

Descriptive Overview of Linked 2018 Crash and Death Certificate Data

North Carolina Crash Injury Surveillance System

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Funding

Funding

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Background

- The first year (2019-2020) of the North Carolina Crash Injury Surveillance System (NC-CISS) project linked two health outcome datasets with 2018 crash report data: death certificate data and emergency department visit data.
- This report provides a selection of descriptive analysis of the linked crash and death certificate dataset.
- More reports from the project are available at the [CCHI Transportation & Health Data website](#).

Notes:

- Death certificate data were used for all demographic data except when they were unknown.
- All percentages have been rounded to the nearest integer so may not total to 100%.

Data Descriptions

Crash report data are recorded by law enforcement officers for motor vehicle crashes involving a motor vehicle in transport resulting in an un-stabilized situation, which includes at least one harmful event. North Carolina crash records must meet at least one of the following criteria: The crash resulted in a fatality, a non-fatal personal injury, total property damage amounting to \$1,000.00 or more, property damage of any amount to a vehicle seized, or the vehicle has been seized and is subject to forfeiture under G. S. 20-28.3. In addition, a reportable motor vehicle traffic crash must occur on a trafficway (any land way open to the public as a matter of right or custom for moving persons or property from one place to another) or occur after the motor vehicle runs off the roadway but before events are stabilized.

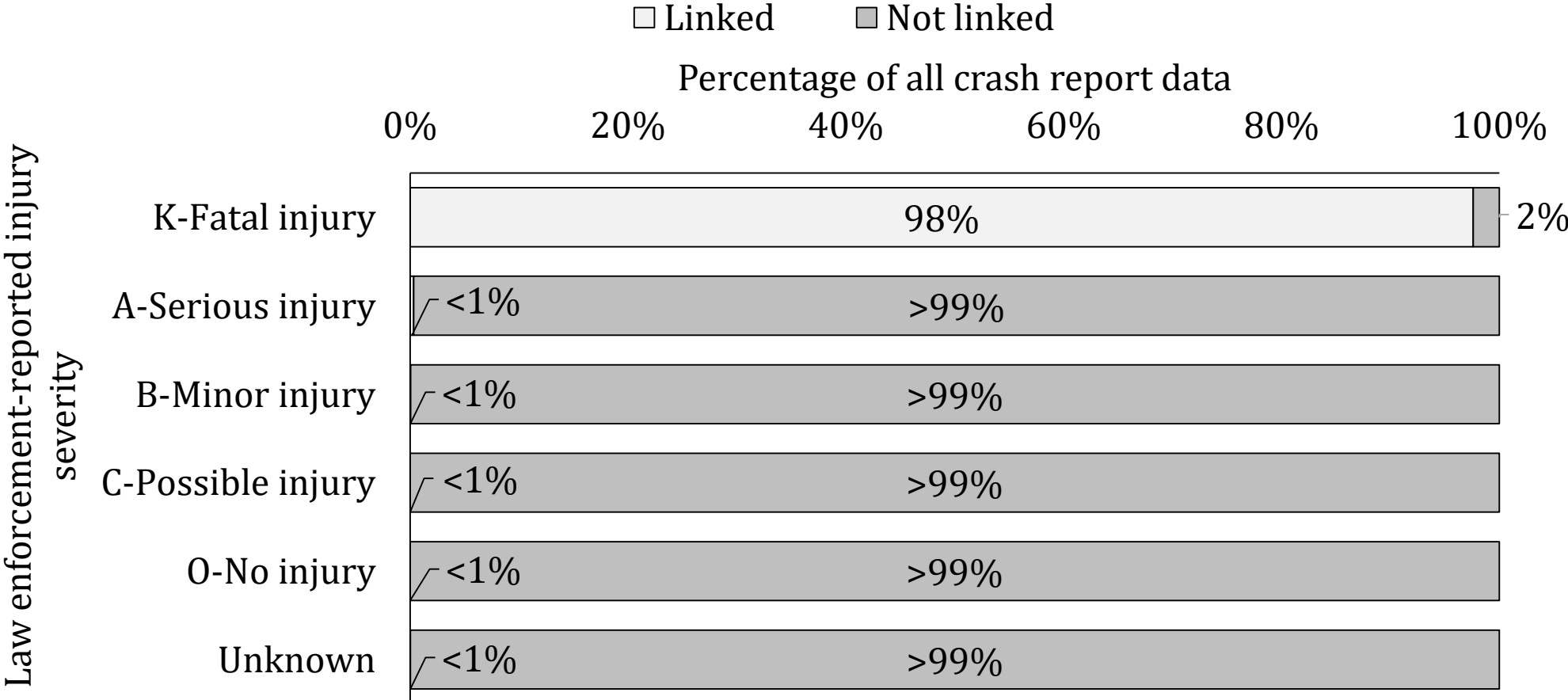
There were 832,058 persons involved in 355,571 crashes in the 2018 crash report data.

Death certificate data represent the death certificates for deaths occurring in North Carolina and filed with the North Carolina Vital Records office. These data include resident and non-resident deaths within state boundaries.

There were 94,867 deaths recorded in North Carolina in 2018.

