

Automobile Crashes and Safety Belt Usage By Driver Vs. Cost

1998

Tennessee Crash Outcome Data Evaluation System

Injuries resulting from motor vehicle crashes remain a major public health problem. These injuries cause unnecessary burden of increased taxes and insurance premiums. They can be prevented, or reduced, but only if we understand what the severity of these crashes is, and their associated health care costs. Crash data alone do not indicate the injury problem in terms of the medical and financial consequences. By linking crash, vehicle, and behavior characteristics to their specific medical and financial outcomes, we can identify prevention factors.

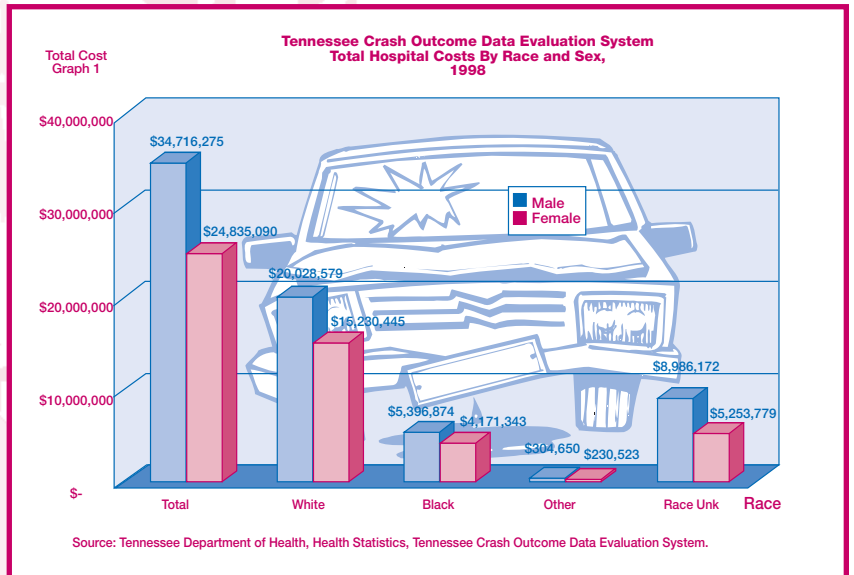
- National Highway Traffic Safety Administration

This report compares safety belt usage by driver and cost by sex and age for data year 1998. The average age for drivers wearing safety belts was 36 for female drivers and 37 for male drivers. The average age for drivers not wearing safety belts was slightly younger, 33 for female drivers and 34 for male drivers. Statistics reveal that male drivers had a higher percentage (60.5) of not using safety belts compared to the percent (41.2) that reported safety belt usage. This data is collected as safety belt usage equals "yes" or "no."

The Crash Outcome Data Evaluation System (CODES) evolved from a congressional mandate to report on the benefits of safety belts and motorcycle helmets. NHTSA has funded Alaska, Arizona, Connecticut, Delaware, Georgia, Hawaii, Iowa, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah and Wisconsin to link statewide crash and injury data. Tennessee has been an active participant in this project since 2001.

Crash and medical data are collected at the crash scene, en route to the emergency department, at the hospital or trauma center, and at discharge. The types of injuries, their severity, and the costs incurred by persons injured in motor vehicle crashes are described and computerized and this statewide data is linked with other related data and evaluated. These linked data identifies the types of injuries and the costs that result from specific driver, vehicle, and crash characteristics.

The following data reflects the safety belt usage of the driver at the time of a vehicle crash. This information is completed, on the CRASH report, by the police officer at the crash site. If the driver was wearing a safety belt, the officer would mark 'yes' and if the driver was not wearing a safety belt, the officer marked 'no'.

