



IMPACT OF ECOLOGICAL RISK FACTORS ON HEALTH OUTCOMES IN
THE ERA OF GLOBALIZATION: A COMPARATIVE AND PATHOGENETIC
APPROACH

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INTRODUCTION

In the 21st century, the acceleration of urbanization and globalization processes has transformed environmental problems into significant global risk factors that directly and indirectly affect human health. Air pollution, deterioration of drinking water quality, and the increase in industrial and domestic waste have contributed to a marked rise in respiratory, cardiovascular, allergic, and oncological diseases. Therefore, ensuring environmental safety in modern urban settings has become one of the priority directions of public health protection.

Keywords: Environmental risk factors; Urbanization; Air pollution; Particulate matter; Cardiovascular diseases; Respiratory diseases; Public health; Pathogenesis.

Objective. The study aims to analyze environmental challenges arising from urban expansion and globalization processes and to substantiate effective preventive measures aimed at reducing ecological risks and protecting population health.

Materials and Methods. Indicators related to atmospheric air pollution, domestic and industrial waste accumulation, as well as water and soil degradation were analyzed in correlation with morbidity rates (respiratory, cardiovascular, oncological, and infectious diseases). The pathogenetic mechanisms of environmental factors and their effects on the human organism were evaluated based on contemporary scientific concepts. Additionally, a comparative analysis was conducted between highly urbanized areas and relatively ecologically stable regions. The impact of environmental risk factors on morbidity, disability, and premature mortality rates was assessed using a systematic approach.

Results. Rapid urban population growth, expansion of industrial sectors, and increased transport infrastructure have disrupted ecological balance. Consequently, significant environmental issues such as air pollution, degradation of water and soil resources, and accumulation of domestic and industrial waste have intensified. Atmospheric pollutants including particulate matter (PM_{2.5}, PM₁₀), nitrogen oxides, sulfur dioxide, and other toxic compounds are associated with increased prevalence of respiratory diseases, bronchial asthma, chronic obstructive pulmonary disease (COPD), cardiovascular disorders, and malignancies. Children and elderly populations are particularly vulnerable to these risk factors.



According to United Nations data, approximately 56% of the global population currently resides in urban areas, and this figure is projected to reach 68% by 2050. Urbanization, accompanied by industrialization and increasing transport emissions, significantly contributes to deteriorating air quality. A review of studies conducted in developing countries examining the relationship between urbanization and selected health indicators identified 11 studies that met the inclusion criteria, confirming a statistically significant association between environmental degradation and adverse health outcomes.

Conclusion. Unfavorable environmental conditions exert both direct and indirect negative effects on population health. Addressing these challenges requires a comprehensive and integrated approach, including strengthening environmental monitoring systems, ensuring sanitary-epidemiological safety, implementing modern medical technologies, and improving environmental awareness among the population. Sustainable urban development policies and preventive public health strategies are essential to mitigate ecological risks and reduce morbidity, disability, and premature mortality associated with environmental exposure.