Causes of and mortality and morbidity after injuries in Four low- and middle-income countries

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Background: Injuries are a leading global health concern, accounting for 4.4 million deaths annually and contributing significantly to disability and healthcare demands. Up to 40% of injured individuals experience long-term disability, and injuries contribute to approximately 10% of the global burden of disease. Outcomes vary significantly across countries and settings, with a disproportionately high share of adverse outcomes happening in low- and middle-income countries (LMICs). Despite this, data on injury outcomes in LMICs remain limited. This study presents post-injury mortality and morbidity from the Equi-Injury project, which aimed to explore facilitators and barriers to equitable access to quality care after injury in LMICs.

Methods: We recruited patients with moderate to severe injuries from 19 hospitals across Ghana, Pakistan, Rwanda, and South Africa. Data were collected on demographics, socioeconomics, injury characteristics, the patient journey from injury to definitive care (including transport taken and number of prior facilities visited), and outcomes of death or disability at 3 months after discharge. Disability was defined as being categorised as moderately to extremely disabled based on the WHODAS-12.

Results: Of 9720 eligible patients, three-month outcome data were available for 5199 individuals. Males made up 70% of the sample, with a median age of 31 years (IQR: 20-43). Road traffic accidents were the most common injury mechanism (50%), followed by falls (20%) and interpersonal violence (18%). Ambulances were the primary mode of hospital transport (46%), followed by private taxis (23%). Over half of the patients (54%) had visited at least one other facility or traditional healer before receiving definitive care. Based on the Kampala Trauma Score, 56% of cases were mild, 38% moderate, and 6% severe. The overall 3-month combined mortality and morbidity rate was 48% (2476/5199). Mortality alone was 10% (616/6213), and morbidity was 41% (1860/4583). Rates of adverse outcomes increased with injury severity: 42% for mild, 53% for moderate, and 82% for severe injuries.

Conclusion: Three-month post-injury mortality and morbidity are high in the LMICs, underscoring the urgent need to strengthen health systems for timely acute care, follow-up, and rehabilitation. These findings point to an urgent need for comprehensive improvements across the continuum of care, from pre-hospital services and emergency response to acute hospital management, discharge planning, and long-term rehabilitation. Furthermore, the higher prevalence of injuries in young people exacerbates the long-term societal and economic impact of injuries. Addressing the high rates of post-injury morbidity and mortality thus requires not only clinical improvements but also policy-level investment in trauma systems, injury prevention, post-discharge care, and rehabilitation.

Keywords: Injury, LMIC, mortality