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Analysis of Road Traffic Accidents in Africa: A systematic Review and Bibliometric Analysis

SHEILA MASAKU

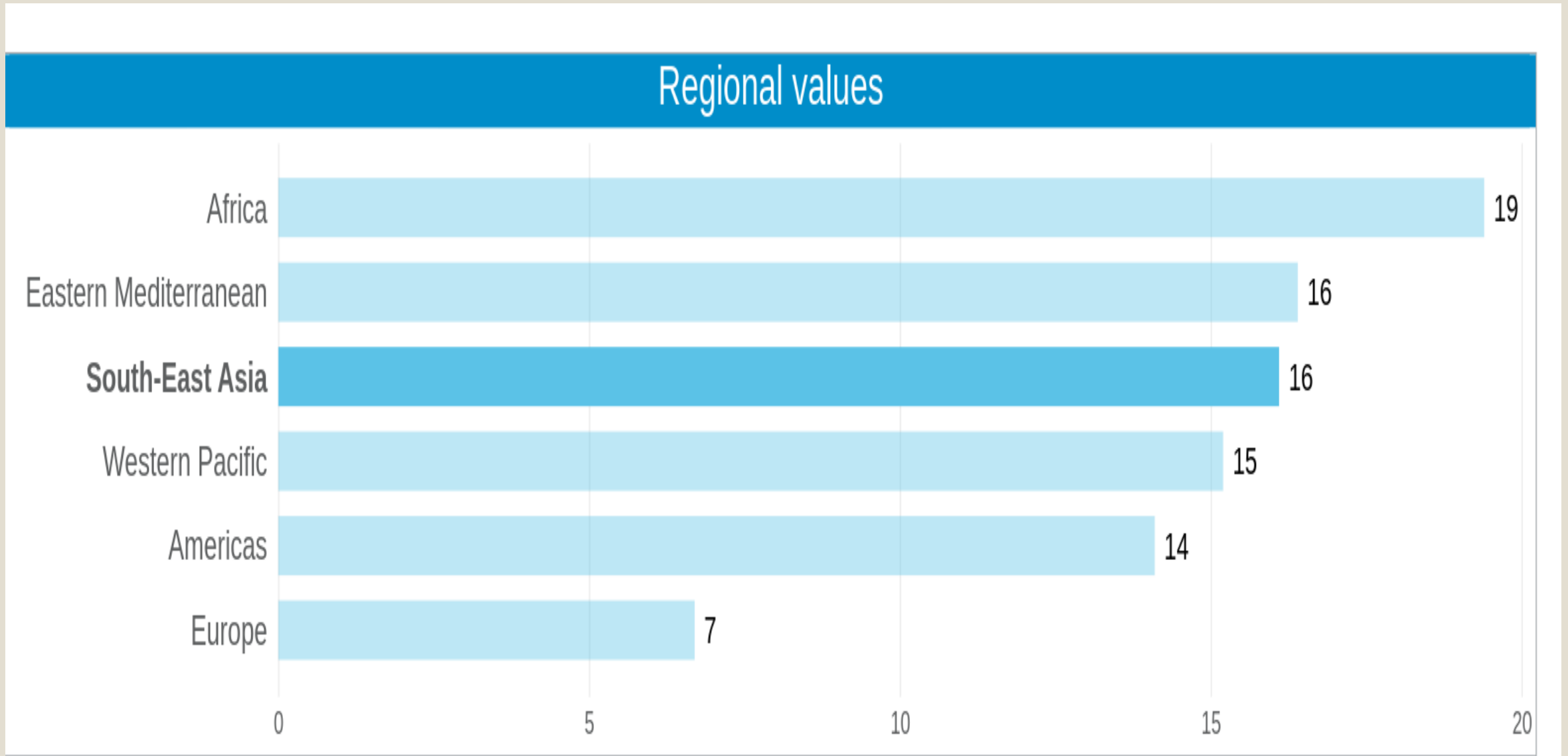
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Background

- Road traffic crashes and injuries in Africa pose a significant public health and developmental challenge.
- The World Health Organization (WHO) estimated that Africa accounted for 24 percent of global road traffic deaths in 2021.
- Africa has the highest road traffic fatality rate, 19.6 per 100,000 population, with wide variations among countries.

