

Lung Cancer Risk and Its Potential Association with PM2.5 in Bagmati Province, Nepal - A Spatiotemporal Study From 2012 to 2021

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This study investigates the spatial-temporal distribution patterns of lung cancer incidence in Bagmati province, Nepal, focusing on the potential association with particulate materials (PM2.5). Analyzing data from 2012 to 2021 reveals an increasing trend in crude cancer incidence rates, with notable municipal-level variations. Males consistently exhibit higher rates, particularly in middle-aged and elderly populations. Spatial analysis identifies concentration trends and hotspots developed in Bhaktapur, Panchkhal, and Sunapati municipalities; they had the highest lung cancer risk in Bagmati province, emphasizing the impact of pollution and high population density. The results showed the association between the distribution of lung cancer and PM2.5, which requires a detailed analysis of the patient's data obtained in the Bhaktapur Cancer Hospital from the perspective of geospatial distribution. The findings underscore the need for targeted public health interventions, highlighting the role of PM2.5. Future research should explore the relationship between lung cancer distribution and various risk factors for effective screening and prevention. Addressing air pollution could potentially reduce future lung cancer incidence in Nepal.

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