

# Identifying spatiotemporal variability of traffic accident mortality. Evidence from the City of Belgrade, Serbia

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**Abstract:** Traffic accident mortality (TAM) is a significant global problem and part of the sustainable development goals strategy. In Serbia, a decline in the number of deaths in traffic accidents is evident, but in certain time intervals and areas, the number of deaths is higher than in others. This paper adopted Joinpoint regression analysis and a geospatial approach to assessing spatial, temporal, and spatiotemporal mortality variability due to traffic accidents in Belgrade from 2016 to 2021. Results suggested statistically significant change during each year and spatial clustering of higher values of deaths in central Belgrade municipalities. Spatiotemporal analysis of traffic accidents data indicated a change in spatial clusters over time, pointing out two types of hotspots for traffic accident mortality—Sporadic - and New hotspots along the international highway, main, and local roads, in the broader area of the city. The main findings of this paper pointed to the areas in Belgrade where the population is more endangered in traffic compared to other areas. The results and conclusions can serve traffic managers and decision-makers as a basis for more detailed research and local-specific traffic safety strategies.

**Key words:** Traffic Accident Mortality, Joinpoint Regression Analysis, Optimized Hotspot Analysis, Space-Time Mining Pattern Analytics, Belgrade, Serbia.

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