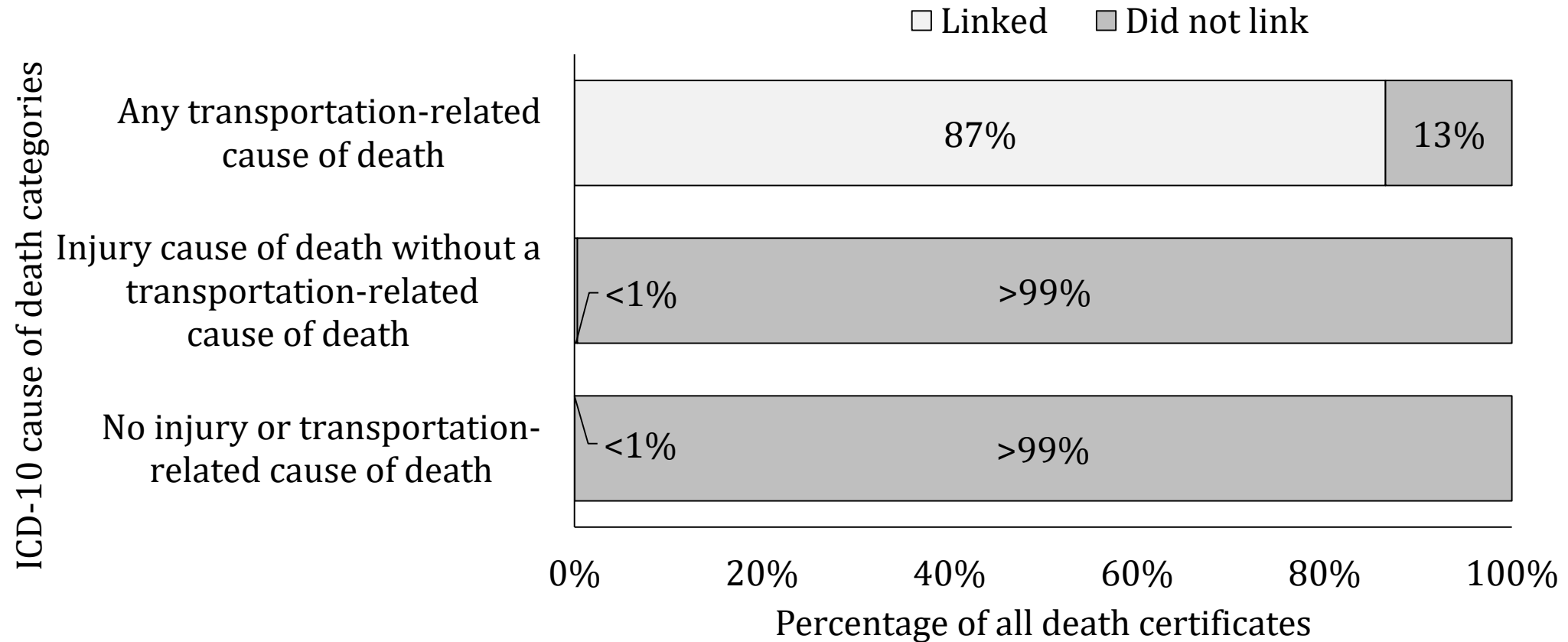
Linked crash report and death certificate data in this report represent 1,483 matches between the 2018 crash report and death certificate datasets.

98% of fatalities in the 2018 crash reports linked to death certificates. (N=1,483 linked; N=832,058 persons in crash report data)



87% of 2018 death certificates with any transportation-related cause of death were linked to crash reports*.

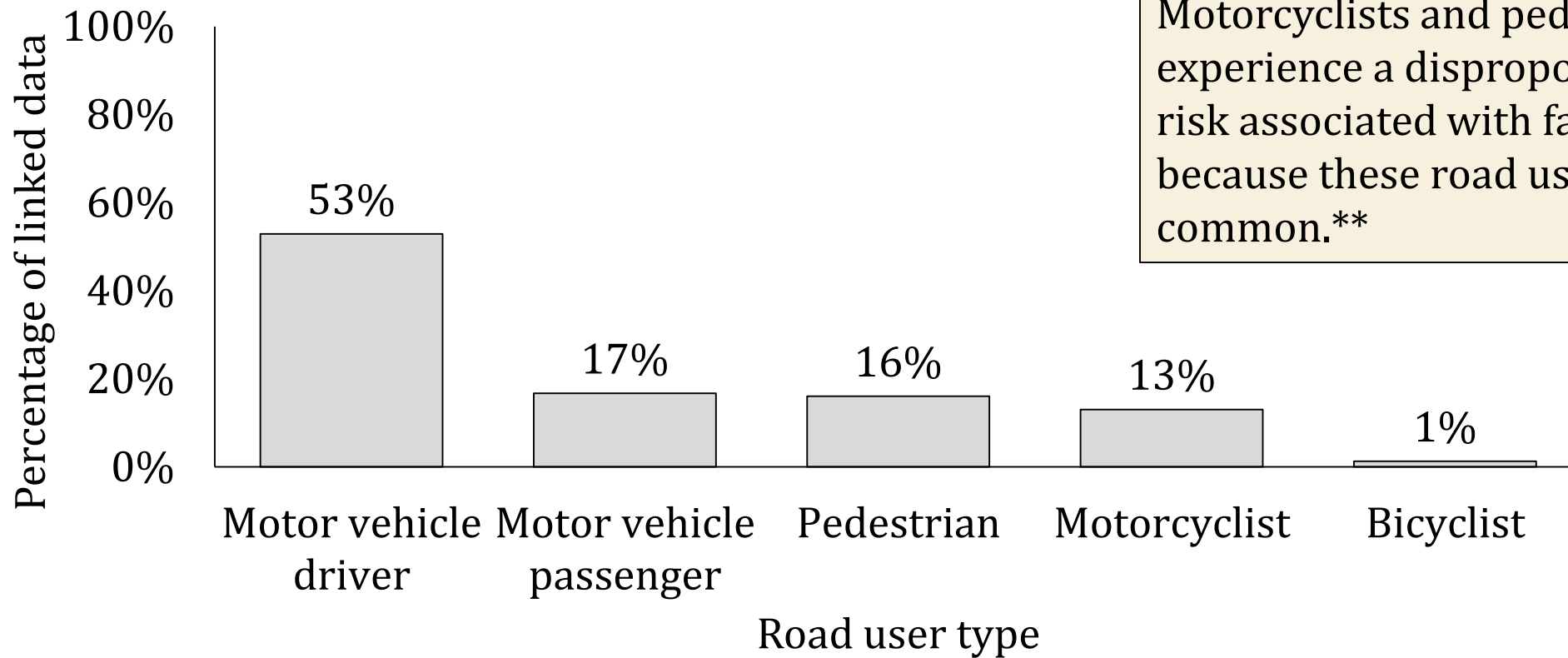
(N=1,483 linked; N=94,867 persons in death certificate data)



*Transportation-related causes of death: ICD-10 codes U011|V[0-9][1-9]|X82|Y03|Y361;

Injury causes of death: ICD-10 codes [S][0-9][0-9]|T[0-8][0-8]|V[0-8]|V9[8-9]

The frequency of types of road users found in 2018 linked crash-death certificate data may indicate different levels of risk. (N=1,478*)

