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EXPLORING CLIMATIC AND GEOGRAPHICAL DRIVERS OF HEPATITIS B VIRUS SPREAD IN KOHGILUYEH AND BOYER-AHMAD PROVINCE, IRAN

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Abstract

Background*: Hepatitis B virus remains a major public health concern worldwide. Environmental and geographical factors might influence its transmission dynamics in certain regions. This study examines the impact of climatic and geographical determinants on Hepatitis B virus incidence in Kohgiluyeh and Boyer-Ahmad Province, Iran, using geographical information system mapping.*

Methods*: Data on 741 Hepatitis B virus -positive patients over 2013-2022 were obtained from the Provincial Health Center, and their residential addresses were mapped for spatial analysis. Climatic variables, including mean annual temperature, maximum mean annual temperature, minimum mean annual temperature, mean annual evaporation, mean annual sunny days, mean annual frosty days, mean annual humidity, mean annual wind speed and mean annual rainfall as well as geographical variables such as elevation, slope, and land cover types, were analyzed using univariate and multivariate logistic regression models.*

Results*: Patients came from 129 points, including villages, towns, and cities. In the univariate analysis, mean annual humidity, mean annual rainfall, and mean annual wind speed demonstrated a protective effect, while increased mean annual sunny days was associated with a higher risk of Hepatitis B virus. Geographical factors revealed that urban areas, irrigated farm regions, and areas with lower elevations and slopes were at higher risk. In multivariate analysis, urban land cover and irrigated farmland, mean annual humidity, slope, and elevation were shown as the most important determinants.*

Conclusion*: Environmental factors appear to impact the transmission of Hepatitis B virus in Kohgiluyeh and Boyer-Ahmad Province by influencing human behaviors and activity and virus survival in the different geoclimatic conditions. These data support the development of public health messaging to include environmental risks in programs to prevent Hepatitis B virus.*

Keywords: *hepatitis B, climatic determinants, geographical factors, environmental health, geographical Information system, epidemiology, Iran*

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