



Status Summary 2023: Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

RECIFE, BRAZIL



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

International
Injury Research Unit

Beginning in 2020, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in Recife to reduce road injuries and fatalities.

The following report highlights results from an ongoing study that captured observations of three risk factors:* speed, helmet use, and seat-belt and child restraint use. The results are based on data collected between December 2020 and April 2023.

*This study did not observe drink driving due to COVID-19 risks.

Driving above the posted speed limit was high among all observed vehicles on local roads



Seat-belt use among adult rear-seat passengers was low



Driving above the posted speed limit decreased between November 2020 and April 2023 from 37% to



Correct helmet use among all motorcyclists was



Road Traffic Fatalities in Recife

2018–2021

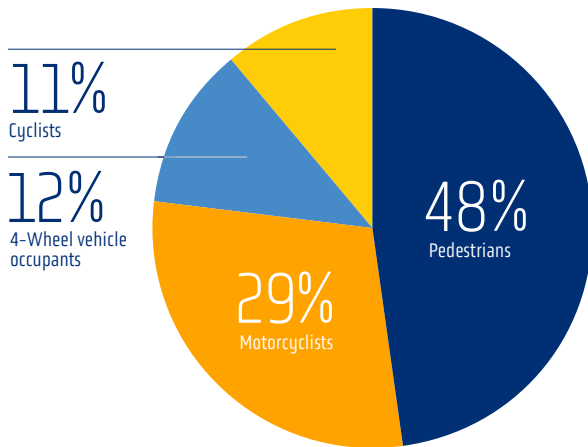
107
2018

117
2019

109
2020

88
2021

Deaths by road user, 2021



Vulnerable road users (motorcyclists, pedestrians, and cyclists) **accounted for 88% of road traffic fatalities.**

Note: Data from existing sources was used for the outcome data indicators. Police crash data systems are prone to underreporting.

Recommendations

Office of Transit and Urban Transport (CTTU)

- Increase enforcement of:
 - Speed limits, particularly among motorcyclists.
 - Correct helmet use among all motorcyclists, especially passengers, and on arterial and local roads.
 - Seat-belt use, particularly among rear-seat passengers and occupants of commercial vehicles.
 - Child-restraint use.

Secretary of Mobility and Urban Control

- Adopt and implement a maximum speed limit of 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Implement mass-media campaigns to encourage safe speeds, coordinated with enforcement efforts to promote safer speeds.
- Promote coordinated road safety management through the integration of enforcement, surveillance, communication, and street design.
- Advocate with the federal government for improvements to the standards for motorcycle helmets.

Speed in Recife

Higher speeds lead to a greater risk of a crash and a higher probability of serious injury. An increase of 1 km/h in average vehicle speed results in an increase of 3% in the incidence of crashes resulting in injury and an increase of 4%–5% in the incidence of fatal crashes.*

*Save LIVES: A road safety technical package. Geneva: World Health Organization; 2017.



Driving above the posted speed limit decreased from 37% in November 2020 to 21% in April 2022 and has stagnated since then.



Applying the global recommendation (30 km/h for local and collector roads and 50 km/h for arterial roads), **75% of the observed vehicles were exceeding safe speeds.**



Observed driving above the speed limit was highest among motorcycles (35%) compared with light vehicles (21%) and heavy vehicles (14%).



More than one-third of all motorcycles (35%) were observed traveling above 50 km/h.

Functional classification of roads

Arterial road: These are roadways with high traffic volume; they provide a high degree of mobility and carry a high proportion of travel for long distance trips. These roadways carry the major portion of trips entering and leaving an activity center, as well as the majority of movements that either go directly through or bypass the area.

Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas.

Collector road: These roads collect traffic from local roads and connect to arterial roadways. They penetrate neighborhoods and communities, collecting and distributing traffic between neighborhoods and arterial roads. Collector roads are shorter than arterial but longer than local roads. These roads provide less mobility than arterials at lower speeds and for shorter distances.

