

length of stay is unaffected – likely due to the resource paucity for post-injury treatment in this environment. This study was limited by lack of access to numerical GCS scores, mechanism of injury, neuro-imaging, and treatment data. It highlights, however, the need for further data collection on TBI patients.

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### Determinants of Occupational Injuries among Building Construction Workers in Kampala City, Uganda

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**Background:** About 1,000 people die and close 860,000 people sustain injury at work daily globally. Health and safety improvement requires strong evidence, but most studies focus on general causes.

This study assessed individual, work environment and behavioral determinants of occupational injuries among building construction workers.

**Methods:** This was a cross-sectional study among male and female building construction workers aged  $\geq 18$  years in Kampala city during April-May 2016. A standardized semi-structured questionnaire was used to collect data. We randomly and proportionately selected 319 participants from 57 construction sites.

Ethical approval was acquired from the Research and Ethics Committee of Makerere University School of Public Health and written consent was obtained.

The primary outcome was having had an injury at work within 6 months prior to the study. Data were analyzed using Stata 12 and generalized linear models to estimate crude and adjusted prevalence ratios (aPR) at  $p < 0.05$  and 95% CI.

**Findings:** 318 respondents from 57 construction sites were interviewed. The mean age was 28.2 years and  $\pm 7.0$  standard deviation (SD). Prevalence of occupational injuries was 32.4%, mostly (68.9%) on night duty.

Experience  $> 4$  years (aPR: 1.63, CI: 1.07-2.49); daily income  $< \$75$  (aPR: 0.54, CI: 0.38-0.75); job dissatisfaction (aPR: 1.57, CI: 1.16-2.13); job stress (aPR: 1.60, CI: 1.14-2.25) and perceived poor safety environment (aPR: 1.41, CI: 1.04-1.92) were independent predictors of occupational injury.

**Interpretation:** Prevalence of injuries may be due to absence of injury preventive measures while exhaustion and inadequate lighting could account for night duty injuries. Experience may lead to unsafe workplace practices and perception of workplace safety may affect work confidence thus the risk of injuries.

Low daily income could limit ability to purchase PPE, increase risk taking or lead to dissatisfaction, which leads to low commitment to safety procedures and job stress thus complex injury pathways.

There was risk of recall and social desirability biases in this study. However, the study reports on comprehensive contextual determinants of occupational injuries.

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### Impact of Helmet Usage on Clinical Presentation and Outcome of Traumatic Brain Injury in Motorcycle Operators in Cambodia

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**Background:** Traumatic brain injuries (TBIs) contribute heavily to burden of disease in Cambodia, where motorcycles are an increasingly common mode of transportation despite low rates of helmet usage. We sought to quantify the protective effect of helmets for TBIs and looked for an association between severity of injury and functional outcome with helmet usage at the time of accident.

**Methods:** This was a retrospective case-control study enrolling 491 patients motorcycle operators who presented with TBI to a major trauma center in Cambodia. Diagnosis by cranial CT was required for inclusion. The exclusion criteria was unknown helmet usage at the time of accident.

The primary outcomes of this study were clinical severity, as assessed by the Glasgow Coma Scale and requirement for neurosurgical intervention, and functional outcomes, as assessed by the Glasgow Outcome Scale. Logistic regression was used to calculate chi-square statistics, and 2-sided p-values were derived from the Fisher's Exact Test. This study was approved by the Cambodian National Committee for Health Records under Protocol 350 NEHCR and informed consent was obtained for all participants.

**Findings:** 426 (86.8%) patients were male, and 475 (15.3%) of patients wore helmets at the time of their accident. Presenting injuries included contusions (33.8%), epidural hematomas (23.4%), subdural hematomas (21.6%), subarachnoid hemorrhages (10.2%), skull fractures (17.1%) and facial fractures (13.8%). The rates of injuries in the helmeted and non-helmeted groups were similar.

Patients without helmets had higher odds of presenting with moderate to severe TBI relative to helmeted patients (OR 2.12; 95% CI 1.14-3.94;  $p = 0.018$ ). Non-helmeted patients also had higher odds for requiring emergency neurosurgery for evacuation of a hematoma (OR 2.88; 95% CI 1.12-7.41;  $p = 0.023$ ). Non-helmeted patients had increased odds of severe functional reductions at discharge (OR 5.16, 95% CI 2.23-11.86,  $p < 0.0001$ ).

**Interpretation:** Helmets demonstrate a protective effect on injury severity and outcomes for patients with TBIs that require admission to a hospital. Con Strengths of this study include the cohort size and the clinical parameters assessed. Limitations include its retrospective design, lack of data on accident characteristics, and lack of long-term follow-up.

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