

SOME ASPECTS OF THE STUDY OF MEDICAL GEOGRAPHY

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Abstract. This article studies the theoretical and practical issues of medical geography. In fact, this science analyzes the relationship between humans and the environment based on an ecological and geographical approach. In our modern world, in the era of environmental problems, pandemics and socio-economic changes, the importance of medical geographical research is increasing. In this article, we will provide information about the purpose, tasks, practical and theoretical work of medical geography.

Key words: medical geography, nosogeography, GIS, climate change, ecology, environmental problem, pandemic.

НЕКОТОРЫЕ АСПЕКТЫ ИЗУЧЕНИЯ МЕДИЦИНСКОЙ ГЕОГРАФИИ

Аннотация. В данной статье рассматриваются теоретические и практические вопросы медицинской географии. По сути, эта наука анализирует взаимоотношения человека и окружающей среды на основе эколого-географического подхода. В современном мире, в эпоху экологических проблем, пандемий и социально-экономических изменений, значение медико-географических исследований возрастает. В данной статье мы представим информацию о целях, задачах, практической и теоретической работе медицинской географии.

Ключевые слова: медицинская география, нозогеография, ГИС, изменение климата, экология, экологическая проблема, пандемия.

It is known that human development is always in motion, as society develops, science and technology, scientific views also change and develop. The study of the causes and factors of modern human diseases requires studying

not only the organism, but also the ecological state of the environment in which it lives. This makes it possible not only to know the causes of diseases, but also to prevent diseases. Medical geography serves to prevent diseases, optimize health services and ensure sustainable development by studying the natural, social and economic factors affecting the health of the population on a territorial basis. In higher educational institutions of the Republic of Uzbekistan, medical geography is taught as an important component of economic and social geography courses and is an important component of this discipline. In this regard, the main goal of the discipline is to identify factors affecting the health of the population and develop scientifically based recommendations. Theoretically, the science is closely related to medicine (epidemiology, hygiene), geography (ecological and social geography), and other sciences (demography, ecology). Factors affecting human health are divided into three groups: natural, genetic-biological, and socio-economic. For example, climatic factors (temperature, humidity) directly affect the spread of diseases, while industry and transport serve as a breeding ground for viruses.

The theoretical basis of medical geography is based on the principle of the interdependence of man and the environment. The history of the theoretical formation of this science dates back to ancient times. First of all, we find the first information about this science in the scientific works of Hippocrates. In his work "On Air, Water and Places", the scientist scientifically substantiated the connection between human health and the natural environment. In addition, we can also find information and news about the science in the works of great Central Asian thinkers. For example, in the works of Abu Ali ibn Sina (Avicenna) and Abu Bakr ar-Razi, there are ideas about the connection between nature and diseases. In particular, these scientists emphasized in their works the role of air, ecology and geographical location in the spread of plague.

In recent years, important work has been carried out in the Republic of Uzbekistan by A.S.Soliev, M.I.Nazarov, I.R.Turdimambetov, N.Q.Komilova,

A.Ravshanov, D.Zaynutdinova, H.E.Egamkulov, N.F.Latipov, K. Utarbaeva and others. The works of N.Q. Komilova “Medical Geography and Global Health” (2019), “Theoretical and Practical Issues of Medical Geography” (2016) are the main sources of this science. Currently, nosogeography is aimed at a territorial analysis of global health problems.

Several areas have been identified in the research conducted:

1. Studies by far-flung foreign scientists, focusing on the interaction between the socio-economic development of regions, the ecological environment and environmental processes. Many approaches to nosogeography and ecology focus on the interaction of humans and their economic activities with the environment.

Table 1

Scientists who have conducted research in medical geography and nosogeography

	Scientists from far abroad	CIS scientists	Local scientists
Names of scientists	J.May, R.Park, M.Birkin, L.Jacobs, H.Giardet, B.Commoner, R.LeGates, R.Forman, K.Seto, W.McDonnell, J.Gehl, H.Mitchell, M.Goodchild	Ю.Г.Саушкин, В.А.Хомич, Г.М.Лаппо, А.Л.Калабеков, Е.Н.Перцик, Н.В.Петров, О.Н.Яницкий, Э.Ю.Безуглова, В.Р.Битюкова, В.Г.Глушкова, В.Л.Глазычев, М.А.Глазовская, В.С.Вишаренко, В.И.Соковнин, Н.С.Касимов, А.Г.Махрова, М.П. Ратанова	A.S.Soliyev, K.T.Tursunov, N.K.Komilova, I.R.Turdimambetov, M.I.Nazarov, M.O.Khamroyev, A.Kh.Ravshanov, D.K.Zaynutdinova, H.E.Egamkulov, N.F.Latipov, K.Utarbaeva

The table was developed by the authors based on a literature review.