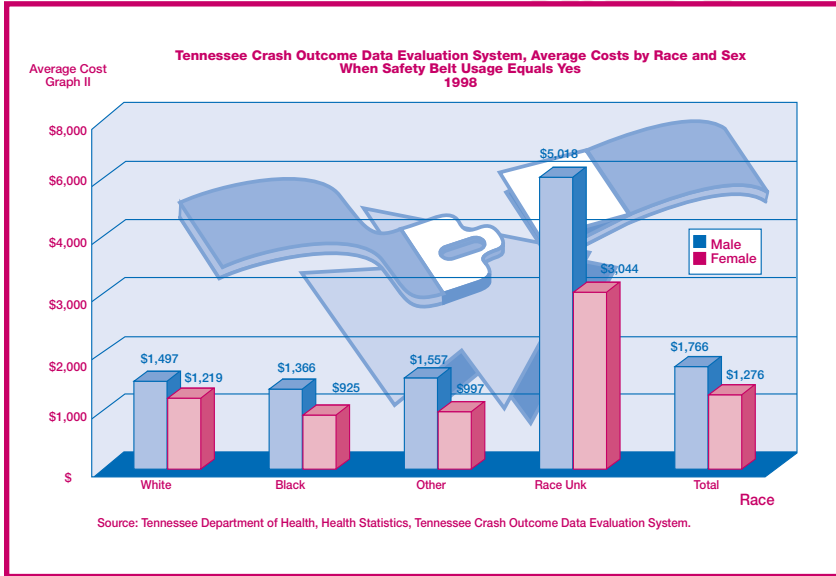


A review of hospital costs reflects the total costs (\$34,716,275) are higher for male drivers (N=13,094) than female drivers (N=15,739) (\$24,886,090) even though there were 2,645 more female drivers involved in accidents (Graph I). The average cost for male drivers (\$1,766) was 38.5 percent higher than female drivers (\$1,276) when safety belt usage equals yes (Graph II). The disparity is even greater when safety belt usage equals no (49.7%). This data reveals there are fewer male drivers involved in accidents, however, they contribute more than their proportionate share to total costs.

Automobile Crashes Comparing Safety Belt Usage By Driver Vs. Cost By Race And Sex

Safety belt usage not only saves lives but also saves hospital costs. The average cost for crash victims not wearing a safety belt is 2.8 times greater than for crash victims wearing a safety belt. Approximately \$16,800,000 could potentially be saved if all crash victims wore a safety belt. About 71 percent of those savings can be attributed to male drivers (Graph III). A review

The severity of the injury increased when the individual was not wearing a safety belt. These data indicate that safety belt usage is a definite preventive factor concerning the severity of the accident (Graph VI).



WHITE

The white population comprises 67.7 percent of the driver population and includes 59.2 percent of the hospital costs. The crash data for the white population is similar to the total concerning safety belt usage in that males are the primary violators. Approximately 41.6 percent of the drivers when safety belt usage was determined to be yes and 60.2 percent when safety belt usage was determined to be no were males.

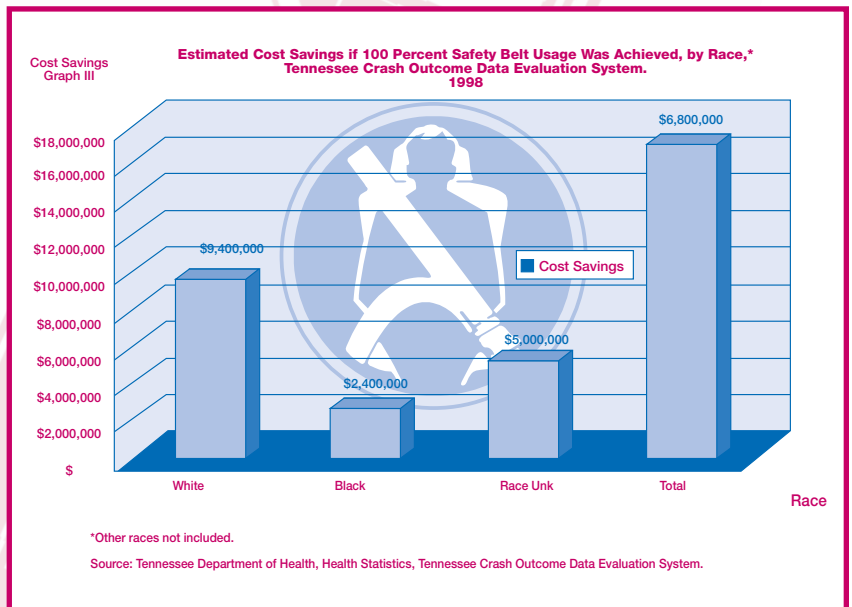
A review of hospital costs by safety belt usage reflects that the total costs (\$20,028,579) are (31.5%) higher for male drivers (8,989) than female drivers (10,532) with a cost of \$15,230,445, even though there were 1,543 more female drivers involved in accidents (Graph I). The average cost for male drivers (\$1,497) was 22.9 percent higher than female drivers (\$1,219) when safety belt usage equals yes (Graph II). The disparity is

of the total drivers by sex indicates that 45.4 percent are male drivers compared to 54.6 percent female drivers (Graph IV). These figures reveal that male drivers have more severe accidents than female drivers and contribute a larger percent to hospital costs. Approximately 58 cents of every dollar spent on hospital costs can be attributed to male drivers versus 42 cents for female drivers.

even greater when safety belt usage equals no (53.0%). The figure of 22.9 percent for white male drivers compares to 38.5 percent for all drivers. Some of this disparity could be

A review of elderly drivers 75+ years of age indicate that average hospital costs are approximately three times the average cost of drivers 15-19 years of age. These phenomena can largely be attributed to the age factor. Elderly people take longer to heal; therefore, hospital stay is longer, resulting in increased costs (Graph V).

