

Prevalence and Implications of Alcohol Misuse in Trauma Patients at the Emergency Department of the University Teaching Hospital in Kigali, Rwanda

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Background

- Rwanda exhibits one of the highest rates of alcohol consumption and dependence in sub-Saharan Africa, with an increase from 41% in 2013 to 48% in 2022, as reported by the Rwanda Biomedical Centre.^{1,2,3,4}
- A 2021 study at the University Teaching Hospital of Kigali identified that head injuries predominantly affected males and pedestrians, with motor vehicle collisions responsible for nearly 78% of cases; however, alcohol use was unassessed or unconfirmed in 81.3% of instances.⁵
- The literature presents inconsistent findings regarding the impact of alcohol misuse on trauma patients, with some studies indicating no significant differences in mortality^{6,7} or length of stay (LOS)^{8,9} between alcohol use disorder (AUD)-positive and AUD-negative patients, while others report higher mortality^{8,10} and longer LOS¹⁰ for AUD-positive individuals.
- This study aims to enhance understanding of alcohol misuse in traumatic injury patients and may inform targeted resource allocation and public health policy in Rwanda regarding alcohol use and trauma.

Methods

This single-center prospective observational study focuses on trauma patients aged 16 and older at the emergency department of the University Teaching Hospital of Kigali (CHUK ED).

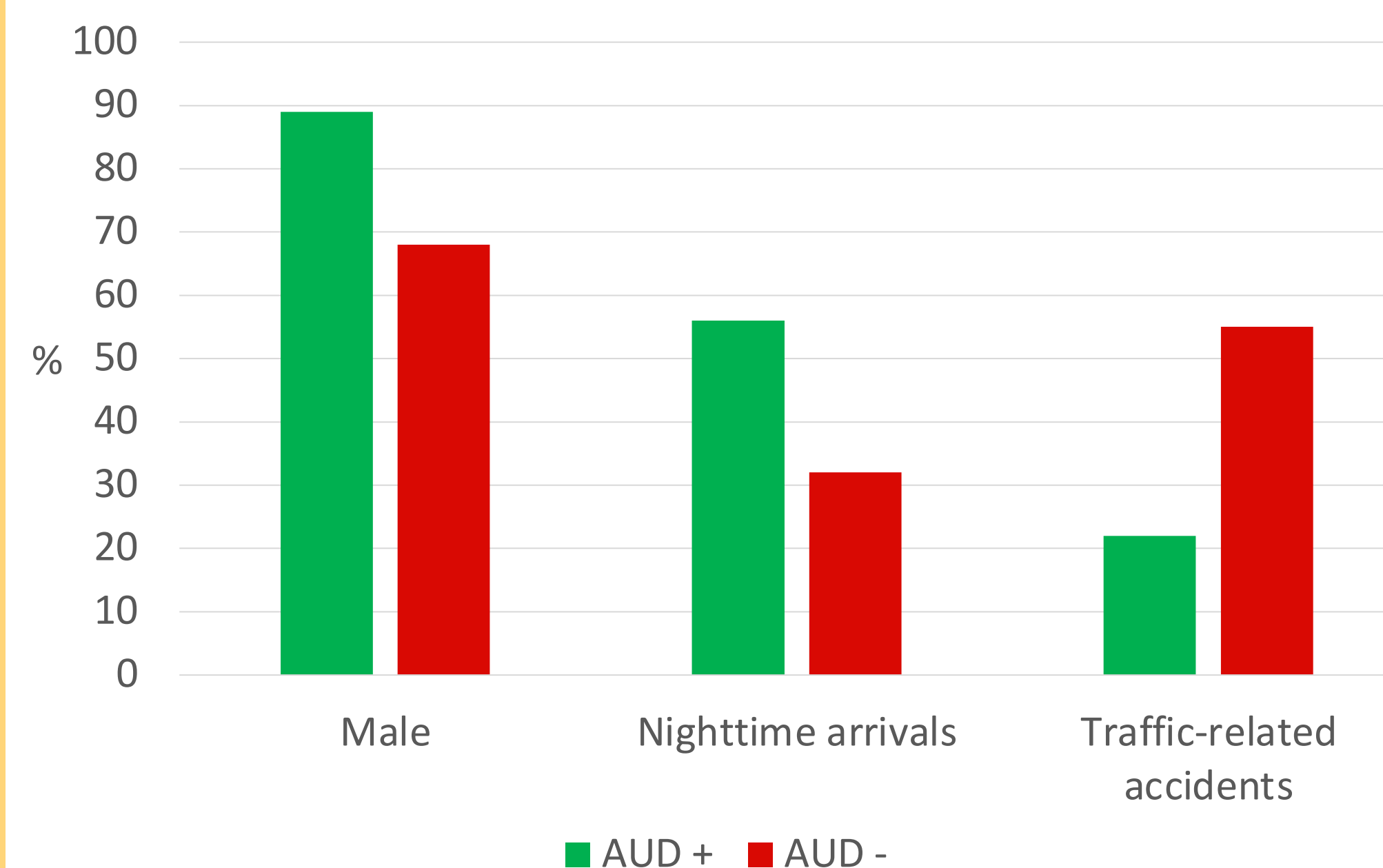
- Research assistants approach patients with traumatic injuries shortly after admission for study enrollment.
- Participants provide informed consent and complete the AUDIT-C screening survey for alcohol use disorder, with both forms translated into Kinyarwanda.
- Collected data from participant health records includes age, sex, geographic residence (Kigali vs. non-Kigali), cause of trauma, injured body part(s), time and day of arrival, Glasgow Coma Scale (GCS) scores, and intubation status.
- Key outcomes include mortality, intensive care unit (ICU) admission, and length of stay (LOS) in the emergency department (ED).
- Data was analyzed using two-tailed Fisher's exact tests and independent t-tests to assess differences between AUD-positive and AUD-negative trauma patients.