Background



Background

Percentage change in estimated road fatalities, by WHO region, 2010–2021



Background

Rank	All ages	Ages 5–29 years
1	Ischaemic heart disease	Road Injury
2	Stroke	Tuberculosis
3	Chronic obstructive pulmonary disease	Diarrhoeal diseases
4	Lower respiratory infections	Interpersonal violence
5	Neonatal conditions	Self-harm
6	Trachea, bronchus, lung cancers	HIV/AIDS
7	Alzheimer´s disease and other dementias	Lower respiratory infections
8	Diarrhoeal diseases	Maternal conditions
9	Diabetes mellitus	Drowning
10	Kidney diseases	Cirrhosis of the liver
11	Cirrhosis of the liver	Malaria
12	Road injury	Meningitis

Leading causes of death, all ages, and ages 5–29 years. WHO,2019

Study Objectives

General Objective: To synthesize evidence on road traffic accidents in Africa between 2020-2025.

Specific Objectives:

- Identify common risk factors and outcomes
- Determine publication trends.
- Examine collaboration networks.
- Explore common and emerging research themes.
- Highlight research and data gaps.

Methods

- Study Design: Systematic Review and Bibliometric Analysis
- Databases: PubMed, Dimensions
- Period: 2015–2025
- Population: Road traffic accident victims
- Exposure: Risk factors for road traffic crashes
- Outcome: Road traffic injuries, death, disability, hospitalization
- Setting: African countries
- Software: VOSviewer, Excel

Search Results

Identified Records: 11,152 studies from 2020 to 2025.

Records Screened after duplicates removed:10,003

Records after assessment of title and abstract:2415

Records after full-text assessed:2357

Studies included:2,357

Main Findings from Literature

- Vulnerable Road Users: Pedestrians, Motorcyclists, Cyclists
- Common Risk Factors: a mix of human, environmental, and vehicle-related factors such as speeding, alcohol consumption, nighttime driving, poor road infrastructure, weak law enforcement, non-use of seat belt and helmets, use of phone/distracted driving.
- Outcomes: death, severe trauma and injuries, disability, hospitalisation,

Environmental Risk Factors

Factor	Impact
Poor road conditions	Increased crash risk
Inadequate street lighting	Higher night-time crashes
Lack of pedestrian crossings	Increased pedestrian injuries
Roadside hazards	Increased severity
Urban congestion	Increased crash frequency

