

GEO-SPATIAL ANALYSIS OF ROAD TRAFFIC ACCIDENTS DISTRIBUTION ALONG ABUJA-KADUNA HIGHWAY, NIGERIA

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Abstract

This study conducted a geo-spatial analysis of road traffic accidents distribution along Abuja-Kaduna highway, Nigeria. The study used road traffic accident records between years 2013 to 2018 from Federal Road Safety Corps and google earth satellite imagery. Handheld GPS was used to acquire the absolute location of road traffic accidents. Descriptive statistics and Average Nearest Neighbour statistical tool in ArcGIS 10.1 were used to analyze the data. The result revealed that 71.5% of the total number of recorded road traffic accidents during the entire study period (2013-2018) occurred along Kaduna-Abuja while Abuja-Kaduna had only 28.5%. There was a yearly percentage increase in the number of road traffic accidents recorded along Abuja-Kaduna while a percentage decrease was observed along Kaduna-Abuja. Regarding the spatial pattern, it was found that the distribution of road traffic accidents in the entire study period had a cluster pattern in both Abuja-Kaduna and Kaduna-Abuja roads which was statistically significant. The findings showed that of 16,724 persons involved in road traffic accidents along the study route, about 73% were recorded along Kaduna-Abuja while Abuja-Kaduna had only 27%. Almost 73% of the number of persons injured due to RTAs were recorded along Kaduna-Abuja. A total of 1,437 persons lost their lives due to 2,179 RTAs which the distribution shows that 69% of the number of lives lost occurred along Kaduna-Abuja. Factors that caused RTAs were mainly attributed to speed violation, tyre burst, loss of control and dangerous driving. Strict enforcement of safety measures like drivers' use of speed limit devices among others and public education programme by FRSC on road safety were recommended.

Keywords: Abuja-Kaduna Highway, Nearest Neighbour Ratio, Road Traffic Accident, Spatial Pattern, Temporal Variation