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SPECIFIC FEATURES OF THE SPREAD OF CERTAIN DISEASES IN SURKHANDARYA REGION

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ABSTRACT

This thesis analyzes the geographic characteristics of certain diseases prevalent in Surkhandarya region, their dynamics, and their association with socio-ecological factors. The relationship between the region's climatic conditions, soil structure, water supply, and living standards of the population and the spread of diseases has been examined. The research findings are of practical importance for improving the healthcare system and developing preventive measures.

Keywords: Surkhandarya region, medical geography, disease spread, climatic factors, ecology, demography, epidemiology.

INTRODUCTION

Surkhandarya region, located at the southernmost tip of the Republic of Uzbekistan, is distinguished by its unique geographic position, dry hot climate, diverse relief, and natural conditions. The region borders Kashkadarya to the north, Tajikistan to the east, Afghanistan to the south, and Turkmenistan to the west, covering an area of 20,800 km² with a population of 2.8 million people.

One of the main objectives of medical geography is to study the geographical patterns of public health and disease distribution. The spread of diseases in each region is determined by a combination of ecological, climatic, socioeconomic,

and demographic factors. A comprehensive study of this issue in Surkhandarya region enables effective planning within the healthcare system.

The relevance of the study lies in the fact that the incidence rates of a number of infectious and non-communicable diseases in the region are observed to be higher than the national average. This situation requires specific scientific analysis and geographic investigation.

AIMS AND OBJECTIVES OF THE STUDY

The main aim of the study is to identify the geographic characteristics of certain diseases prevalent in Surkhandarya region, their relationship with natural and social factors, and to develop scientific foundations for preventive measures.

Research objectives:

1. To study the physical-geographic and socioeconomic characteristics of the region;
2. To analyze the types and dynamics of diseases widely spread in Surkhandarya region;
3. To identify the climatic, ecological, and demographic factors affecting disease distribution;
4. To compile and analyze a map of the territorial distribution of diseases;
5. To develop recommendations for improving the healthcare system.

MAIN BODY

1. Physical-Geographic Characteristics of Surkhandarya Region

Surkhandarya region, the southernmost province of Uzbekistan, encompasses a variety of relief forms including the Hissar and Baysun mountain ranges, the Surkhan-Sherabad plain, and the Amu Darya valley. The region's climate is

sharply continental, characterized by summer temperatures reaching up to +45°C and relatively mild winters. Annual precipitation ranges from 200 to 600 mm, with significant differences between mountainous and lowland areas.

The Surkhandarya River and its tributaries are the main water sources of the region. The issue of water supply for the population is of great importance for public health, as drinking water quality is inadequate in some areas. This situation serves as one of the primary factors in determining the geography of waterborne diseases.

2. Widespread Diseases in the Region and Their Characteristics

According to medical statistical data, the following groups of diseases exhibit distinctive patterns of spread in Surkhandarya region:

2.1. Infectious Diseases

The region records relatively high rates of gastrointestinal infections, viral hepatitis A and E, and zoonotic diseases such as brucellosis. The hot climate, the population's engagement in agriculture and livestock farming, and inadequate sanitary and hygienic conditions in some areas create favorable conditions for the spread of these diseases. Brucellosis cases are more frequently recorded particularly in Termez, Sherabad, and Muzrabot districts, where large-scale cattle and sheep breeding is a traditional occupation.

2.2. Cardiovascular Diseases

Cardiovascular diseases remain one of the main causes of death and disability in the region. The loss of body fluids in hot climatic conditions and the effect of high temperatures on blood pressure play an important role in the spread of these diseases. In addition, the population's dietary culture — frequent consumption of

fatty lamb soups and high-fat foods — creates a basis for the development of hypertension and atherosclerosis.

2.3. Respiratory Diseases

Dust storms and dry air conditions in the region contribute to the spread of bronchial asthma, chronic bronchitis, and upper respiratory tract diseases. These conditions are more frequently recorded in Sherabad, Qumqo'rg'on, and Muzrabot districts — dry and dusty areas — as well as in settlements near industrial enterprises. In recent years, the impact of dust-salt storms originating from the drying of the Aral Sea on the region has also been increasing.

2.4. Oncological Diseases

Rates of liver and stomach cancer in the region have been recorded as higher than the national average. This is directly linked to the widespread prevalence of viral hepatitis and the use of pesticides and chemical fertilizers. The penetration of chemical substances into soil and water sources in agricultural areas forms geochemical risk factors for oncological diseases.

3. Analysis of Factors Affecting Disease Spread

It is appropriate to study the factors affecting the spread of diseases in Surkhandarya region by dividing them into three groups:

Natural-geographic factors: Hot and dry climate, water sources and their quality, elements in the soil composition (areas with high fluorine, arsenic, and nickel content), and sharp differences between high mountain and lowland areas determine the territorial distribution of diseases.

Ecological factors: The impact of industrial waste and agricultural chemicals on the environment, air and water pollution, and the ecological consequences of the Aral Sea drying are having a significant impact on the ecological situation of the region.

Socio-demographic factors: Population density, urbanization level, availability and quality of medical services, medical literacy among the population, traditional lifestyle, and dietary habits play an important role in shaping the social geography of disease distribution.

CONCLUSIONS

1. The specific features of disease spread in Surkhandarya region are directly related to the region's climate, ecology, population lifestyle, and socioeconomic conditions.
2. Infectious diseases, particularly zoonotic infections and gastrointestinal diseases, are more prevalent in livestock-farming areas, indicating the need for geographic medical mapping.
3. Hot climatic conditions create a favorable environment for the widespread occurrence of cardiovascular and respiratory diseases.
4. Geochemical factors — high concentrations of certain elements in soil and water — play an important role in the spread of oncological diseases.
5. Integrating the results of medical-geographic studies into the healthcare planning system will contribute to improving public health in the region.

RECOMMENDATIONS

1. To introduce a medical-geographic monitoring system at the regional level and create a digital map of disease distribution;

2. To develop targeted programs for improving water supply quality and modernizing water infrastructure;
3. To strengthen the prevention of brucellosis and other zoonotic diseases among the livestock-farming population;
4. To organize mass education and information campaigns to increase medical literacy among the population;
5. To regulate the use of chemical substances in agriculture and widely implement eco-friendly farming practices.

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