Introduction and Objective

The longer-term goal of this project is to predict the incidence of crashes and injuries in the United States in a future fleet of the 2025 time-frame after current active and passive safety countermeasures are available in the entire vehicle fleet. Our assumption was that, by 2025, all new vehicles will have passive safety performance equivalent to current U.S. NCAP® five star ratings.

The objective of this study was to estimate frontal crash injury risk in vehicles with the best frontal crash performance in the U.S. New Car Assessment Program (NCAP).

Merging NCAP with NASS/CDS

Each vehicle in the NASS/CDS dataset was assigned its U.S. NCAP frontal barrier test. Vehicles in the NASS/CDS database and the NCAP database do not have the same naming scheme and not all vehicles are rated, requiring a complicated mapping process.

Dataset Composition

1,494 Cases

Gender
- Female: 54% (814)
- Male: 46% (680)

Seating Position
- Driver: 79% (1,185)
- Right Front Passenger: 21% (309)

Belt Status
- Belted: 85% (1,265)
- Unbelted: 15% (225)

Injury Severity
- MAIS 0-1: 84% (1,253)
- MAIS 2+: 16% (241)

Age Group
- 12-20: 15% (230)
- 21-29: 24% (362)
- 30-64: 49% (725)
- 65+: 12% (177)

Discussion and Conclusion

We did not find a significant link between NCAP frontal test performance and frontal crash injury risk. This may be because the NCAP frontal test is performed at a very high delta-v of 56 km/h, more severe than 99.1% of crashes included in this dataset, but this requires further analysis.

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References


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