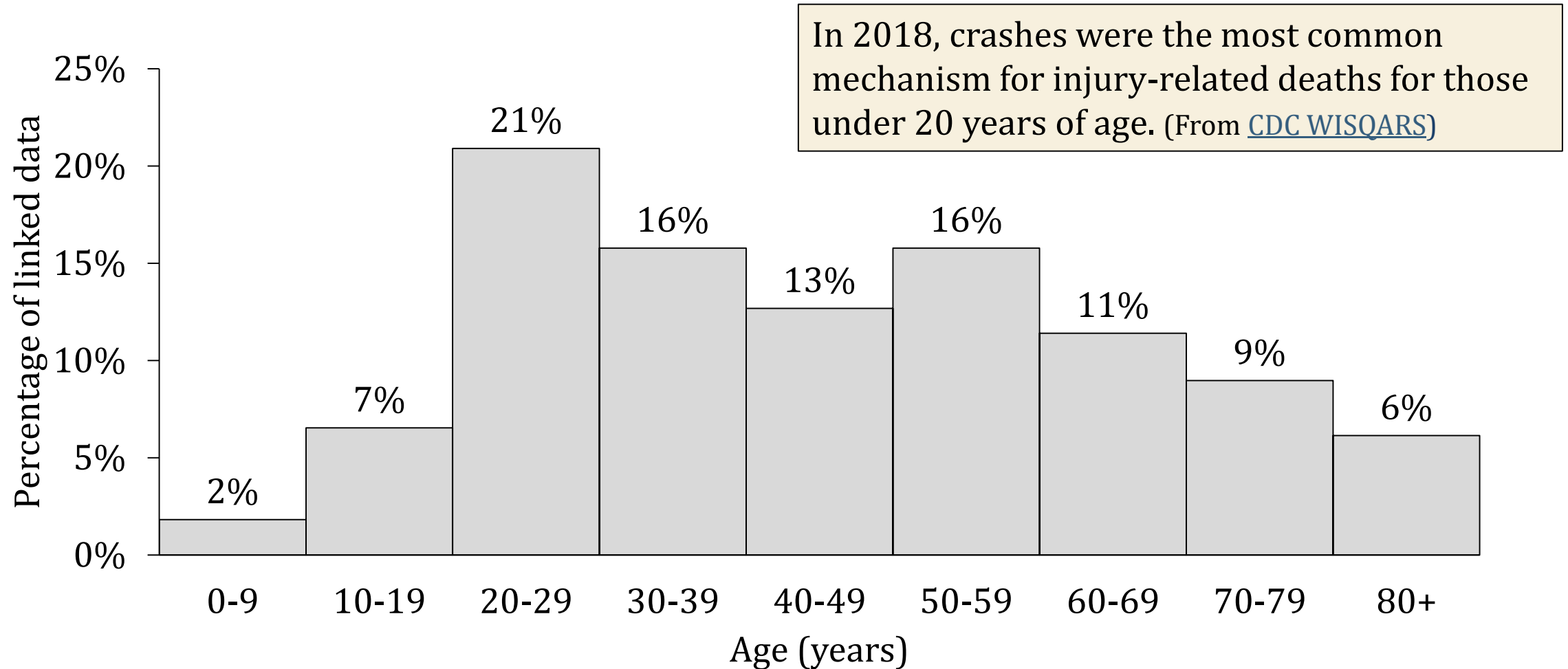


Motorcyclists and pedestrians experience a disproportionately higher risk associated with fatal injuries, because these road users are less common.**

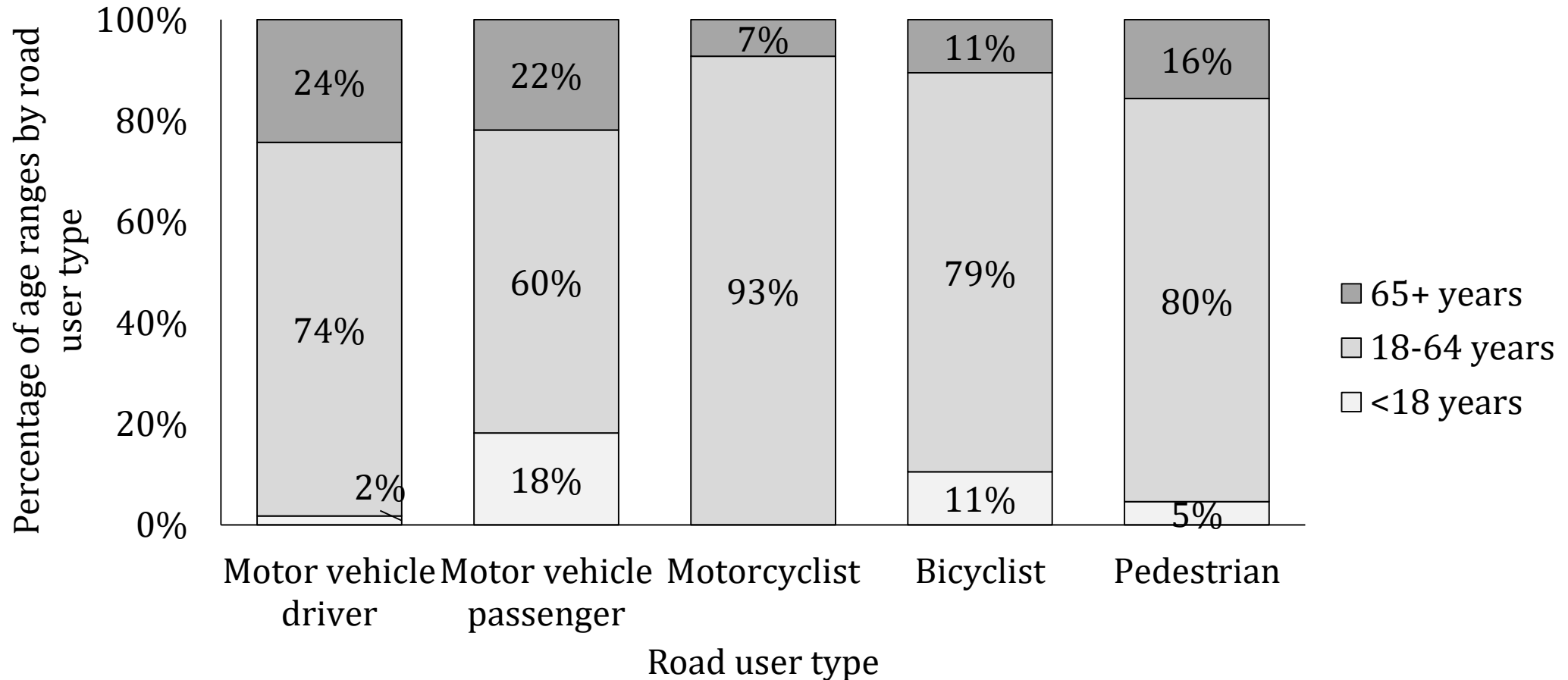
* 5 records with 'other' as the road user type were excluded

**Nauman RB, Dellinger AM, Zaloshnja E, Lawrence BA, Miller TR. Incidence and total lifetime costs of motor vehicle-related fatal and nonfatal injury by road user type. *Traffic Injury Prevention*; 2010;11:353-60. <http://www.ncbi.nlm.nih.gov/pubmed/20730682>

