

Causes and Consequences of Motorbike Accidents in Ghana: A Mixed-Methods Approach

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<http://dx.doi.org/10.47814/ijssrr.v9i2.3105>

Abstract

Motorbike accidents pose a major public health and socioeconomic challenge in Ghana, particularly among young male riders who depend on motorcycles for personal mobility and commercial activities. This study examined the causes and consequences of motorbike accidents using a mixed-methods approach that integrated retrospective hospital record analysis with qualitative interviews conducted in two urban communities in Kumasi. Hospital data from Komfo Anokye Teaching Hospital involving 106 motorbike accident victims indicated that most victims were males under 30 years of age, with head injuries accounting for 76.4% of all recorded injuries. Helmet use at the time of the accident was notably low (9.4%), significantly increasing injury severity. Human-related factors such as speeding, reckless riding, fatigue, sudden braking, and substance use emerged as the predominant causes of accidents, alongside mechanical failures and poor road conditions. Qualitative findings further revealed weak enforcement of traffic regulations, low compliance with safety measures, and limited emergency response capacity. The consequences of motorbike accidents extended beyond physical injuries to include loss of income, psychological distress, and substantial financial strain on affected households. The study concludes that strengthening helmet enforcement, improving road infrastructure, enhancing rider training, and reinforcing traffic regulation enforcement are critical for reducing motorbike-related injuries and fatalities in Ghana.

Keywords: *Motorbike Accidents; Road Safety; Head Injuries; Ghana; Mixed Methods; Commercial Riders*

1. Introduction

Motorbike accidents represent a growing global public health concern, with a disproportionate burden borne by low- and middle-income countries (LMICs). The World Health Organization identifies road traffic injuries as a leading cause of death among people aged 5–29 years, with motorcycles

contributing significantly to this burden (WHO, 2025). In Ghana, the rapid expansion of commercial motorbike and tricycle transport, popularly known as *akada*, *Pragya*, and *aboboyaa*, has intensified exposure to road traffic risks.

Motorbikes are increasingly relied upon for personal mobility, commercial transport, and delivery services due to their affordability, maneuverability, and ability to navigate congested urban roads. Despite these advantages, motorbike use is associated with high injury severity because riders lack physical protection. In Ghana, motorbike accidents account for a substantial proportion of road traffic injuries and fatalities, with significant economic implications for households and the national economy (The National Road Safety Authority, 2022; Kolan et al., 2020).

Although previous studies have examined general road traffic accidents, there is limited empirical work focusing specifically on motorbike accidents that integrates clinical data with community-level perspectives. This study addresses this gap by examining the demographic characteristics, causes, and consequences of motorbike accidents in Ghana using a mixed-methods design. The study aims to generate evidence to inform policy interventions, improve road safety, and reduce the public health burden of motorbike accidents.

2. Literature Review

2.1 Theoretical Perspective

This study is informed by Functionalist Theory, which conceptualizes society as a system of interrelated parts working to maintain stability. From this perspective, motorbike accidents reflect systemic dysfunctions in road infrastructure, enforcement mechanisms, and social norms surrounding road use. Addressing these dysfunctions through coordinated institutional responses is essential for restoring social equilibrium and improving road safety.

2.2 Empirical Evidence

Globally, motorbike accidents contribute substantially to road traffic injuries, particularly in LMICs where regulatory enforcement and infrastructure development are limited. Studies across Sub-Saharan Africa consistently report that young males are the most affected demographic, largely due to their dominance in commercial riding activities. Risk factors commonly identified include reckless riding, alcohol and drug use, poor road conditions, inadequate lighting, and mechanical defects.

Helmet use has been widely documented as a critical protective factor, yet compliance remains low in many African countries due to weak enforcement, cost barriers, and cultural attitudes. In Ghana, existing evidence indicates that low helmet usage significantly increases the prevalence and severity of head injuries among motorbike accident victims.

3. Methods

3.1 Study Design

A mixed-methods design was employed, combining retrospective hospital record analysis with qualitative in-depth interviews.

3.2 Study Setting

Hospital data were collected from Komfo Anokye Teaching Hospital, a major tertiary referral center in Kumasi. Qualitative interviews were conducted in the Aboabo and Ayigya communities.

3.3 Data Sources and Sampling

Hospital records of motorbike accident victims were reviewed, yielding a sample of 106 cases. Qualitative data were obtained through purposive sampling of six participants, including riders, passengers, and community members.

3.4 Data Analysis

Quantitative data were analyzed descriptively, while qualitative data were thematically analyzed. Findings from both components were integrated through triangulation.

3.5 Ethical Considerations

Ethical approval was obtained from the Committee on Human Research, Publication and Ethics (CHRPE) of Kwame Nkrumah University of Science and Technology (KNUST). All data were anonymized, and informed consent was secured from interview participants.

4. Results

4.1 Quantitative Findings

Most victims were male (93.4%) and under 30 years of age. Head injuries were the most common outcome (76.4%), while helmet use at the time of the accident was reported by only 9.4% of victims.

Table 4.1: Socio-demographic characteristics of the respondents

Variable	Frequency (n=106)	Percentage (%)
Median age (IQR)	25 (20,33)	
Age		
≤20	27	25.5
21-30	44	41.5
31+	35	33
Sex		
Female	7	6.6
Male	99	93.4

4.2 Qualitative Findings

Participants identified speeding, reckless riding, fatigue, substance use, mechanical failure, and poor road conditions as major contributors to accidents. Weak enforcement of traffic regulations and lack of emergency response services were recurrent themes.

5. Discussion

The findings demonstrate that motorbike accidents in Ghana disproportionately affect young males and are characterized by a high prevalence of head injuries linked to low helmet use. The interaction of human behavior, mechanical faults, and environmental conditions underscores the need for integrated interventions. Weak law enforcement and limited institutional oversight further exacerbate risk exposure.

6. Conclusion

Motorbike accidents constitute a significant public health challenge in Ghana, with severe physical, economic, and psychological consequences. Addressing this problem requires stricter enforcement of safety regulations, improved infrastructure, mandatory rider training, and sustained public education.

7. Recommendations

Strengthening helmet law enforcement, enhancing road maintenance, instituting rider safety training, and improving emergency response systems are critical steps toward reducing motorbike-related injuries and fatalities in Ghana.

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