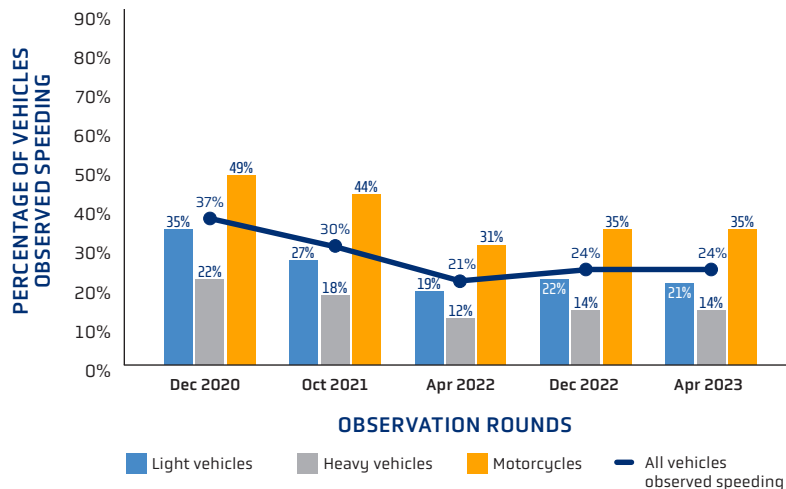
Vehicle types

Light vehicle: Sedans, saloons, SUVs, minibuses, minivans, pickup trucks, light trucks, and three-wheelers.

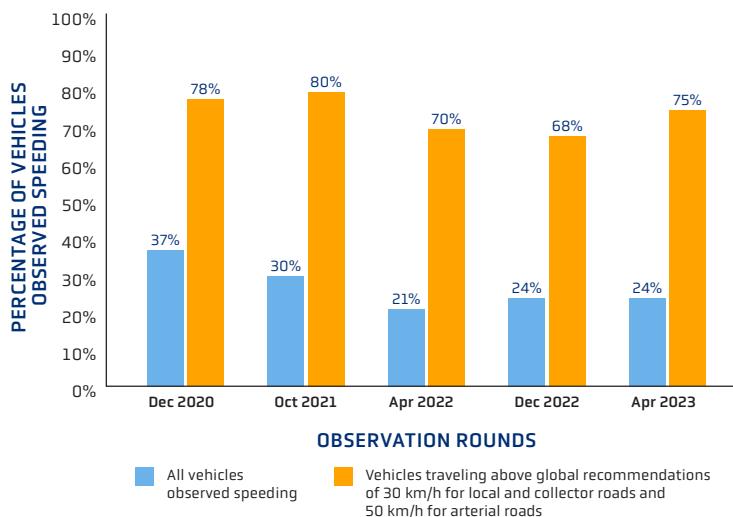
Heavy vehicle: Buses, trucks, and large trucks.

Key Findings on Speed in Recife

Driving above the speed limit remains highest among motorcycles



Prevalence of driving above the speed limit increases three-fold when global recommendations for speed limits are applied



Recommendations

Office of Transit and Urban Transport (CTTU)

- Increase enforcement of speed limits, focusing on:
 - Motorcycles and light vehicles.
 - Areas with the highest frequency of fatalities and serious injuries.

Secretary of Mobility and Urban Control

- Adopt and implement a maximum speed limit of 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Implement mass-media campaigns in coordination with enhanced enforcement efforts, emphasizing the dangers of driving at unsafe speeds [exceeding 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas].
- Implement speed-calming measures, such as bumps, rumble strips, safe speed signage, and designation of low-speed areas.

Helmet Use* in Recife

Using a motorcycle helmet correctly** can reduce the risk of fatality by 42% and the risk of serious head injury by 69% in the case of a crash.

*Overall helmet use was defined as strapped or unstrapped use of a helmet of any type.

**Correct helmet use was defined as the use of a standard helmet that was worn correctly and with the chin strap fastened.



Correct helmet use was lower among passengers (84%) compared with drivers (92%).



Correct helmet use was similar between male (91%) and female (87%) motorcycle riders (both drivers and passengers).



