

**Proposed Abstract Submissions to the 3rd AfroSAFE conference, 8–12 June 2026,
Lusaka, Zambia**

Theme: Building sustainable road safety systems for Africa: from data to
implementation and ownership

Title: *The Emerging Motorcycle Safety Crisis in Zambia: Rapid Growth and
Disproportionate Burden of Injuries and Fatalities*

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**Article Four: *The Emerging Motorcycle Safety Crisis in Zambia: Rapid Growth and
Disproportionate Burden of Injuries and Fatalities***

Background

Motorcycles have become a vital mode of transport in Zambia, especially in rural and peri-urban areas with limited public transport. However, rapid growth in motorcycle use has been accompanied by a sharp rise in injuries and fatalities; RTSA data indicate a 2.5-fold increase in motorcycle crash involvement since 2017.

Despite this trend, no comprehensive national analysis has examined the scale, distribution, and drivers of motorcycle-related injuries. This study fills that gap by providing the first national assessment of motorcycle crash trends, injury burden, and spatial patterns from 2017 to 2024, informing policy action under Zambia's National Road Safety Strategy and the UN Decade of Action for Road Safety (2021–2030).

Aim

To examine trends, severity patterns, and spatial distribution of motorcycle-related road traffic crashes in Zambia between 2017 and 2024, and to identify key determinants driving the emerging motorcycle safety concerns.

Method

We conducted a retrospective analysis of RTSA crash data (2017–2024), extracting motorcycle-involved cases and linking them with population estimates from the Zambia Statistics Agency.

Analyses included logistic regression to assess trends in motorcycle involvement (reported as odds ratios with 95% confidence intervals), injury severity profiling, provincial-level spatial analysis, and assessment of key contributing factors. Statistical significance was set at $p < 0.05$.

Results

- Growth trend: Motorcycle involvement in crashes increased from 2.6% in 2017 to 6.6% in 2024, representing a 2.5-fold rise (OR = 1.18 per year, 95% CI: 1.17–1.19, $p < 0.001$).
- Injury burden: Motorcyclists accounted for 15.1% of fatalities, 22.9% of serious injuries, and 21.1% of slight injuries in 2024. Fatal injury shares showed a significant increasing trend (OR = 1.21 per year, $p < 0.001$).
- Fatality rate: The motorcyclist fatality rate increased from 0.69 to 1.55 per 100,000 population (2017–2024), representing a 125% increase.
- Spatial distribution: Strong regional clustering was evident, with Luapula (33.3%), Eastern (30.2%), and Northern (25.1%) provinces recording the highest proportions of motorcycle crash involvement, compared with less than 5% in Lusaka.
- Contributing causes: Excessive speed was the dominant factor in motorcycle-related crashes, followed by failure to keep near side and improper overtaking.
- Temporal pattern: A notable acceleration in motorcycle-related injuries and fatalities occurred after 2021 across all severity levels.

These findings collectively point to an escalating motorcycle safety crisis, with both absolute and proportional increases in fatalities and severe injuries concentrated in rural and low-enforcement regions.

Conclusions

Zambia faces growing motorcycle safety challenges characterized by accelerating growth in crash involvement and disproportionate injury burden. Motorcycle crash involvement has increased rapidly since 2017, with particularly sharp increases in fatalities and serious injuries after 2021. Motorcyclists now represent a substantial and growing share of road casualties, accounting for approximately one-sixth of fatalities and one-fifth of serious injuries. The geographic concentration in rural provinces highlights significant regional disparities, with motorcycle involvement rates substantially higher in Luapula, Eastern, and Northern provinces compared to urban centers. Behavioral factors including speeding and traffic violations remain primary contributors to motorcycle crashes.

Policy implications

- Implement targeted helmet enforcement and rider training programs in high-burden provinces.

- Develop motorcycle-specific speed management and overtaking safety campaigns.
- Enhance crash data collection to better capture motorcycle-specific risk factors.
- Establish provincial motorcycle safety task forces in Luapula, Eastern, and Northern provinces.
- Integrate motorcycle safety into Zambia's broader road safety strategy with measurable targets.

In conclusion, Zambia faces growing motorcycle safety challenges that require urgent, evidence-based interventions. While not yet the dominant source of road fatalities, the accelerating trend and disproportionate injury burden among motorcyclists necessitate coordinated action combining legislation, education, and targeted enforcement to prevent further escalation.

Keywords: motorcycle safety, injury prevention, road traffic injuries, spatial disparities, sub-Saharan Africa, vulnerable road users