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Accelerating risk of diabetes and hypertension in north east India

Namrata Ray

International Institute for Population Sciences, India

Comorbidities of diabetes and hypertension has larger share of burden of disease in India. Substantial overlap in the disease mechanism of these two diseases is responsible for the comorbidity. Physical activities and personal habits plays a very important protective role for the two diseases. The association between these diseases embark considerable interest worldwide. North-Eastern part of India has often been neglected when it comes to focused diabetes research. The current study tries to fill this gap by exploring the spatial clustering of diabetes & hypertension in northeast India, estimate the risk of morbidity transitions between healthy, diabetes and hypertension and estimate the entropies of such transitions using District Level Household Facility Survey Round 4 data of India (DLHS-4). Univariate and multivariate exploratory spatial data analyses (ESDA) such as Moran's I, univariate local indicator of spatial correlation (LISA), and spatial regressions such as Spatial Autoregressive Models (SAR) and Conditional Autoregressive Models (CAR) were used to assess the spatial clustering and risk factors of prevalence of diabetes and hypertension using constructed spatial weights. The choropleth maps viz. Moran's plot, LISA plot and Probability mapping, shows the highest prevalence of both the disease in Sikkim followed by Nagaland and the lowest prevalence in Tripura (for diabetes) and Meghalaya (for hypertension). Again in both the cases, Conditional Autoregressive Models are controlling the spatial autocorrelation more effectively than the Simultaneous Autoregressive Models. The results show that the risk of transitioning from diabetes to hypertension is much higher than the risk of transitioning from hypertension to diabetes. Looking at the entropy, we see that there is approximately 10% likely to decrease their life expectancy when the risk increases. Thus controlling diabetes and increased awareness of diabetes is an important policy recommendation as it increases the risk of other ailments and calls for important public health intervention in India.