

Are scooter-car crashes different from bicycle-car crashes?

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Introduction: The market share of e-scooters in the United States has proliferated in cities: 86 million trips were made on shared e-scooters in 2019, a more than 100% increase compared to 2018. However, the interaction of e-scooters with other road users and infrastructure remains uncertain.

Method: This study scrutinized 52 e-scooter and 79 bicycle police-reported crashes in Nashville, Tennessee, from April 2018 to April 2020 from the Tennessee Integrated Traffic Analysis Network (TITAN) database. We used descriptive analysis and a recent prototype version of the Pedestrian and Bicycle Crash Analysis Tool (PBCAT) to classify crashes based on the locations of the crashes relative to roadway segments or intersections, as well as the maneuver of the motor vehicle and e-scooter/bicycle relative to the motor vehicle.

Results: Two crash typologies can explain the majority of e-scooter crashes, while bicycle crashes are distributed over several crash typologies. Additionally, 1 in 10 e-scooter- and bicycle-motor vehicle crashes leads to the injury or fatality of the e-scooter rider or bicyclist. Furthermore, we noted statistically significant differences in spatial and temporal distribution, demographics, lighting conditions, and crash distance from home for e-scooter and bicycle crashes.

Conclusions: The police crash report provides a comprehensive picture of e-scooter safety complementing existing literature. We found that e-scooter crash characteristics do not fully overlap with features of bicycle crashes.

Practical Implications: A generalized engineering, education, and enforcement treatment to reduce and prevent e-scooter and bicycle crashes, injuries, and fatalities might not result in equal outcomes for each mode. More rigorous enforcement could be implemented to deter e-scooters riders under the age of 18 years and e-scooter safety campaigns could target female riders.