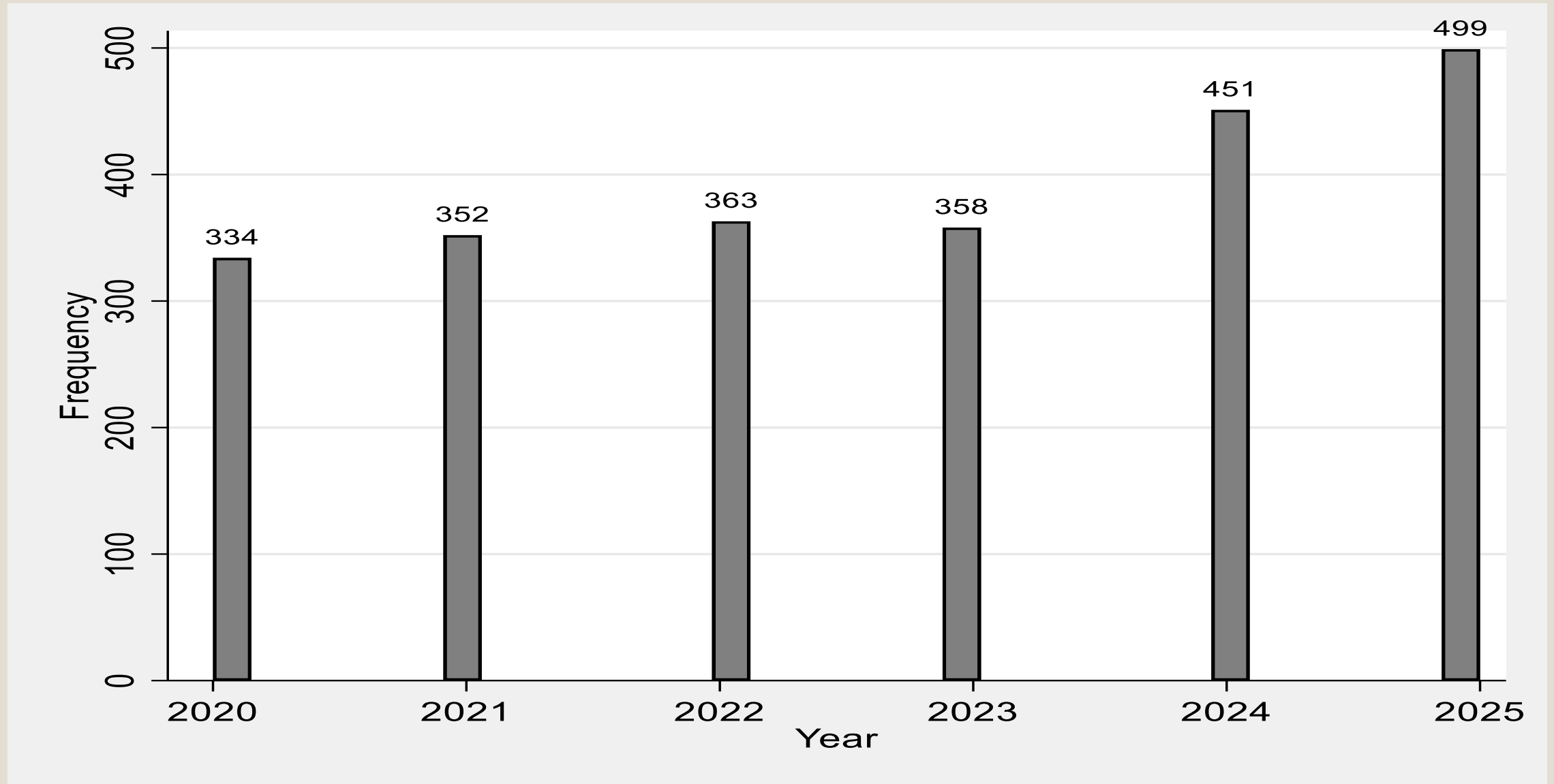
Urban vs Rural Areas

Characteristic	Urban Areas	Rural Areas
Crash Frequency	Higher	Lower
Fatality Rate	Lower	Higher
Emergency Care Access	Better	Limited
Severity of Injuries	Moderate	Higher