Preliminary Results

Table 1. Trauma patient characteristics.

	AUD-positive	AUD-negative	p-value
Age, years, mean (SD)	33.67 (11.6)	37.14 (14.22)	0.5225
Sex, n (%)			0.3791
Male	8 (88.89)	15 (68.18)	
Female	1 (11.11)	7 (31.82)	
Residence, n (%)			0.7043
Kigali	4 (44.44)	12 (54.55)	
Non-Kigali	5 (55.56)	10 (45.45)	
Traffic-related cause of trauma, n (%)	2 (22.22)	12 (54.55)	0.1317
Weekend arrival to ED, n (%)	3 (33.33)	12 (54.55)	0.4331
Nighttime arrival to ED, n (%)	5 (55.56)	7 (31.82)	0.2534
Head injury, n (%)	2 (22.22)	6 (27.27)	1.0000
GCS, mean (SD)	14.89 (0.33)	13.27 (3.49)	0.1793
ICU admission, n (%)	0 (0)	4 (18.18)	0.2952
Intubation in ED, n (%)	0 (0)	2 (9.1)	1.0000
Length of stay in ED, days, mean (SD)	3.44 (1.94)	2.05 (1.96)	0.0827
Mortality, n (%)	0 (0)	1 (4.5)	1.0000

Figure 2. Sex, Arrival Time, and Accident Type in ED Trauma Patients by AUD Status.



Discussion

- The preliminary findings of 31 trauma patients surveyed for AUD have yet to reveal statistically significant associations. However, AUD + patients are trending toward significantly longer LOS.
- Interestingly, so far, more AUD + patients have presented with non-traffic-related causes of trauma. Perhaps this is due to the many affordable motorcycle taxis in Rwanda, particularly in Kigali.
- At this point, more trauma patients overall and those screening AUD + are male. This trend is suspected to continue, which is consistent with current literature.^{11,12} Other characteristics such as arrival times require more data to predict associations.
- IRB approved on August 25, 2024.
- The Rwanda Ministry of Health announced the confirmation of Marburg virus disease, which can cause hemorrhagic fever, in patients in health facilities in the country on September 27, 2024.¹³ Most of the people infected are healthcare workers.¹³
- Data collection will continue at CHUK until January 2025.

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Acknowledgement

This work was facilitated by the Brown Emerging Infectious Disease and HIV Scholars (H-EIDS) Program (2R25A140490) supported by the National Institutes of Health (NIH/NIAMD).