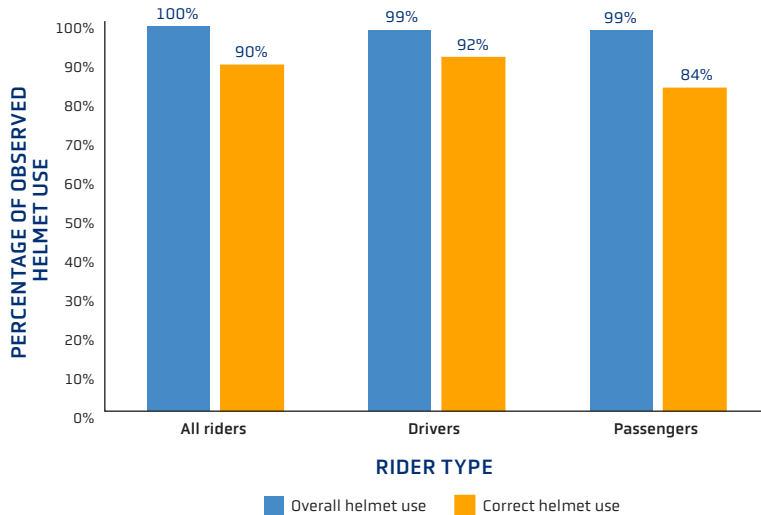
Correct helmet use was similar between passengers traveling on arterial roads (88%) and local roads (87%).



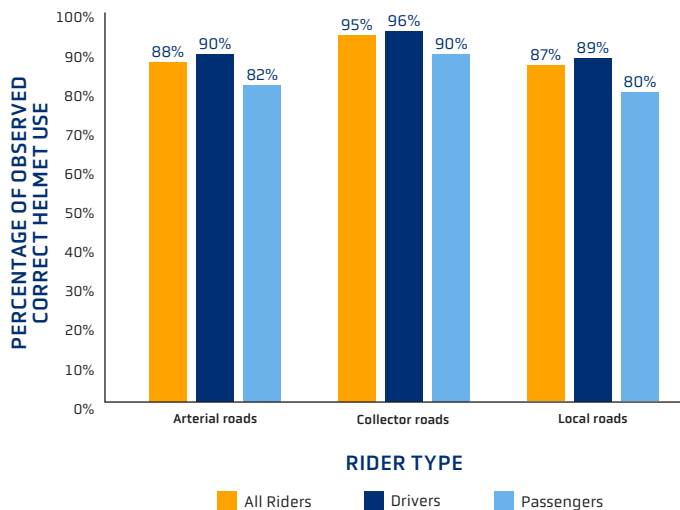
Correct helmet use was higher among drivers of commercial motorcycles (93%) compared with drivers of private motorcycles (90%).

Key Findings on Helmet Use in Recife

Correct helmet use was lower among passengers



Correct helmet use was lower among motorcyclists on arterial and local roads



Recommendations

Office of Transit and Urban Transport (CTTU)

- Increase enforcement of correct helmet use, focusing on:
 - Passengers.
 - Arterial and local roads.
- Make enforcement operations regular, visible, and widespread.

Secretary of Mobility and Urban Control

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on correct helmet use among passengers.
- Strengthen enforcement of penalties and fines for driving without using a helmet correctly.
- Advocate with the federal government improvement in the standards for motorcycle helmets.

Seat-Belt and Child Restraint Use in Recife

Seat-belts and child restraints play a significant role in reducing the severity of injuries in the event of a crash; they reduce mortality by 50% in crashes in which motorists, passengers (including rear-seat passengers), and children would otherwise die. Children in front seats have a 40% higher road traffic injury risk than children in rear seats.



Seat-belt use among occupants \geq 12 years old was 84%.



Seat-belt use among adult rear-seat passengers was low (53%).



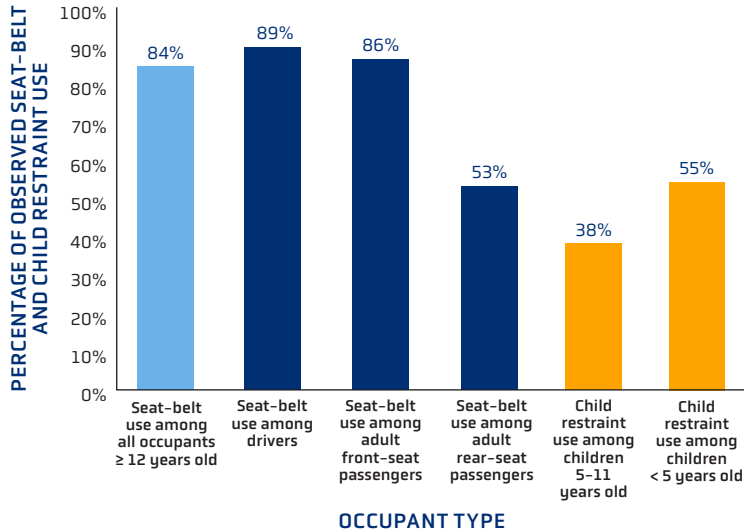
Age-appropriate child restraint use was very low among children 5-11 years old (38%) and low among children $<$ 5 years old (55%).



