

## **Exploring crash characteristics and injury outcomes among older truck drivers: An analysis of truck-involved crash data in the United States**

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### **Abstract**

This study explores differences in crash characteristics and injury outcomes in older and middle aged truck driver. Two sets of data in the United States were used to compare truck drivers aged 60 years and older to their younger counterparts (i.e., 27-50 year olds). No differences were identified in crash outcomes and characteristics between older and middle aged truck drivers. Furthermore, older drivers were found to display some safer driver behaviors (i.e., safety belt and alcohol use) compared with middle aged drivers. Recommendations for change in policy and practice are discussed.

### **Background**

Road freight transportation represents a long-standing public health and transportation safety problem in the United States (U.S.). One group of truck drivers found to be over-represented in fatal crashes is comprised of drivers aged 60 years and older (Duke et al., 2010). This trend is unlikely to change given the proportion of truck drivers aged 65 years and over almost doubled from 2.8% in 2003 to 5.4% in 2008.

There is little information about the unique safety issues faced by older truck drivers and existing preventive strategies to address these issues, or how to inform the development of new evidence-based preventive strategies. This study represents the starting point for addressing this issue by describing trends in truck crash data to identify risk factors that contribute to crashes among older truck drivers. Crash data from the U.S were analysed to identify differences in crash outcomes and characteristics in middle and older aged truck drivers.

### **Method**

Data were combined from two crash databases maintained by NHTSA: 1) the Fatality Analysis Reporting System (FARS) (NHTSA, 2016a); and, 2) the National Automotive Sampling System General Estimates System (GES) (NHTSA, 2016b). FARS data are compiled by analysts in each state from state records, and investigators at the crash scene. The database includes information at the crash, vehicle, and person levels. GES is a nationally-representative probability sample of all police-reported crashes. FARS was used to obtain fatal crash data and GES was used to obtain non-fatal crashes. Combined in this way, FARS and GES provide the best estimate of the U.S. national crash experience. SAS was used to compute chi-square statistics on a combined datasets. Based on a recent review (Koppel et al., 2018), this study defines older age drivers are defined as 60 years and older.

### **Results and Conclusions**

Inconsistent with research conducted in the general older driver population (Langford and Koppel, 2006, Koppel et al., 2011), this study found no statistically significant differences in crash outcomes (i.e., fatal crashes, injury severity) between older and middle aged truck drivers. This study also found no statistically significant differences in crash characteristics (i.e., crash type, rollover, environmental conditions) across these groups, which is also inconsistent with the study conducted by Duke et al. (2010). A possible explanation for these findings is self-regulation, or the

modification of driving in circumstances considered challenging. Future research could explore this issue through investigating if older truck drivers are engaging in self-regulation and, if they are, the tools they adopt.

There were some indications in the results as well as existing literature (Pickrell et al., 2016; National Center for Statistics and Analysis, 2016) that older aged drivers tend to be more risk-adverse (i.e., less likely to drive under the influence of alcohol) and have a more positive attitude towards safety (i.e., more likely to wear safety belts). These findings suggest that older drivers could play a key role in creating a culture of safety in the workplace, particularly through mentoring programs for younger truck drivers.

The findings of this study are important as they provide unique insight into the development of targeted intervention efforts to improve safety in the transportation industry.

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