A review of the total data by safety belt usage indicates the outcome of an injury is definitely affected if an individual is not wearing a safety belt at the time of the crash. The following statistics were reported when safety belt usage equals yes vs. no:



Safety belt Usage at the Time of the Incident

Severity of the Injury	Yes	No
No Injury	27.1%	10.5%
No visible injury	38.1%	28.6%
Bruising and abrasions	28.3%	39.7%
Bleeding wound and/or broken arm/leg	6.3%	19.0%
Fatality	.3%	2.3%

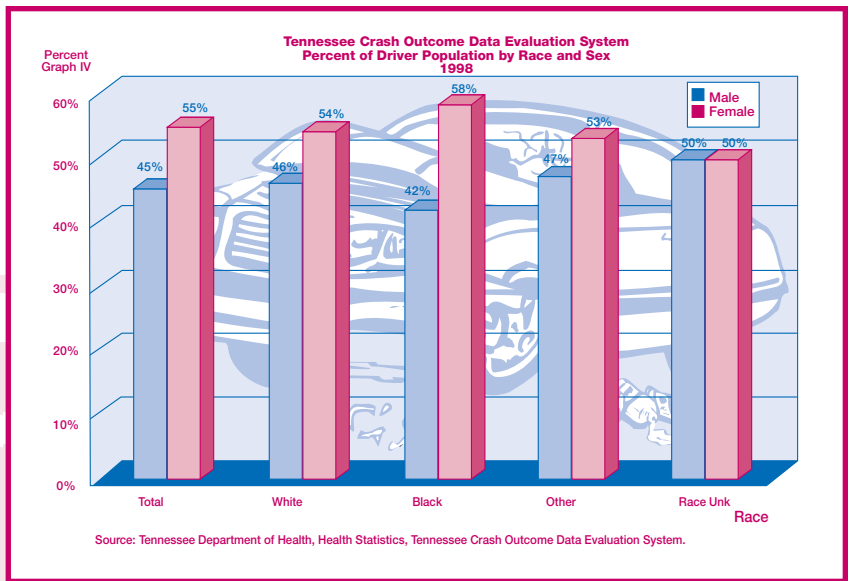
attributed to the fact that 23.9 percent of the costs are associated with the category of race unknown. The figure of 53.0 percent, when safety belt usage equals no, is more in parity with the total figure of 49.7 percent.

The data for the white driver population (like the total) reveals that there are fewer male drivers involved in accidents, however, they contribute more than their proportionate share to total costs.

Automobile Crashes Comparing Safety Belt Usage By Driver Vs. Cost By Race And Sex

The average cost for crash victims not wearing a safety belt is 2.5 times greater than for crash victims wearing a safety belt. Approximately \$9,400,000 could potentially be saved if all crash victims wore a safety belt. This figure represents 56.1 percent of the total savings, which compares to 59.2 percent of the total costs. Approximately 73 percent of these savings can be attributed to male drivers (Graph III).

A review of white drivers by sex indicates that 46.0 percent are male drivers compared to 54.0 percent female drivers (Graph IV). These figures, again, like the total, reveal that white male drivers have more severe accidents than female drivers and contribute a larger percent to hospital costs. Approximately 57 cents of every dollar spent on hospital costs for white drivers can be attributed to male drivers versus 43 cents for female drivers.