Deaths occurred at all ages in 2018 linked crash-death certificate data. (N=1,483)

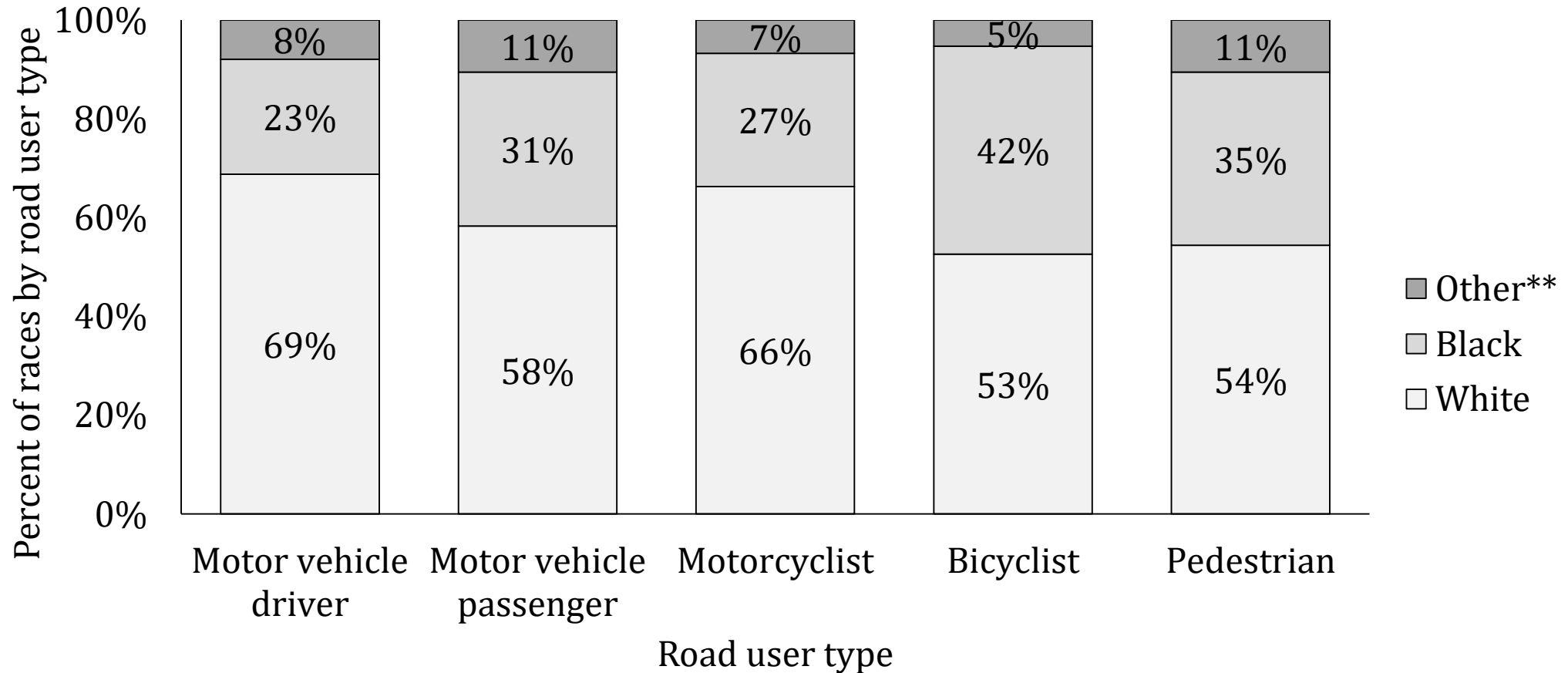


The breakdown by age varied by different types of road users in 2018 linked crash-death certificate data. (N=1,478*)



*5 records with 'other' as the road user type were excluded

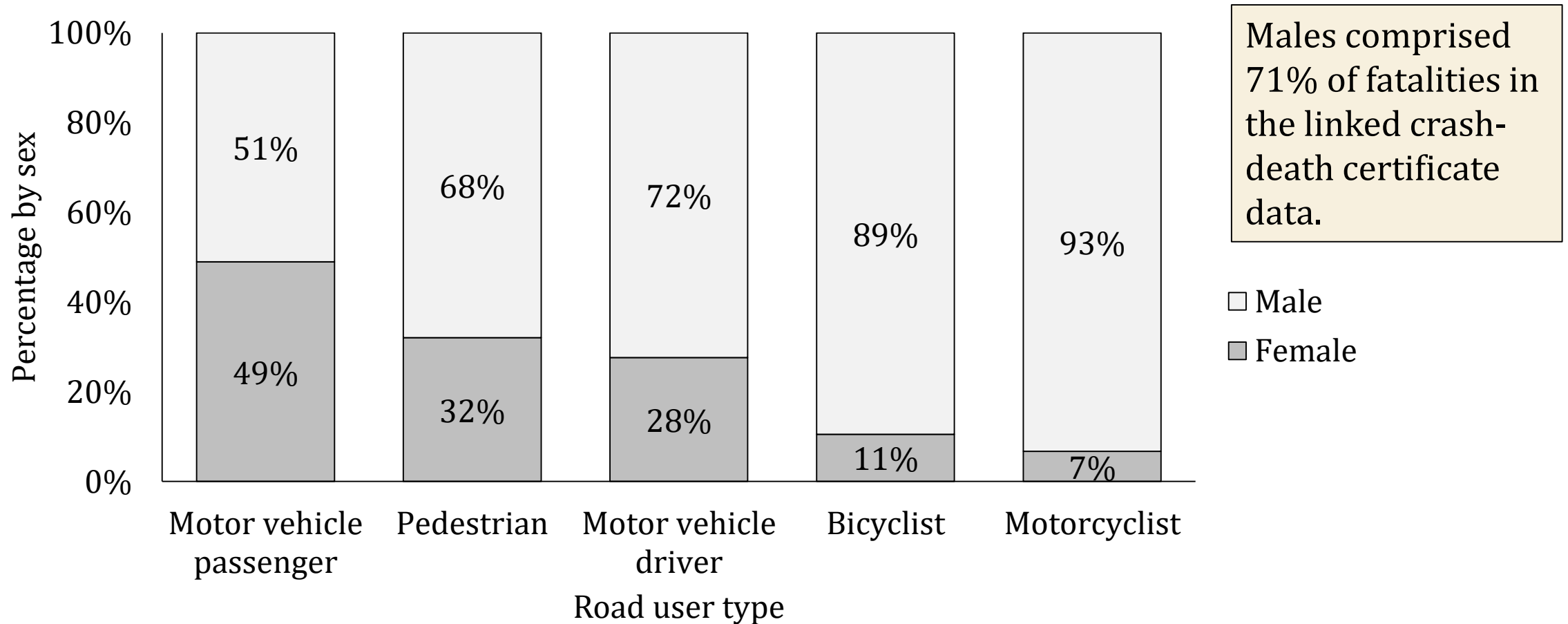
The breakdown by race varied by different types of road users in 2018 linked crash-death certificate data. (N=1,478*)



