

International Journal of Population Data Science

Journal Website: www.ijpds.org



Assessing the spatial pattern and temporal stability of violence in Scotland. A data linkage study using ambulance data

Ana Morales¹ and Susan McVie¹

¹Office for National Statistics, Newport, United Kingdom

Objective

Violence is not evenly distributed across space and time highlighting huge disparities across communities. This research aims to improve our understanding of the spatio-temporal patterns of violence in Scotland, and how area level characteristics, such as area deprivation and proximity to alcohol establishments, are associated with differences in violence across communities.

research underscores the complexity of violence in local areas and its association with alcohol availability.

Methods

Traditional research has largely focused on cross-sectional spatial measures or aggregated temporal data, which limits our understanding of how violent crime clusters shift over time. Using linked administrative data from ambulance call-outs for assault-related injuries, this project analyses the spatio-temporal patterns of violence in Scotland. Conditional autoregressive models (CAR) are used to identify clusters of violence and how they change over time. These models allow for the integration of spatial dependencies and temporal variations, providing a nuanced understanding of the interplay between violence and area-based characteristics such as deprivation and proximity to alcohol establishments.

Results

Although overall trends indicate a decline in violence over the study period, this reduction is not observed equally across all communities. We expect our findings to highlight how variations in deprivation levels and alcohol availability influence these patterns. The analysis can also be used to identify areas that shift from high to low violence and vice versa, providing valuable insights into the dynamics of violence and structural factors across communities for crime prevention policies.

Conclusions

This study will provide evidence of patterns of violence across communities and how these patterns have changed over time. By addressing spatial and temporal dimensions together, this

