator in the Russian Federation were considered by S. Timonin. The regions with the highest and lowest values of mortality were identified by N. Shartova, S. Malkhazova. The authors made an attempt to explain the differences by the influence of historical and contemporary natural and socio-economic factors.

Assessment of environmental and socio-economic values provided by urban ecosystems (climate regulation, maintenance of green spaces, etc.) allows identification of the benefits that may be received by society (the economy, health

and well-being of the population) and the environment from the use of natural capital without additional investment. Identification of the key service functions as the structural elements of the ecological framework allows cities to assess their importance for improving the quality of the environment and health and well-being of the population (D. Dushkova et al.).

A new direction in environmental anthropology research is the study of the impact of lifestyle on health and the identification of risk factors. Studies in the US have identified the main causes of ill health in post-industrial countries, i.e., insufficient physical activity and poor diet, leading to the spread of cardiovascular disease, type II diabetes, and obesity (E. West). A study conducted in Romania by A.M. Talos showed the spatial differentiation in the level of health of the population caused by differences in lifestyle.

A significant number of studies were devoted to the territorial organization of the health care system, access to health care for the various categories of the population, and the international strategy for "health for all" (Global health) (T. Krafft, E. Pilot, Wang Li). Examples from different countries (India, Canada, Romania, and other European countries) were used to consider regional specificity of the work of health care services (M. Rosenberg, K. Wilson, L.K.P. Prem, A. Banerjee; K. Wilson et al.; A. Cruceanu et al.; L. Dumitrache et al.).

Traditionally, medical geography has focused on the geography of diseases caused by live disease-causing agents. These studies are aimed at identifying patterns of distribution of certain diseases or entire groups of diseases and development of new or improvement of existing methods of spatial-temporal analysis. Thus, the results of mathematical and cartographic modeling of tularemia in the Smolensk region (Russia) were presented by T. Vatlina; a retrospective analysis of the spread of plague in Europe was presented by R. Yue; a study on the spread of waterborne diseases (a case study of India) was presented by B.I. Gatkul; and the use of cartographic methods to study the propagation of natural focal disease in Russia was presented by S. Malkhazova et al. Improvement of methodologies of landscape-malaria regionalization conducted on the example of southern Uzbekistan was discussed by E. Soldatova, V. Mironova. Applied aspects of the geography of natural focal diseases in Russia were considered in a case study on their impact on tourism activities (S. Malkhazova et al.).

Scientific discussion of the most urgent issues of modern medical geography and human ecology allows prioritizing problems related to the area "Health – Environment," which need to be addressed in order to improve the quality of life and to better understand the modern natural and socio-economic processes that determine the level of public health.

Svetlana M. Malkhazova,
Varvara A. Mironova