*5 records with 'other' as the road user type were excluded; one fatality with a death certificate race code of "unknown" uses the race indicator in the crash data

**The following race designations were combined into 'Other': American Indian or Alaska Native, Chinese, Filipino, Other Asian, Other non-White

The breakdown by sex varied by different types of road users in 2018 linked crash-death certificate data. (N=1,478*)

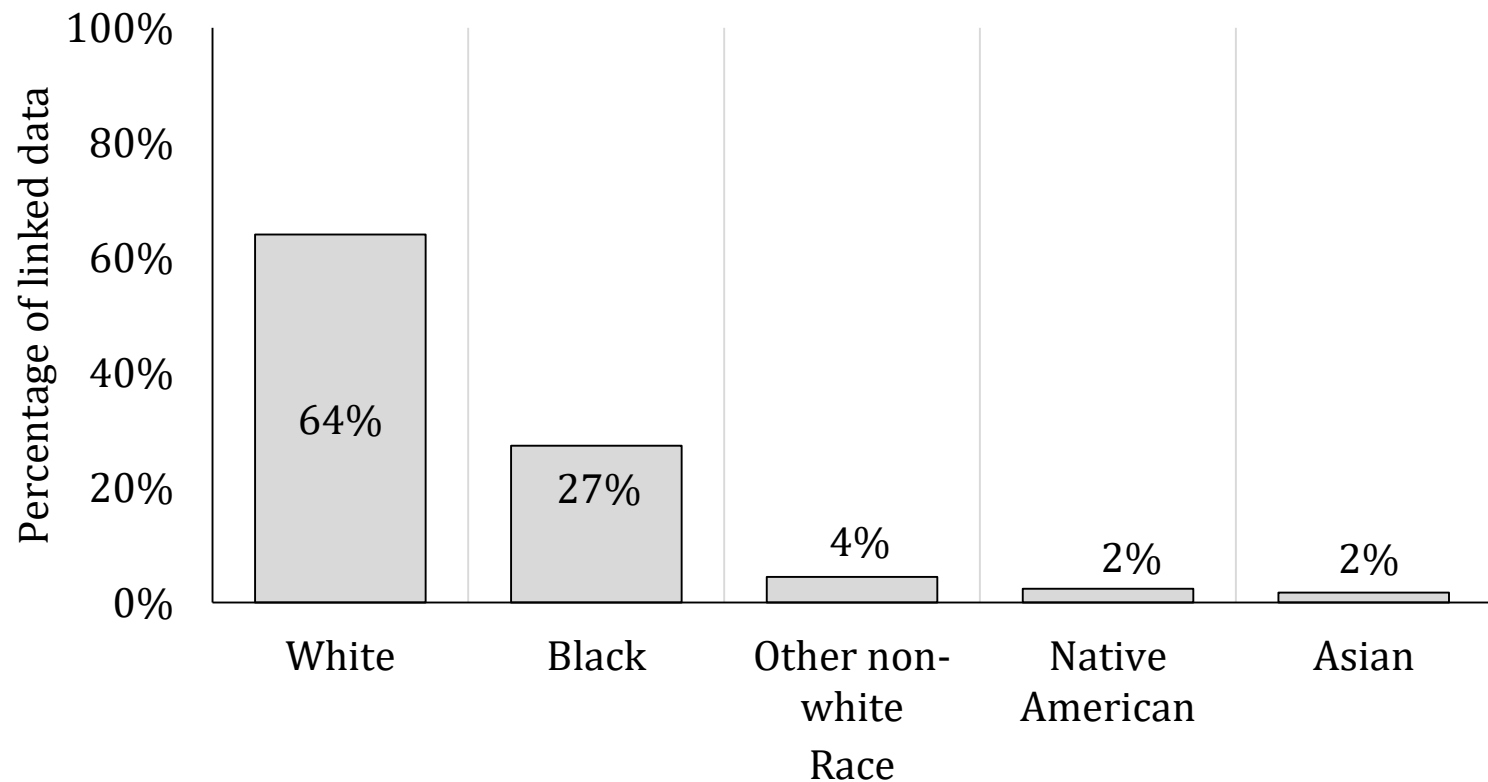


*5 records with 'other' as the road user type were excluded

The breakdown by race of 2018 linked crash-death certificate data suggest health outcome disparities.

(N=1,483**)

Blacks/African Americans make up only 22% of the NC population, but 27% of crash fatalities.*

