

Development of Specialized Maps Based on the Analysis of the Medical Geographical Situation of Uzbekistan (on the Example of Jizzakh and Siyrdarya Regions)

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ABSTRACT

It is known that the emergence and regional spread of diseases among the population depends directly on the natural and socio-economic conditions, especially the ecological condition of the environment. The emergence of such a nosoecological situation is leading to the emergence and geographical spread of many diseases in some regions. Circulatory system, malignant tumors, respiratory diseases, infectious diseases are among the leading causes of death among the population. In the natural and social environment, there are natural-social foci that cause various diseases. Research works such as their identification, description, mapping are based on the system of taxonomic units of local natural geographical conditions, relief structure, microclimate, hydrochemical and geochemical properties of surface, groundwater and soil, flora and fauna, landscape complexes, as well as socio-economic and social. Can be done by analyzing the impact of demographic factors. Nosogeographic complexes are a regional combination of various diseases that occur in a certain natural geographical and socio-economic, social environment, under their influence. Unless we study the anomalies from an ecological point of view, we cannot solve the problem [1].

Proposed Method and Scientific Approaches to Provide a Scientific Solution to the Problem

At the same time, medical geographical atlases created by MSU scientists are taken as a sample, maps are used conditional symbols, colors selected in accordance with the essence of the content, cartographic methods reflecting diseases. Geoinformation technologies (ArcGIS, QGIS, Mapinfo) were used. Through the constant complementarity of databases based on GAT technologies, the work of creating maps, plans, their processing and data integration was considered, and databases were rapidly formed using new cost-effective methods. The proposed medical geographical atlas was considered cost-effective, not inferior to foreign analogues. The research process also used methods such as field research and aerospace, cartographic, mathematical modeling, statistical analysis, geographic information systems.

Introduction

Humanity has struggled with many diseases throughout its history. Infectious diseases, in particular, have become more prevalent among the population. According to its scope, such infectious diseases are called pandemics, epidemics. Among the peoples of Central Asia, a number of diseases, such as plague, malaria, tuberculosis, and rickets, have caused partial or mass extermination. The characteristics of the geographical distribution of these diseases depended largely on the natural and social geographical conditions of the regions, the lifestyle and traditions of the population [1]. The effects of the Spanish flu pandemic, which has killed nearly 100 million people in the last hundred years among a wide range of diseases, have had an impact on the nosogeographic situation, especially in Europe and the America. Analyzes show that the deterioration of the environment, the endless domination of man over nature, the deterioration of the ecological situation, as well as the spread of related diseases on earth, pose new challenges to medical geography, which studies the causes and patterns.

The rapid development of science and technology, the continuous increase of human impact on nature, and a number of negative changes in the natural environment have a significant impact on human health. Accelerated urbanization is causing problems such as air, water and soil pollution [2,3]. The spread of the 2019 novel coronavirus disease (COVID-19) has engulfed the world with a rapid, unexpected, and far-reaching global crisis. In the study of COVID-19, Geographic Information Systems (GIS) and Remote Sensing (RS) have played an important role in many aspects, especially in the fight against COVID-19 [3]. The development of geographical maps that meet modern requirements and their application in production is of great importance, both theoretically and practically. In this regard, the creation of medical-geographical maps that assess the health of the population and reflect the natural-ecological, socio-economic and demographic factors affecting it is an urgent problem [4]. Today, along with the rapid growth of the world's population, the need to reduce the incidence of disease, especially some of the diseases of its civilization, indicates the need to study not only at the international level, but also at the regional level. The resolution adopted at the 70th session of the United Nations General Assembly reads: It is necessary. " Therefore, the reduction of mortality, including the reduction of the incidence of diseases, requires the strengthening of related research, further improvement of the regional organization of health care, optimization of the tanatogeographic and nosoecological situation [2].

The Main Purpose of the Study

Based on the analysis and assessment of regional differences in the medical geographical conditions of Jizzakh and Syrdarya

regions, the development of a series of maps of the nosodemographic and nosoecological situation, determining the level of negative environmental impact on public health, as well as substantiation of recommendations for sustainable development.

The Task of the Study

Study of the main factors influencing the nosoecological situation in the cities of the region, identification and assessment of the nosogeographic situation related to the health of the population in the regions; based on the analysis of the regional composition of the population, the development of scientific and practical recommendations to improve the medical geographical location of the regions. assessment of natural, socio-economic geographical factors affecting the health of the population; Analysis of changes in mortality and morbidity within the districts of Jizzakh and Syrdarya regions; to identify the main problems in the nosogeographic situation of the region and to predict the disease groups and types present in the population.