2. The research of scientists from the CIS and Russia focused on the factors of the emergence and development of diseases, as well as the relationship between urban-ecological, non-ecological and geo-ecological processes, and the information and cartographic support of environmental management.

3. The studies of local scientists have extensively covered the issues of the emergence of the nosogeographical situation of the Republic of Uzbekistan

and their causes and consequences. Emphasis is placed on the ecological problems of the regions and the health of the population.

The following can be cited as the main methods of medical geography in this period:

- Cartographic method (mainly GIS): This research method became the basis for mapping the incidence and health status of regions, creating nosogeographic and medical geographic atlases. Using this method, the first medical geographic atlases of the Republic of Uzbekistan were created.

- Statistical-mathematical method: calculation of coefficients, correlation and regression analysis. Certain results were achieved based on these methods in the studies of scientists such as D.K.Zaynutdinova, H.E.Egamkulov, N.F.Latipov.

- Geographic comparison and system-component method: If the geographical comparison method serves to identify and assess differences between regions, the system-component method reveals the internal causes of these differences, complex relationships between factors. When both methods are used together, medical geographical research becomes more accurate, deep and practical.

- Modeling: The modeling method is one of the main tools in medical geography for in-depth analysis of the spread of diseases, their prediction and development of effective measures. Its effectiveness increases even more, especially when used in conjunction with modern information technologies.

- Questionnaire and Expert Survey: These methods are important in collecting data on the health of the population, the territorial characteristics of diseases, and the healthcare system.

In general, the above methods are widely used in the analysis of disease prevention, the location of medical institutions, and nosocomial monitoring.

In conclusion, we believe that this science will be of great help in studying certain environmental problems and climate change issues in

Uzbekistan. Also, nosogeographic assessments by region contribute to the development of health programs, and on a global scale, science contributes to the formation of the activities of the World Health Organization. In the future, the development of research based on GIS and artificial intelligence is expected. The theoretical and methodological foundations of medical geography are based on ecological, integrated and territorial approaches. Science plays an important role in solving problems of preserving human health and sustainable development. It is necessary to further develop this direction in regions similar to Uzbekistan, strengthen scientific research and practical application. For students and specialists, in-depth mastery of this knowledge will bring success in professional activities.

REFERENCES

1. Medical Geographical Atlas of Uzbekistan. Part 1. Jizzakh and Syrdarya regions. Edited by N.K. Komilova. – Tashkent: “State Enterprise for Scientific Production of Cartography”. 123 – p.
2. Medical Geographical Atlas of Uzbekistan. Part 2. Tashkent city and Tashkent region. Edited by N.K. Komilova. – Tashkent: “State Enterprise for Scientific Production of Cartography”. 295 – p.
3. Medical Geographical Atlas of Uzbekistan. Part 3. Republic of Karakalpakstan and Khorezm region. Edited by N.K. Komilova. – Tashkent: “State Enterprise for Scientific Production of Cartography”. 296 – p.
4. Medical Geographical Atlas of Uzbekistan. Part 3. Kashkadarya and Surkhandarya regions. Edited by N.K. Komilova. – Tashkent: “State Enterprise for Scientific Production of Cartography”. 212 – p.
5. Komilova, N. K., Maxmudov, B. X., & Yo‘ldoshev, J. S. (2025, December). AHOLI SALOMATLIGIGA TA’SIR ETUVCHI OMILLAR VA KASALLIKLARNING IJTIMOY GEOGRAFIK TAHLILI (QORAQALPOG‘ISTON RESPUBLIKASI MISOLIDA). In *Conferences* (Vol. 1, No. 6, pp. 60-62).
6. Комилова, Н., & Бурунов, Ш. (2025). ВОЗДЕЙСТВИЕ ТУРИЗМА НА ОКРУЖАЮЩУЮ СРЕДУ. *Экономика и социум*, (8 (135)), 600-607.
7. Komilova, N. K. (2024). The importance of anthropogenic influence in assessing the ecological condition of cities in Uzbekistan (In the case of Navoi). *Baghdad Science Journal*, 21(4), 1214-1214.

8. Latipov, N. F., & Komilova, N. K. (2022). INDICATORS OF URBAN ENVIRONMENT ASSESSMENT AND CRITERIA FOR THEIR SELECTION. Экономика и социум, (11-1 (102)), 129-134.

9. Latipov, N. (2022). Shaharlar va ularning ekologik muhit bilan bog'liqligi. Scienceweb academic papers collection.

10. Latipov N.F. (2025). THE SOCIO-GEOGRAPHICAL FACTORS INFLUENCING ENVIRONMENTAL CONDITIONS AND PUBLIC HEALTH IN INDUSTRIALISED CITIES. Экономика и социум, (6-2 (133)), 472-475.

11. Karshiboevna, K. N., & Faxriddin o'g'li, L. N. Urboecology-Interdisciplinary Synthesis of Geography and Ecology.