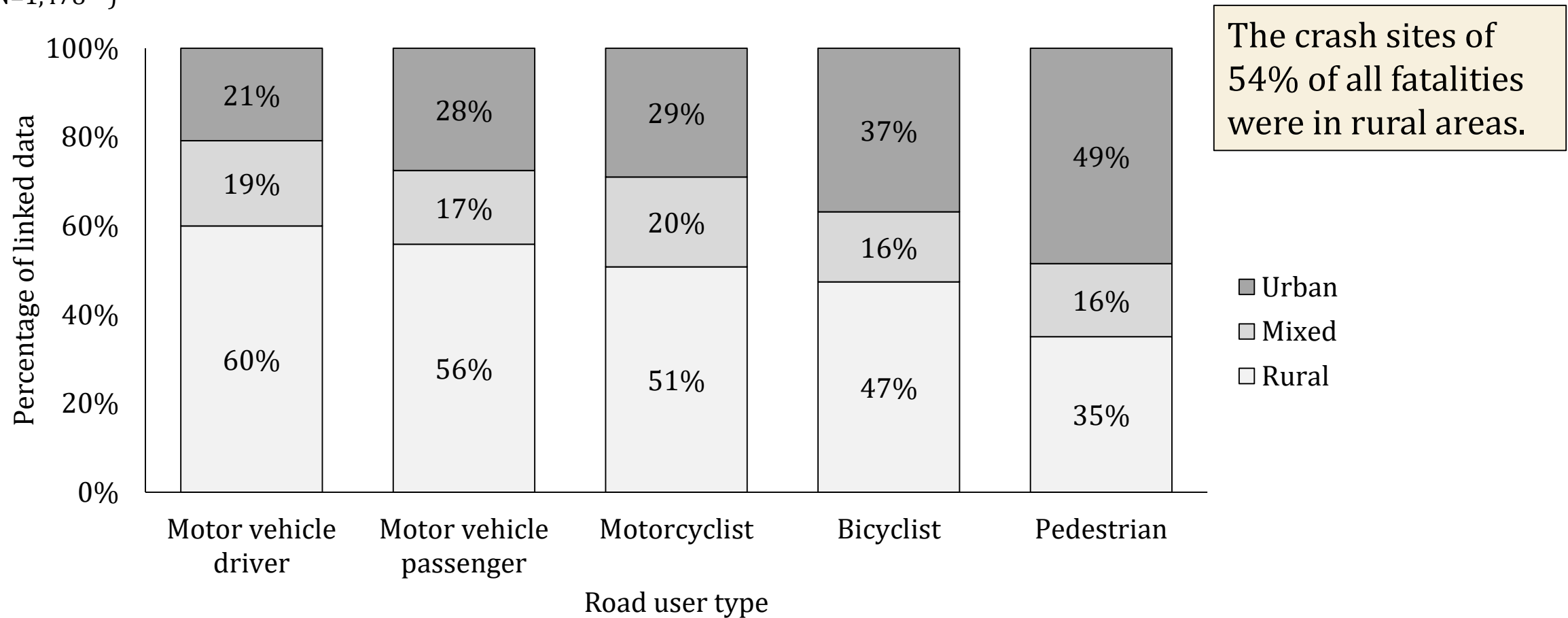


*Source: <https://www.census.gov/quickfacts/nc>

**One fatality with a death certificate race code of “unknown” uses the race indicator in the crash data. Asian designations by country were combined due to low numbers

The rurality* of crash sites varied for different types of road users in 2018 linked crash-death certificate data.

(N=1,478**)

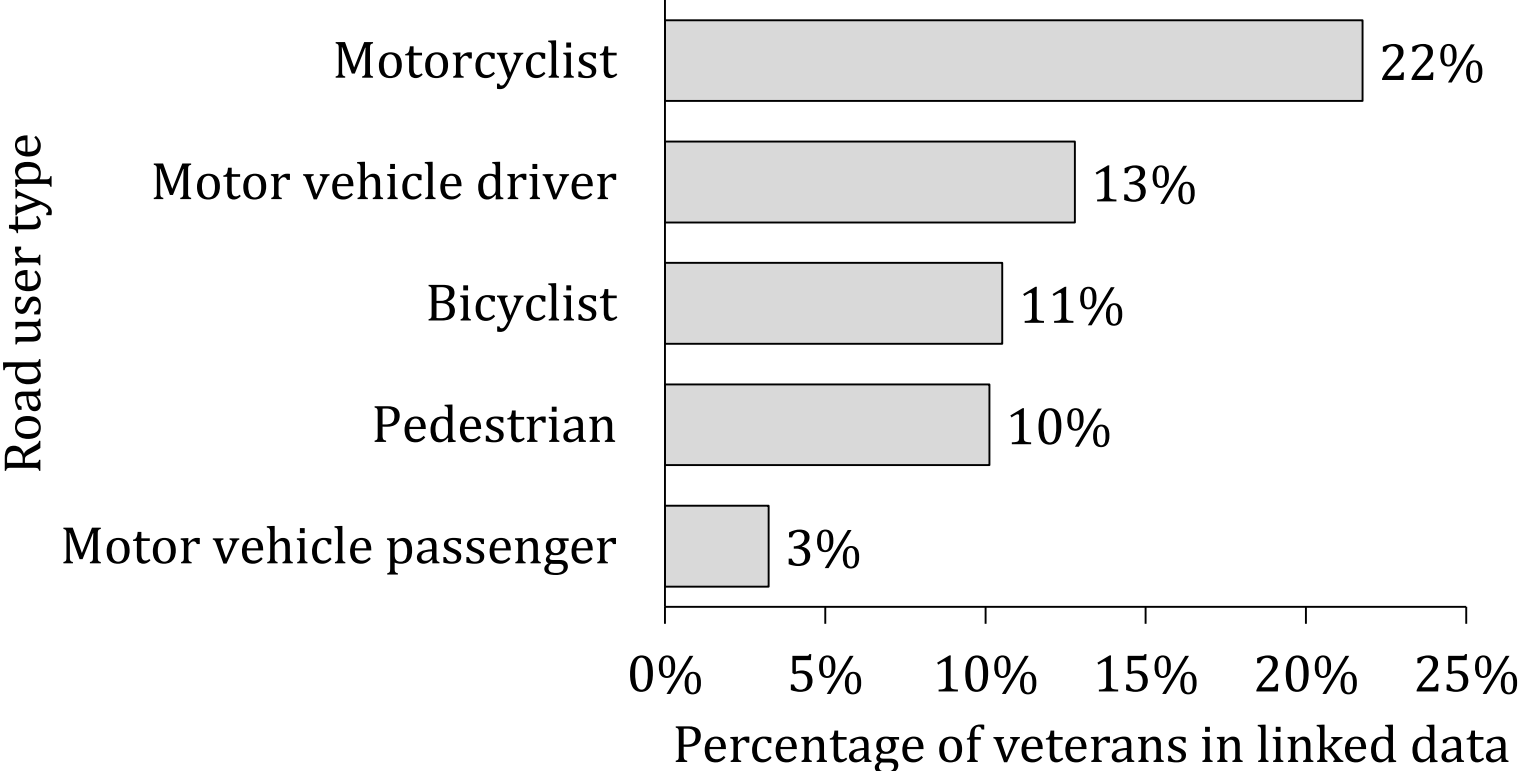


*Rurality is designated by law enforcement officers as part of the crash report. Rural: <30% developed; Mixed: 30-70% developed; Urban: >70% developed

**5 records with 'other' as the road user type were excluded

Veterans are over-represented in 2018 linked crash-death certificate data. (N=1,478**)

