Estimation of Health Risks from Climate Change-Related Hazards using the Example of Nuremberg, Germany

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Abstract:

Climate change, a major threat to society, drives significant public health hazards. The present study aimed to evaluate various climate-related aspects of public health relevance: heat, floods, wildfires, air pollution, allergies, and infectious vectors spread. Thresholds and danger levels for each criterion were determined via combined semi-quantitative and qualitative analyses, using parameters from literature and site-specific evaluations for Nuremberg, Germany. The analysis was also applied to the rural nearby county of Ansbach. The analysis revealed notable differences in risk levels between the two locations. These variations can be attributed to the contrasting urban and rural intrinsic characteristics across the locations, with the urban environment exhibiting higher risk levels. While the analysis was developed for the specific study area, it was designed to be adaptable to other regions, contingent upon the consideration of variations in assessment parameters such as atmospheric and geographic traits. The risk assessment methodology delineated hazards for contemporary conditions across five risk levels: minimal, low, medium, high, and critical. It also appraises prospective risk scenarios from the developed set of exposure drivers. The results are intended to serve as the basis for adaptation recommendations in order to support localized health impact valuations based on the identified risk levels.

Keywords:

Climate change, health risk assessment, extreme weather, hazards, urban, rural.