The Degree to which the Research Problem has been Studied

Medical geographic studies, including morbidity rates and the regional composition of diseases, have been studied by scientists from the former Soviet Union and the current CIS countries. Among them are, first of all, D.K.Zabolotny, E.N.Pavlovsky, A.A.Shoshin, A.V.Chaklin, A.P.Avtsyn, E.I.Ignatev, B.B.Prokhorov, E.L. Reich, V.P.Podolyan, A.A.Keller, A.G.Voronov can be included. Each of the above-mentioned scientists has contributed to the development of this or that branch of medical geography. In particular, on theoretical issues of medical geography AA Shoshin, D.K. Zabolotny, E.L. Reich; Scientific research on medical geographical zoning was carried out by B.B. Prokhorov, V.P. Podolyan, E.I. Ignatev, A.G. Voronov. As the founder of oncogeography, A.V. Chaklin, A.P. EN Pavlovsky laid the foundation for the doctrine of foci of infectious diseases that occur in certain landscapes. Geographers of Moscow State University have created many works on medical cartography, medical geography, cartographic developments, geographical atlases. In one of these atlases [5]:

- a. Determine the spectrum of the most diagnosed natural focal diseases observed over the past 15 years at the level of the subjects of the Russian Federation and the country as a whole;
- b. Quantify disease morbidity in both absolute and relative terms;
- c. Forecast incidence based on the types of dynamics of disease incidence using mathematical-cartographic modeling for the current natural focal diseases;
- d. Identify the most visual ways of cartographic representation of the dynamics of disease incidence;

- e. Carry out medical and geographic analysis of the territory for the spread of the basic nosofoms of natural focal diseases in the regions of the Russian Federation and in the territory of Russia as a whole.

Taken together, the maps allow assessing the persistence in the manifestation of the diseases and the degree of specific diseases spread risk of the territories. The results of analysis can be used for the purposes of health monitoring and targeted preventive measures, especially in the areas of new development and the areas affected by the recreational load. Among foreign scientists, J. May and others also played an important role in the development of medical geography [6]. It was noted that the main purpose of the proposed project is to develop a series of maps of the nosodemographic and nosoecological situation based on the analysis and assessment of regional differences in the medical geography of Uzbekistan, to determine the impact of environmental factors on public health, as well as recommendations for sustainable development. Scientists from Russia, the United States, Britain, Japan, Ukraine and other countries have made significant progress in this area. Research on the creation, study and application of medical maps is being carried out at Moscow State University (Russia), the University of California (USA), Oxford University (England) and the University of Tokyo (Japan).

In many countries around the world, a lot of attention is paid to a number of priority areas of medical geography, including research to determine the impact of climatic and geographical conditions on public health and the creation of medical and geographical maps. including: developed methods for monitoring the impact of climate on human health, developed nosogeographic maps of natural foci of the world's leading diseases (University of North Carolina); theoretical issues of medical ecology and human ecology were identified (Harvard University); alternative options for improving the quality of the health care system have been developed. The main purpose of the work is to develop a series of maps on the nosodemographic and nosoecological situation based on the analysis and assessment of regional differences in the nosoecological conditions of Jizzakh and Syrdarya regions, to determine the level of impact of environmental factors on public health, as well as recommendations for sustainable development. To do this, it is necessary to solve the following pressing problems: Collect data not only on administrative units, but also on altitude zones, specific natural geographical objects with special natural conditions.

In addition to statistical materials specific to the regions, the results of analysis of water, soil samples, field research, sociological surveys were used. Based on the results, nosogeographic maps of

regions, districts, as well as individual settlements were developed. At the end of the study, a medical geographical atlas of Jizzakh and Syrdarya regions is planned. Also, based on the assessment of natural, socio-economic factors affecting the nosogeographic situation in the region, problems related to public health were studied and recommendations for their solution were developed; epidemiological foci of some infectious diseases related to farm specialization and epizootic conditions were identified; regions were assessed for mortality and divided into tanotogeographic groups; the forecast of the dynamics of mortality and life expectancy and the future state of their indicators were analyzed; Differences in mortality and morbidity by age groups in different natural and economic zones of the region, i.e., in areas specializing in irrigated agriculture, desert-pastoral livestock, mountain-pastoral livestock, were identified [7].

The Final Result Obtaine

Taking into account the non-climatic features of the region, as well as a guide reflecting the seasonal changes in the atmosphere. A medical geographical atlas of Jizzakh and Syrdarya regions and an electronic platform have been created. This development is different from its analogues. Because it contains about 50 special medical cards, developed in sequence on specific topics. In addition to the maps of a complex nature, the Atlas provided by us includes maps dedicated to the types and groups of natural-ecological, social diseases, as well as maps of the history of diseases.

Conclusion

The study carried out natural-geographical monitoring based on the analysis and assessment of the natural-ecological and socio-economic-social geographical conditions of Jizzakh and Syrdarya regions in terms of public health. In order to study the geo-ecological and epidemiological situation in the districts, as well as recreational resources, especially balneological resources in the selected medical geographical areas were assessed; seasonal aspects of diseases, non-climatic changes in connection with the change of seasons, some types of diseases in relation to the location of the population in the highlands, differences in life expectancy, morbidity of certain disease groups (cardiovascular, respiratory, allergic) medium- and long-term forecasts have been developed to identify cases.

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