

عنوان مقاله:

Geospatial analysis and modeling of COVID-19 incidence rates in Iran

محل انتشار:

اولین کنفرانس بین المللی و دومین کنفرانس ملی فناوری ها و کاربردهای نوین ژئوماتیک (سال: 1399)

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خلاصه مقاله:

The coronavirus pandemic (COVID-19) has become one of the most serious health crisis over the world within a blink of an eye. The disease was originated from Wuhan, one of China's provinces in late December. Iran's first infected case of COVID-19 was detected on February 19, YoYo. Qom province was the epicenter of the disease, which had the highest incidence rate among other provinces of Iran. In order to illustrate the spatial distribution of COVID-19 incidence rates, we applied Global Moran's I. To determine the location and intensity of high-risk regions, we employed Getis-Ord Gi* and Anselin Local Moran's I hot spot analyses. Moreover, we compiled a variety of 10 environmental, demographic, and socioeconomic factors as potential explanatory variables to investigate the spatial variability of COVID-19 incidence rates in Iran. Besides, we implemented global ordinary least squares (OLS) and local geographically weighted regression (GWR) methods to examine the spatial non-stationary relationships. Qom, Tehran, and Alborz are the top three provinces regarding high values of COVID-19 incidence. The distribution of incidence rates across Iran was spatially clustered. Regarding the results of hot spot analysis, five provinces, namely Qom, Tehran, Alborz, Qazvin, and Markazi were detected in high-high clusters, which made them significantly High-risk regions. Moreover, provinces located in the center of Iran were the hot spot areas due to their 99% of confidence levels. Two most uncorrelated explanatory variables were identified to be used in both models, namely the percentage of people over 5. and the percentage of urban population. GWR model could explain higher variations, due to its higher adjusted RY and lower AICc, which demonstrated Y% improvement of the model compared to OLS. In conclusion, spatial statistical information obtained from this modeling could provide general insights to authorities for .further targeted policies

کلمات کلیدی:

Spatial analysis, COVID-19, Iran, incidence rate, OLS, GWR

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