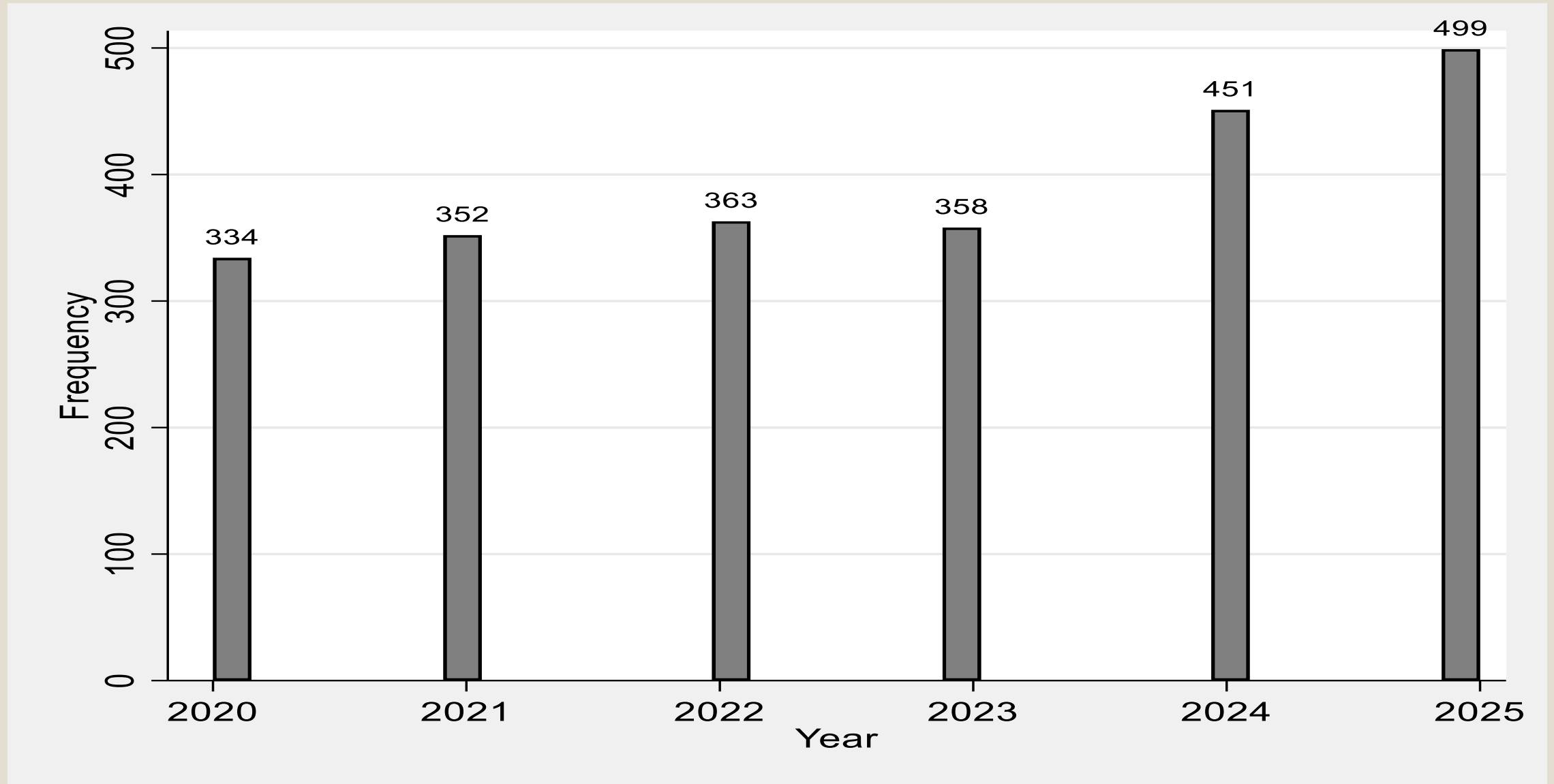
Research/Data Gaps

Gap	Implication
Few longitudinal studies	Limited causal evidence
Limited intervention evaluations	Weak policy guidance
Limited elderly-focused research	Knowledge gaps
Under-reporting	Underestimation of burden
Missing injury severity data	Reduced accuracy
Inconsistent reporting standards	Poor comparability
Lack of integrated systems	Weak decision-making

