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Mapping Danger Zones: GIS-Based Spatiotemporal Analysis of Assaults in Kuala Lumpur and Putrajaya, Malaysia

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ABSTRACT

This study investigates the spatial and temporal dynamics of assault crimes involving dangerous weapons under Section 324 of the Malaysian Penal Code, focusing on Kuala Lumpur and Putrajaya from 2015 to 2020. The research addresses the critical issue of understanding urban crime patterns to inform effective preventive measures. Using a geographic information system (GIS)-based methodology, the study employs spatial autocorrelation (Global Moran's I), mean centre analysis and standard deviational ellipse to identify and characterize crime hotspots and trends across different time frames. Findings reveal significant clustering of assaults, particularly during evening (12:00–6:59 PM) and night (7:00–11:59 PM) hours, with an alarming increase in evening incidents. These results underscore the need for time-sensitive interventions targeting high-risk periods and locations. The study concludes that advanced spatial analysis offers invaluable insights into urban crime, advocating for its integration into proactive policing strategies and urban planning. This research contributes to improving public safety by enabling data-driven decision-making and fostering sustainable crime prevention policies.