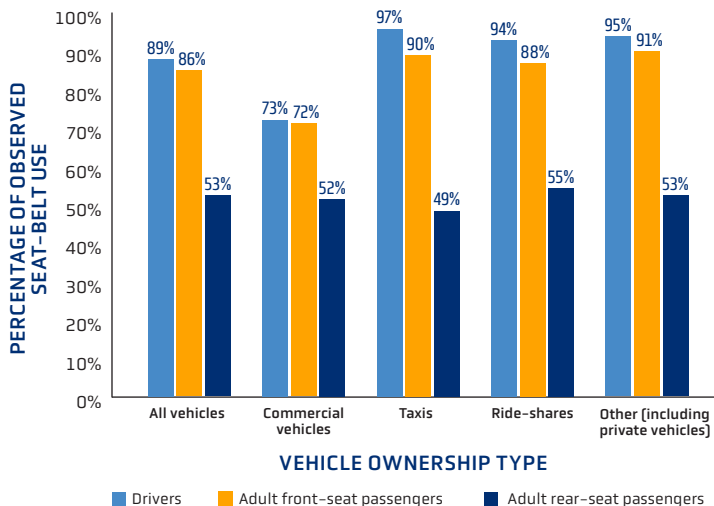
Seat-belt use was low in commercial vehicles (72%), taxis (86%) and ride-shares (77%).

Key Findings on Seat-Belt and Child Restraint Use in Recife

Seat-belt use among adult rear-seat passengers and child restraint use was very low



Seat-belt use was low among all occupants in commercial vehicles



Recommendations

Office of Transit and Urban Transport (CTTU)

- Increase enforcement of:
 - Seat-belt use among adult rear-seat passengers
 - Seat-belt use among all occupants in commercial vehicles.
 - Age-appropriate child restraint use.
- Make enforcement operations regular, visible, and widespread.
- Strengthen the enforcement of unpaid fines and penalties.

Secretary of Mobility and Urban Control

- Implement mass-media campaigns in coordination with enforcement efforts, emphasizing the importance of seat-belt use among rear-seat passengers and age-appropriate child restraints.
- Engage commercial companies to promote the use of seat-belts, particularly among rear-seat passengers.
- Advocate with the federal government to increase the use of age-appropriate child restraints.



Universidade Federal do Ceará observers conducting data collection on seat-belt use in Recife, Brazil.

METHODS

Since 2020, the Johns Hopkins International Injury Research Unit has partnered with the Universidade Federal do Ceará to conduct roadside observations. The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the Universidade Federal do Ceará. This report provides results from observational surveys that represent population-level [citywide] prevalence of important road safety risk factors—speed, helmet use, and seat-belt and child restraint use—at baseline, followed by additional observations of speed to show change over time. In the last round of observations, for speed, there were 47,436 observations (April 2023); for helmet use, there were 45,295 observations (December 2020); and for seat-belt and child restraint use, there were 46,901 observations (December 2020).

Sixteen observation sites were randomly selected to capture the prevalence of risk factors that could be attributed to either implementation of targeted interventions or secular trends. For each risk factor, a standardized protocol for data collection was implemented. All risk factors were observed by selecting vehicles in a systematic quasi-random fixed sequence during a period of three weeks

in sixteen observation sites of the city. Selection of the observation sites was done proportionally to traffic flow, weighted by the density of traffic lights in each administrative region. Observations were performed between 7:00 a.m. and 7:00 p.m. on both weekdays and weekend days. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city. The data management team at Johns Hopkins International Injury Research Unit reviewed and cleaned the data to produce the analyses available in this report.

ACKNOWLEDGMENTS

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