

Analysis of injury patterns related to standing electric scooters at a Level-1 Trauma center Emergency Department in an urban area

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Objectives

Standing electric scooters were introduced to Tampa in 2018. We wanted to characterize the chief complaint (CC) of patients who presented to the Tampa General Hospital (TGH) Emergency Department (ED) for scooter accidents and determine alcohol's involvement and effect on injury type. We also sought to identify demographics of such presentations, including patient age, day of week, time of day, disposition, acuity, and means of arrival to the ED.

Methods

This was a retrospective chart review and was exempt from Institutional Review Board approval. Data from routine clinical care in the TGH ED from July 1st, 2019, to April 30th, 2022 was collected through an operational report within the business intelligence infrastructure of the electronic medical record of TGH (Epic). Data from patients with scooter injury related encounter codes was extracted to an electronic data capture form and deidentified.

Narratives were reviewed to exclude uncertain cases (i.e., patients with moped, kick scooter, or mobility scooter injuries) and to flag for intoxication, altered mental state, helmet usage, and head injuries that were not listed as the CC. CC, means of arrival, acuity, disposition, arrival day of week, and arrival hour were collected.

Data analysis was completed using Microsoft Excel and SPSS 28.

Results

292 of 442 collected cases remained after removing irrelevant flags. The most common CC was motor vehicle crash (25.7%), followed by fall (23.6%), upper extremity injury (13.7%), and lower extremity injury (11%). Based on narratives, 13.4% endorsed alcohol use, 14.7% presented with an altered mental state, 2.1% used helmets, and 40.8% suffered head injuries. Of those that used helmets, none endorsed alcohol use, indicating a negative correlation ($r = -0.057$, $p = .166$). Alcohol usage was significantly correlated with patients presenting with altered mental state ($r = .235$, $p < .001$) and head injuries ($r = .248$, $p < .001$). For patients endorsing alcohol use, a greater proportion presented with a CC of motor vehicle crashes (38.5%), head injuries (10.3%) and face injuries (5.1%) than those who denied alcohol use (23.7%, 5.5% and 3.6%, respectively).

Conclusion

Our data suggests that for patients presenting to the ED for electric scooter accidents, alcohol use increases the risk of head and face injuries, as well as of presenting with an altered mental state. Additionally, alcohol appears to be associated with increased risk-taking behavior, namely not using a helmet while riding an electric scooter. The minute p-values for the correlation coefficients between alcohol and altered mental state and head injuries further supports these claims as the results are likely not due to chance. While the p-value for the alcohol and helmet correlation is large, this is likely due to the low sample size for helmet wearers.