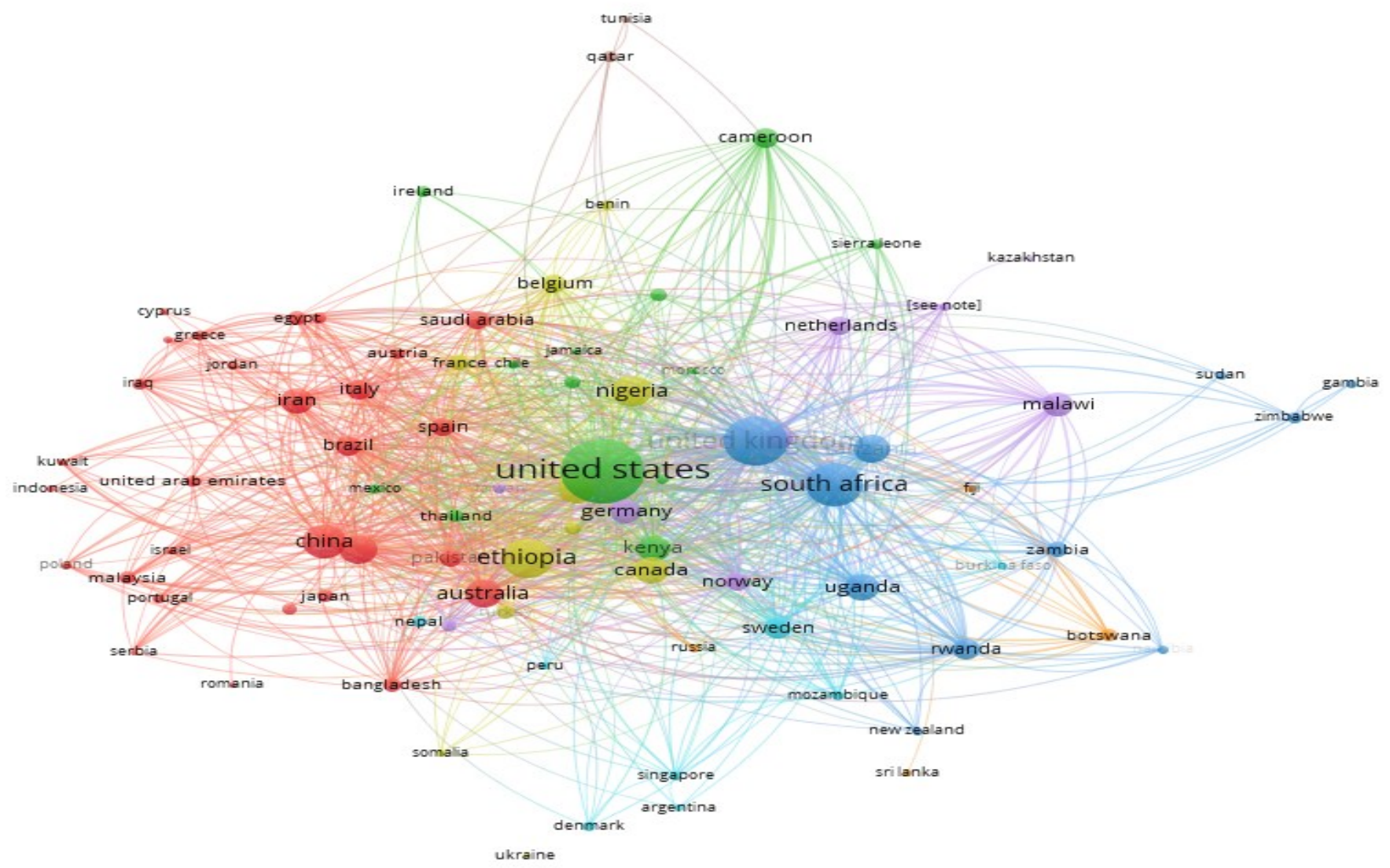
Publication Trends



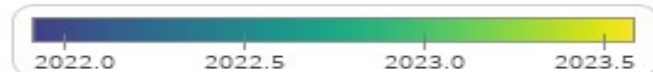
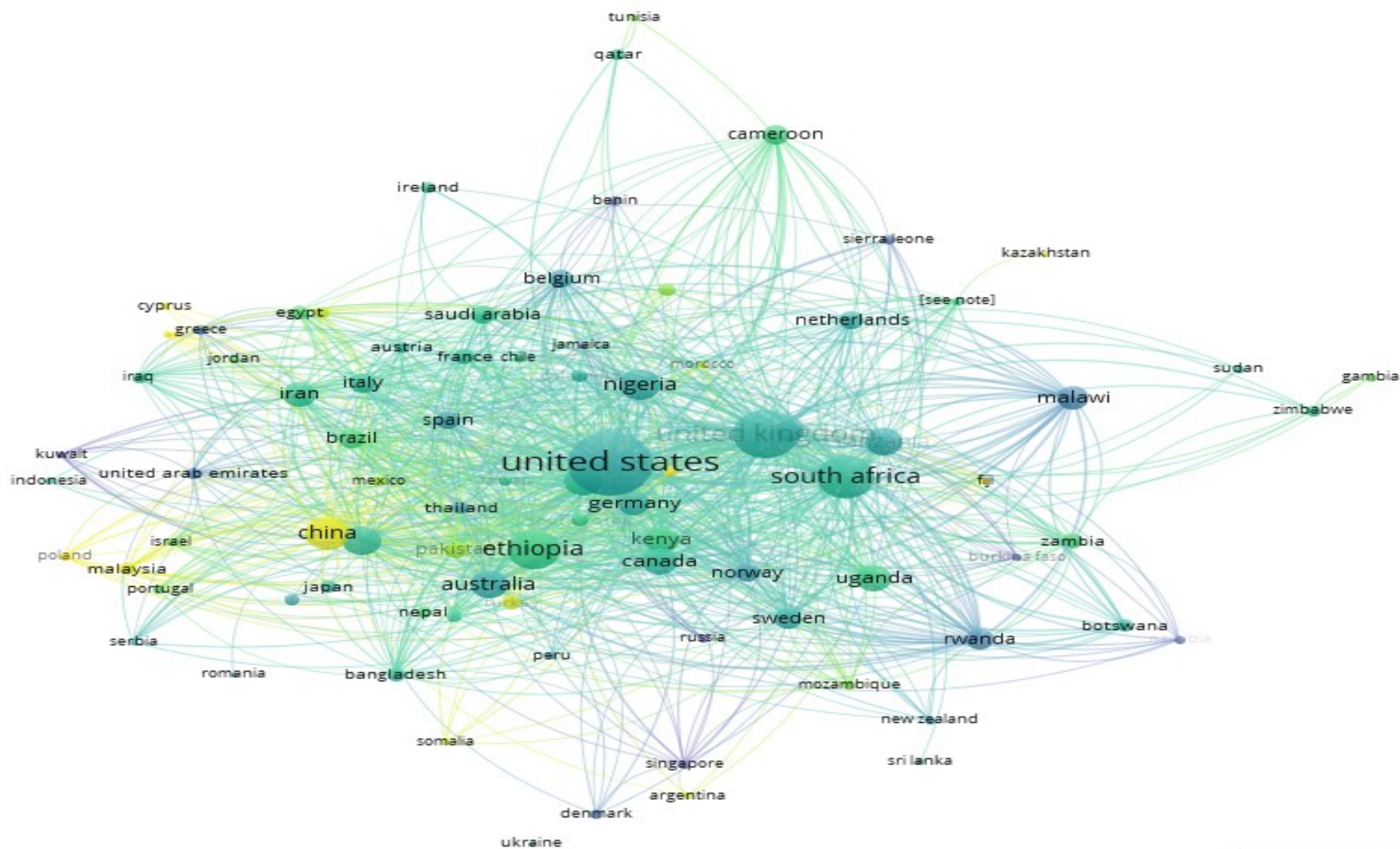
Publication Trends



Collaboration clusters



Country contributions



Challenges

Major Challenges

- Under-reporting of crashes
- Missing surveillance systems
- Inconsistent reporting standards

Implications

- These gaps hinder evidence-based policy decisions.

Recommendations

Policy

Strengthen crash reporting systems.

Improve trauma surveillance.

Increase enforcement of road safety laws.

Research

Standardized data collection.

More research collaborations.

Greater use of GIS and spatial analysis.

Conclusion

- ✓ RTIs remain a significant public health challenge in Africa.
- ✓ Research output has increased substantially over the past decade.
- ✓ Vulnerable road users remain disproportionately affected.
- ✓ Data quality and under-reporting continue to limit evidence-based interventions.
- ✓ Stronger surveillance systems are essential for achieving safer roads in Africa.

Thank you!

Sheila Masaku
Lecturer and Researcher
University of Zambia
sheila.masaku@unza.ac.zm



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