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Climate Change and Dengue Transmission in Lahore, Pakistan

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Abstract : Dengue fever is one of the most alarming mosquito-borne viral diseases. Dengue virus has been distributed over the years exponentially throughout the world be it tropical or sub-tropical regions of the world, particularly in the last ten years. Changing topography, climate change in terms of erratic seasonal trends, rainfall, untimely monsoon early or late and longer or shorter incidences of either summer or winter. Globalization, frequent travel throughout the world and viral evolution has lead to more severe forms of Dengue. Global incidence of dengue infections per year have ranged between 50 million and 200 million; however, recent estimates using cartographic approaches suggest this number is closer to almost 400 million. In recent years, Pakistan experienced a deadly outbreak of the disease. The reason could be that they have the maximum exposure outdoors. Public organizations have observed that changing climate, especially lower average summer temperature, and increased vegetation have created tropical-like conditions in the city, which are suitable for Dengue virus growth. We will conduct a time-series analysis to study the interrelationship between dengue incidence and diurnal ranges of temperature and humidity in Pakistan, Lahore being the main focus of our study. We have used annual data from 2005 to 2015. We have investigated the relationship between climatic variables and dengue incidence. We used time series analysis to describe temporal trends. The result shows rising trends of Dengue over the past 10 years along with the rise in temperature & rainfall in Lahore. Hence this seconds the popular statement that the world is suffering due to Climate change and Global warming at different levels. Disease outbreak is one of the most alarming indications of mankind heading towards destruction and we need to think of mitigating measures to control epidemic from spreading and enveloping the cities, countries and regions.

Keywords : Dengue, epidemic, globalization, climate change
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