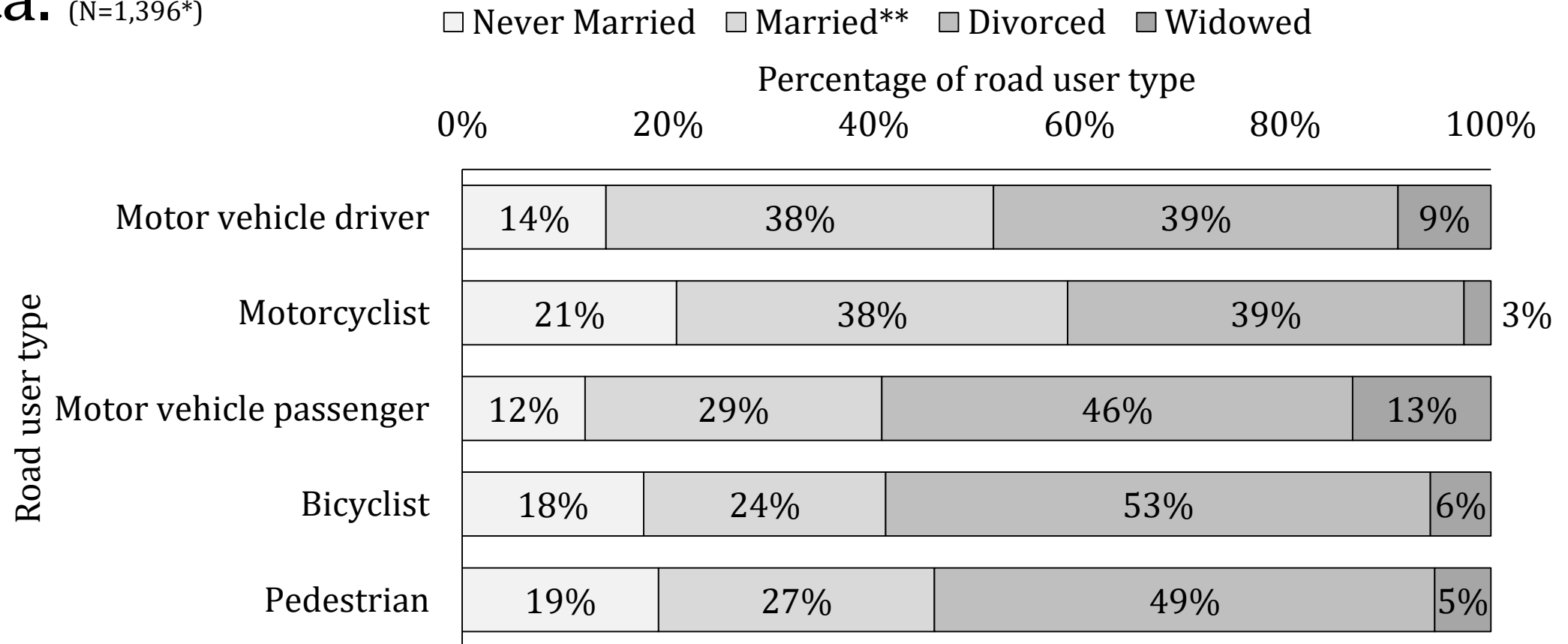
Approximately **6%** of North Carolinians are veterans. However, **22%** of motorcycle crash fatalities in 2018 were veterans.*



*Source: <https://www.census.gov/quickfacts/nc>

**5 records with 'other' as the road user type were excluded

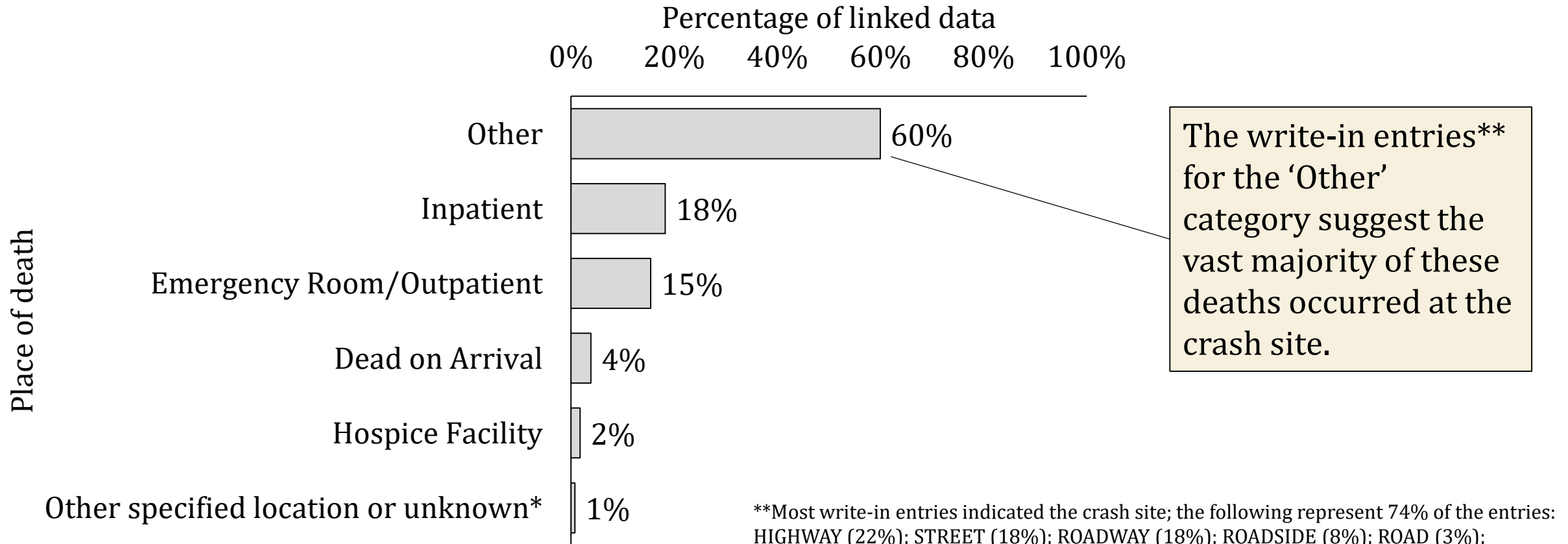
The marriage status percentages varied for different types of road users in 2018 linked crash-death certificate data. (N=1,396*)



*Excludes 72 persons under the age of 18, 5 persons with 'other' as the road user type and 11 persons with unclassified marital status

**Includes married but separated

The crash site appeared to be the most common place of death in 2018 linked crash-death certificate data. (N=1,483)