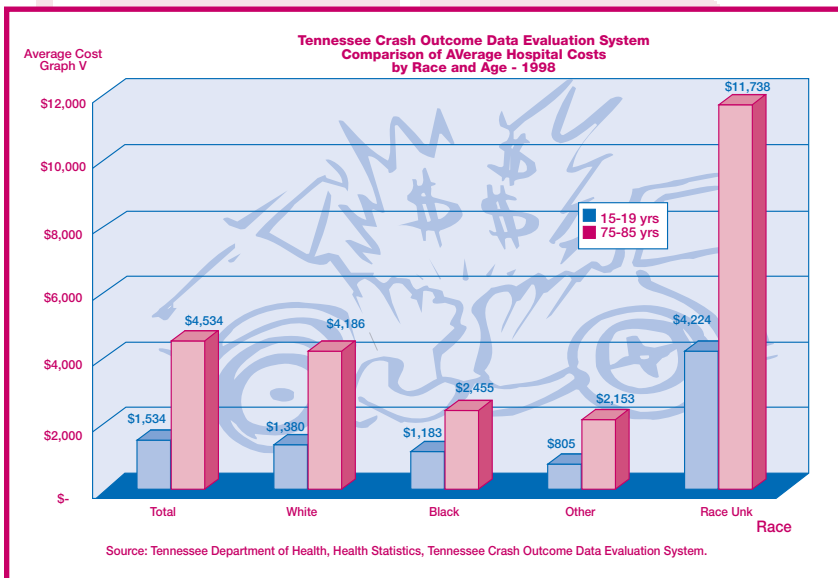
BLACK

The black population comprises 22.6 percent of the driver population and includes 16.1 percent of the hospital costs. The crash data for the black population is similar to the total concerning safety belt usage in that males are the primary violators. Approximately 39 percent of the drivers when safety belt usage was determined to be yes and 58.3 percent when safety belt usage was determined to be no were males.

A review of hospital costs by safety belt usage reflects that the total costs (\$5,396,874) are 29.4 percent higher for male drivers (2,735) than female drivers (3,974) (\$4,171,343) even though there were 1,059 more female drivers involved in accidents (Graph I). The average cost for male drivers (\$1,366)

drivers are higher in relation to their female counterparts than the total or white category. Some of this disparity could be attributed to the fact that 23.9 percent of the costs are associated with the category of race unknown. The figure of 58.3 percent, when safety belt usage equals no, is slightly higher than the total figure of 49.7 percent and the white figure of 53.0 percent. The data for the black driver population (like the total and white) reveals that there are fewer male drivers involved in accidents, however, they contribute more than their proportionate share to total costs.

The average cost for crash victims not wearing a safety belt is 3.3 times greater than for crash victims wearing a safety belt. Approximately \$2,400,000 could potentially be saved if all crash victims wore a safety belt. This figure represents 14.1 percent of the total savings, which compares to 16.1 percent of the total costs. Approximately 71.7 percent of these savings could be attributed to male drivers (Graph III).



was 47.8 percent higher than female drivers (\$925) when safety belt usage equals yes (Graph II). The disparity is even greater when safety belt usage equals no (67.6%). The figure of 47.8 percent for black male drivers compares to 38.5 percent for all male drivers and 22.9 percent for white male driver. This difference indicates that costs associated with black male

A review of the total drivers by sex indicates that 41.9 percent are male drivers compared to 58.1 percent female drivers (Graph IV). These figures, again, like the total, reveal that black male drivers have more severe accidents than black female drivers and contribute a larger percentage to hospital costs. Approximately 56 cents of every dollar spent on hospital costs for black drivers can be attributed to male drivers versus 44 cents for female drivers.

OTHER

The other race population comprises 1.6 percent of the driver population and includes 0.9 percent of the hospital costs. The crash data for the "other" race population is similar to the total concerning safety belt usage in that males are the primary violators. Approximately 42 percent of the drivers when safety belt usage was determined to be yes and 67.8 percent when safety belt usage was determined to be no were males.

Automobile Crashes Comparing Safety Belt Usage By Driver Vs. Cost By Race And Sex

A review of hospital costs by safety belt usage reflects that the total costs (\$304,650) are 32.2 percent higher for male drivers (211) than female drivers (238) (\$230,523) even though there were 27 more female drivers involved in accidents (Graph I). The average cost for male drivers (\$1,557) was 57.2 percent higher than female drivers (\$997) when safety belt usage equals yes (Graph II). The disparity when safety belt usage equals no is 48.6 percent. The figure of 57.2 percent for other male drivers compares to 38.5 percent and for all male drivers and 22.9 percent for white male drivers and 47.8 percent for black male drivers. This difference indicates that costs associated with other male drivers are higher in relation to their female counterparts than the total, white or black category. Some of this disparity could be attributed to the fact that 23.9 percent of the costs are associated with the category of race unknown. The figure of 67.8 percent, when safety belt usage equals no, is slightly higher than the total figure of 49.7 percent, the white figure of 53.0 percent and black of 58.3 percent. The data for the other driver population (like the total, white and black races) reveals that there are fewer male drivers involved in accidents, however, they contribute more than their proportionate share to total costs.

The comparison between safety belt usage equals yes versus safety belt usage equals no to determine if 100 percent safety belt usage would result in a savings cannot be made because of the apparent lack of complete data (Graph III).

