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National Highway Traffic Safety Administration

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Older Occupants' Recovery From Crash Injuries

Background

The National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS) database documents characteristics of crashes that result in one or more fatalities within 30 days of the crash. A person injured in a crash who survives the 30 days following a crash is considered a crash survivor and is not included in the FARS database. However, the long-term health consequences for older adults injured in crashes are unknown.

The goal of this study was to provide better understanding of the consequences of older adults' crash injuries on their health and functional performance – their ability to carry out normal activities – by addressing these research questions:

What are the differences in measures of self-reported health and performance between:

- People 65 and older who were injured in crashes, and those of similar age who were in crashes but not injured?
- People 65 and older and people 40 to 55 who were injured in crashes?

Method

Researchers reviewed police crash reports from Connecticut and Indiana from 2009 to identify potential participants who fit into one of the groups of interest for this study.

Connecticut data. Crash reports included contact information for all occupants involved in the crash, regardless of whether they were injured. Researchers recruited participants 65 and older who had been in a crash – injured as well as uninjured occupants. Analyzing differences in self-reported measures of health and performance between injured and uninjured older occupants approximately 2 years after their crashes allowed researchers to explore the effects of crash injuries while controlling for those of age.

Indiana data. Crash reports only identified occupants who sustained injuries. The research team recruited 369 older (65+) and 230 middle-age (40 to 55) occupants injured in crashes in Indiana. Differences in health and performance measures for this sample show the effects of age on participants' recovery from crash injuries.

Procedure

Beginning in 2011, approximately 2 years after experiencing a vehicle crash, each participant responded to items from the *Short Form 36 Health Survey* (SF-36). The SF-36 is a self-report survey commonly used to measure health and functional status. It is comprised of 36 items organized into eight scales measuring:

1. *Vitality,*
2. *Physical Functioning,*
3. *Bodily Pain,*
4. *General Health Perceptions,*
5. *Physical Role Functioning,*
6. *Emotional Role Functioning,*
7. *Social Role Functioning, and*
8. *Mental Health.*

Scores range from 0 to 100, with higher scores indicating better performance.

Results

Connecticut sample. All participants were 65 or older and had been in a crash; 60% (64) had been injured and the remaining 40% (43) were uninjured.

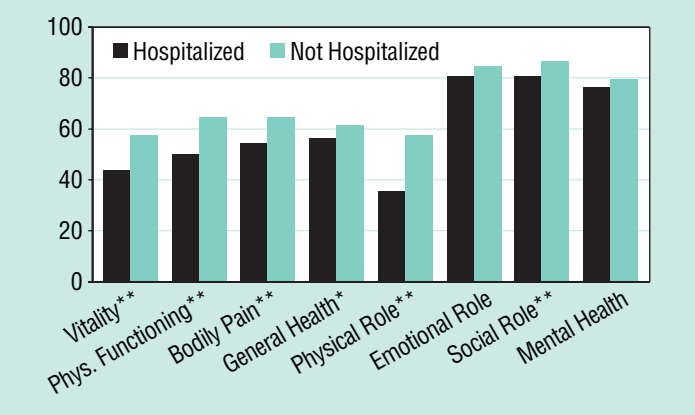
The groups were of similar age, an average of 75 for the injured group and 74 for the uninjured group, so the difference between scores is unlikely to be a function of age.

The injured group reported significantly lower energy levels, more difficulty performing physical tasks, more physical pain, and more limitations in performing daily activities and interacting socially.

Indiana sample. The Indiana sample consisted of 599 participants injured in crashes. Participants fell into two age groups: 38 percent were 40 to 45 and 62 percent were 65 or older. Analyses showed that the older group had significantly lower scores on one of the eight SF-36 scales: *Physical Functioning.* Older participants had significantly higher scores on two scales: *Social Role Functioning,* and *Mental Health.*

While all Indiana participants were injured, the police reports did not document injury severity, but some did indicate whether the occupant required hospitalization. Researchers assumed that hospitalized occupants' injuries were more serious.

Figure 1. SF-36 Scores by Hospitalization — 65+



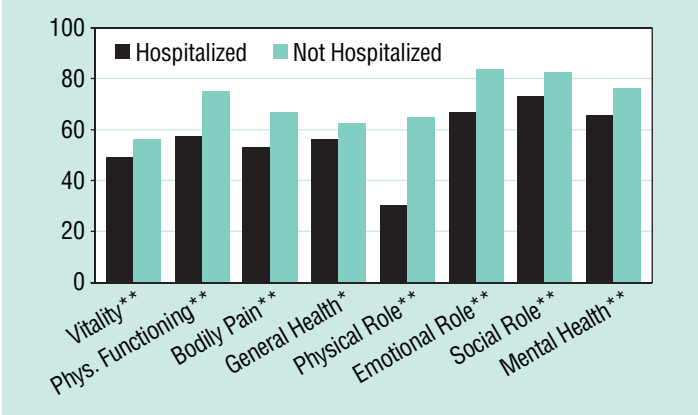
*indicates p < 0.05, **indicates p < 0.01

Analysts obtained hospitalization status for 366 older and 299 middle-age participants. Crash reports that included hospitalization data showed that 102 (28%) older and 50 (22%) middle-age participants were hospitalized.

Hospitalized participants in both age groups had lower SF-36 scores one to two years following the crash. As Figure 1 illustrates, the older group differed significantly on six of the eight scales: *Vitality, Physical Functioning, Bodily Pain, General Health Perceptions, Physical Role Functioning,* and *Social Role Functioning.*

The middle-age group showed significant differences on seven of the eight scales (see Figure 2): *Physical Functioning, Bodily Pain, General Health Perceptions, Physical Role Functioning, Emotional Role Functioning, Social Role Functioning,* and *Mental Health.*

Figure 2. SF-36 Scores by Hospitalization — 40–55



*indicates p < 0.05, **indicates p < 0.01

Discussion

Crash-involved, injured occupants obtained poorer scores on five of the eight SF-36 scales approximately 2 years after the crash. Older, injured participants reported lower energy levels, difficulty performing physical tasks, more physical pain, and more limitations in performing daily activities and interacting socially their uninjured counterparts.

Comparisons of scores of older and middle-age participants showed older participants scored lower on one of the physical scales, but higher on two of the mental scales. With respect to injury severity, those hospitalized for crash injuries reported substantially poorer scores on every health scale.

How to Order

Download *Functional Outcomes for Older Occupants Injured in a Crash* (20 pages), prepared by Preusser Research Group, from www.nhtsa.gov.

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