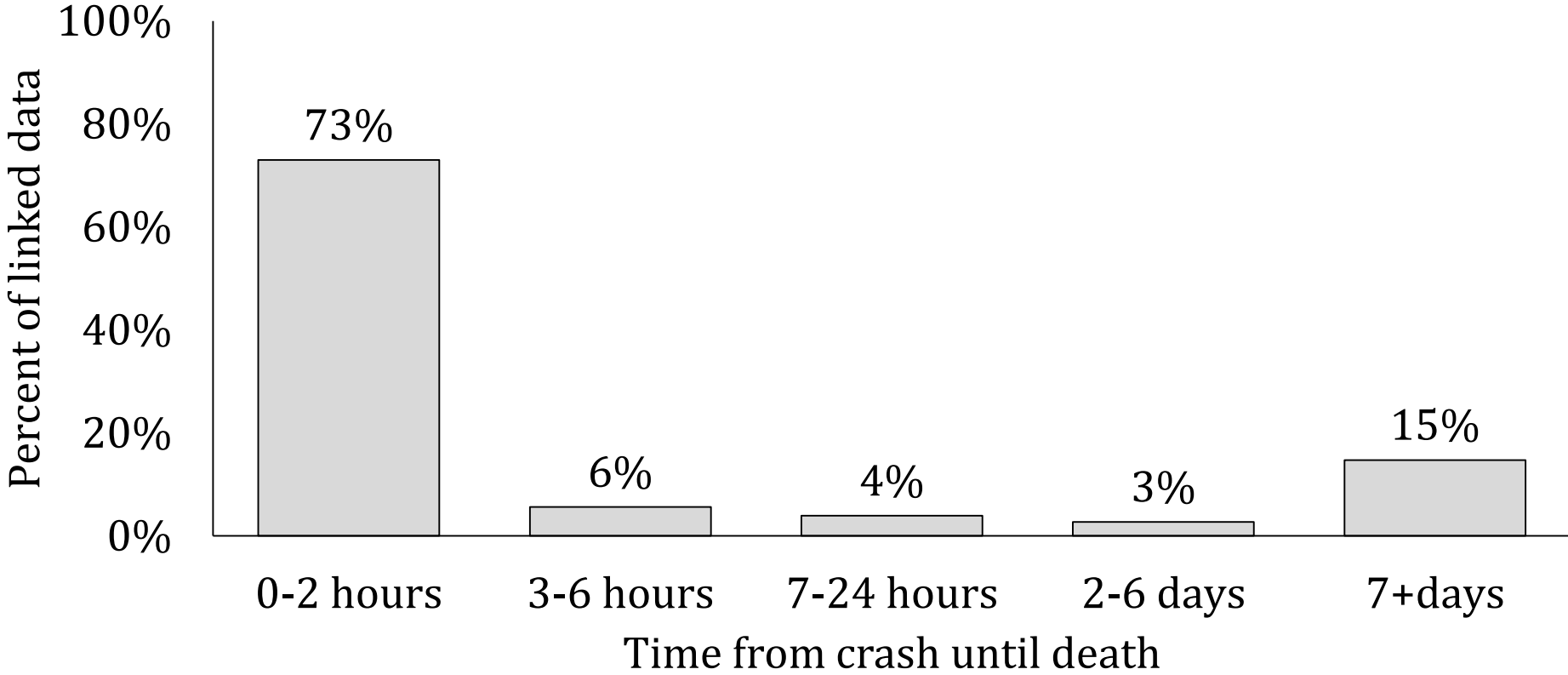


*Includes decedent's home and nursing homes/long term care facilities

**Most write-in entries indicated the crash site; the following represent 74% of the entries: HIGHWAY (22%); STREET (18%); ROADWAY (18%); ROADSIDE (8%); ROAD (3%); INTERSTATE (1%); SCENE OF CRASH (1%); HWY (1%); RURAL ROAD (1%); OFF ROADWAY (1%); some of the remaining entries appeared to name the street or highway where the crash occurred

83% of deaths occurred in the first 24 hours after the crash in linked 2018 linked crash-death certificate data.

(N=1,356*)

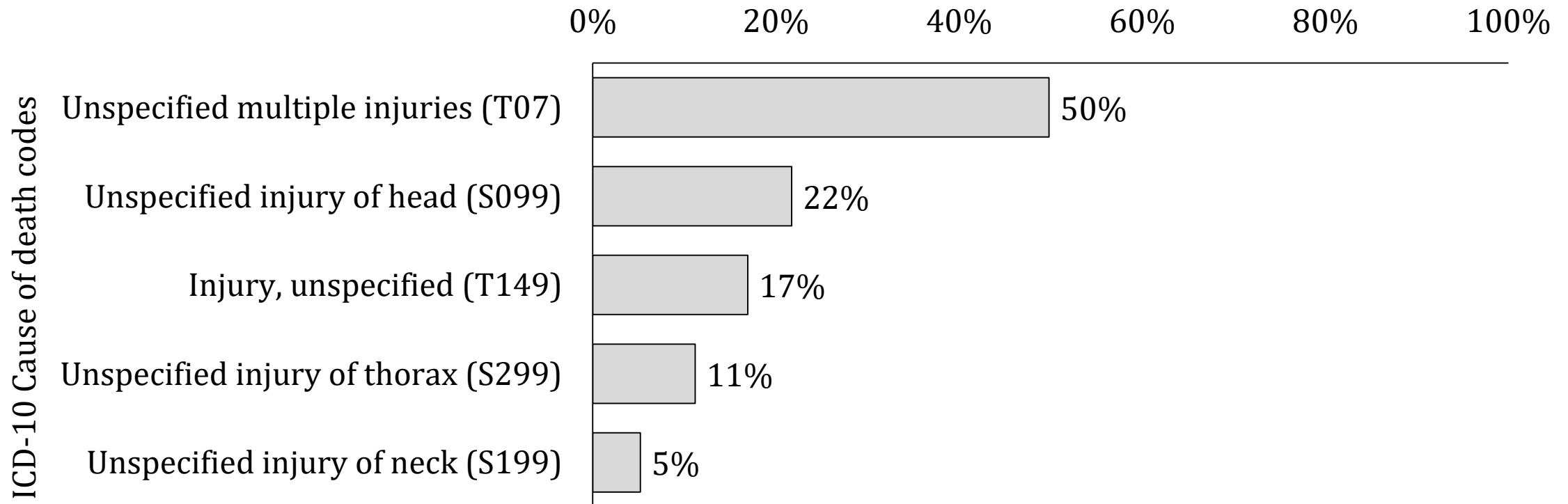


*127 records that have the time of death occurring before the time of the crash were excluded; these records appear to be good matches, so the discrepancy is likely due to data entry errors

Head injuries were the most commonly specified location of injury in the cause of death codes* of linked 2018 crash-death certificate data.

(N=2,275 cause of death codes from 1,483 linked records)

Percentage of linked data with each cause of death code



*Excludes ICD-10 transportation injury codes starting with V

Contact Information

Our project email address is ncciss@office.unc.edu.

Thank you for your interest in motor vehicle crash injury research!