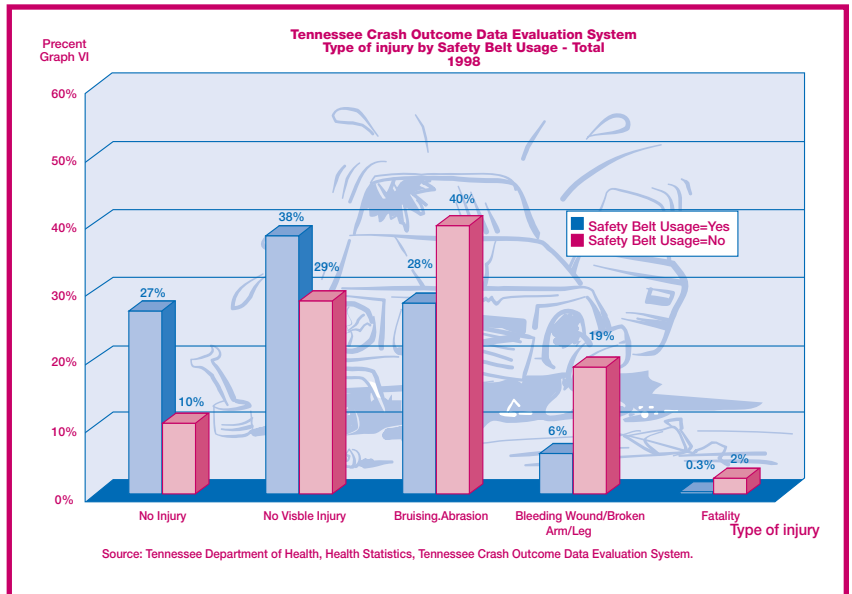
A review of the total drivers by sex indicates that 47 percent are male drivers compared to 53 percent female drivers (Graph IV). These figures, again, like the total, reveal that other race male drivers have more severe accidents than female drivers and contribute a larger percent to hospital costs. Approximately 57 cents of every dollar spent on hospital costs for black drivers can be attributed to male drivers versus 43 cents for female drivers.

RACE UNKNOWN

The race unknown category comprises 8.1 percent of the driver population and include 23.9 percent of the hospital costs. The crash data for the race unknown population is similar to the total concerning safety belt usage in that males are the primary violators. Approximately 44.4 percent of the drivers when safety belt usage was determined to be yes and 66.4 percent when safety belt usage was determined to be no were males.

A review of hospital costs by safety belt usage reflects that the total costs (\$8,986,172) are 71 percent higher for male drivers (1,159) than female drivers (1,175) (\$5,253,779) even though there were 16 more female drivers involved in accidents (Graph I). The average cost for male drivers (\$5,018) was 64.9 percent higher than female drivers (\$3,044) when safety belt usage equals yes (Graph II). The disparity when safety belt usage equals no is 13.2 percent. The figure

of 64.9 percent for race unknown male drivers is higher than all the other race categories (including the total). This difference indicates that costs associated with male drivers are consistently higher in relation to their female counterparts for all race categories. The data for the race unknown driver population (like the total, and all other races) reveals that there are fewer male drivers involved in accidents, however, they contribute more than their proportionate share to total costs.



The average cost for crash victims not wearing a safety belt is 3.3 times greater than for crash victims wearing a safety belt. Approximately \$5,000,000 could potentially be saved if all crash victims wore a safety belt. This figure represents 29.8 percent of the total savings, which compares to 8.1 percent of the total costs. Approximately 67.2 percent of these savings can be attributed to male drivers (Graph III).

Reviews of the total drivers by sex indicate that 49.7 percent are male drivers compared to 50.3 percent female drivers (Graph IV). These figures, again, like the total, reveal that race unknown male drivers have more severe accidents than female drivers and contribute a larger percent to hospital costs. Approximately 63 cents of every dollar spent on hospital costs for race unknown drivers can be attributed to male drivers versus 37 cents for female drivers.

Please visit the Tennessee Department of Health Website:

<http://www.tennessee.gov/health>

Automobile Crashes and Safety Belt Usage by Driver vs. Cost 1998 was

published by the Tennessee Department of Health, Health Statistics, Cordell Hull Building, Nashville, Tennessee 37247-5262

Marguerite Lewis, Director
(615) 741-1954



Tennessee Department of Health, Health Statistics. Authorization No. 343530, 75 copies, May 2003. This public document was promulgated at a cost of \$3.54 per copy.