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Spatio-temporal analysis of tuberculosis in relation to socio-economic and environmental factors

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Tuberculosis (TB) is a debilitating infectious disease affecting more than one third of the global population. Pakistan is among the top most affected and vulnerable countries of TB. A study was designed to conduct a field survey of the TB patients in the study area of Ravi town, Lahore and develop a Geodatabase; hotspot analysis and spatial regression analysis of TB patient's data with socio-economic & environmental factors data and to investigate population at risk of TB using standard morbidity ratio (SMR) statistics. The patient's data showed an increasing trend of TB cases from 2011 to 2013 with the spatial spread from North-East to South-West direction in the study area. The hotspot analysis indicated two major clusters (90 & >95% confidence level) in Faisal park. A combination of four socioeconomic variables (low income, overcrowding, low literacy and malnourishment) were found to be the best subset of predictors in applying the ordinary least square (OLS) and geographically weighted regression (GWR) spatial statistical techniques. Multiple environmental and host-related socio-economic factors were presented in the mapping of pulmonary TB cases of Ravi town, Lahore. The spatial and temporal analysis of TB patient's data along with the socio economic and environmental factors' data may be useful for assessing disease risk and formulating intervention and control strategies for resources allocation and appropriate management of TB.

Biography

Iqra Ashraf has completed her MS in Geographic Information System and Remote Sensing in 2015 from School of Geographical Information Systems, National University of Science and Technology, Pakistan. She has combined GIS/RS field with epidemiology making use of new ArcGIS tools and has two research papers submitted in peer reviewed journals of epidemiology.

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