Status Summary 2023:

Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

SÃO PAULO CITY, BRAZIL

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

International
Injury Research Unit

Beginning in 2015, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in São Paulo City to reduce road injuries and fatalities.

The following report highlights results from an ongoing study that captured observations of four risk factors:* speed, drink driving, helmet use, and seat–belt and child restraint use. The results are based on data collected between August 2015 and April 2023.

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

Exceeding the posted speed limit among all observed vehicles was

11%

Exceeding the posted speed limit was highest among motorcycles

36%

Correct helmet use was very high

99%

Seat–belt use among adult rear–seat passengers was very low

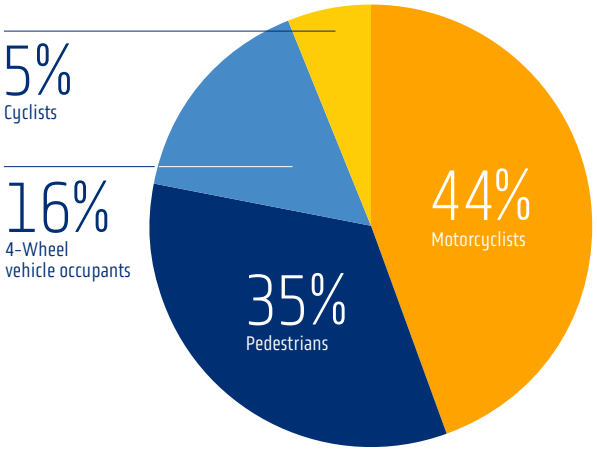
17%

Road Traffic Fatalities in São Paulo City

2018–2021

2018	2019	2020	2021
849	791	809	823

Deaths by road user, 2021



Vulnerable road users (motorcyclists, pedestrians, and cyclists) **accounted for 84% 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

São Paulo Military Police and the Companhía de Engenharia de Tráfego (CET)

- Increase enforcement of:
  - Speed limits, particularly among motorcycles and on arterial roads.
  - Seat-belt use, particularly among rear-seat passengers.
  - Age-appropriate child-restraint use.
- Continue enforcement of correct helmet use among all motorcyclists.
- Make enforcement operations regular, visible, and widespread.

Secretary of Mobility and Transit

- Implement mass-media campaigns in coordination with enhanced enforcement efforts, emphasizing the dangers of speeding, particularly among motorcyclists.
- Monitor and evaluate all enforcement activites and mass-media campaigns to assess their continuous effectiveness.

Speed in São Paulo City

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.

11% of vehicles were observed exceeding the posted speed limit.

Applying the global recommendation (30 km/h for local and collector roads and 50 km/h for arterial roads), **74% of the observed vehicles were exceeding safe speeds.**

Almost twice as many vehicles were observed exceeding the speed limit on arterial roads (16%) compared with collector roads (10%).

Observed speeding was four times as high among motorcycles compared with other vehicles between August 2015 and April 2023.

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.

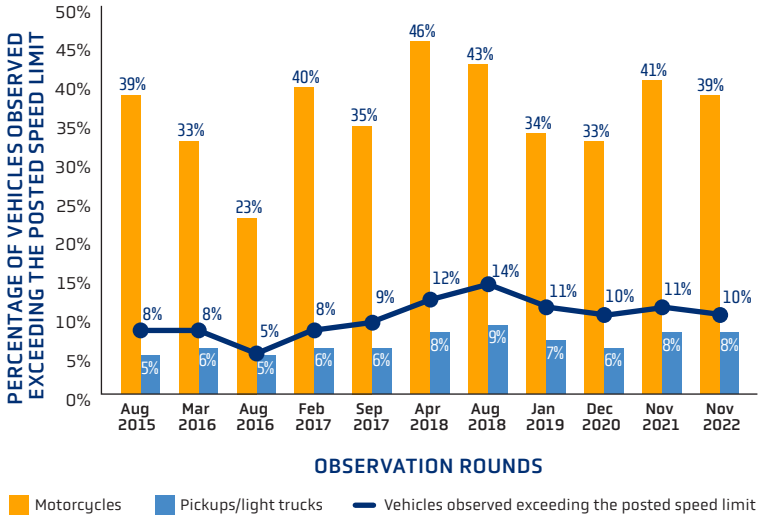
Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas.

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.

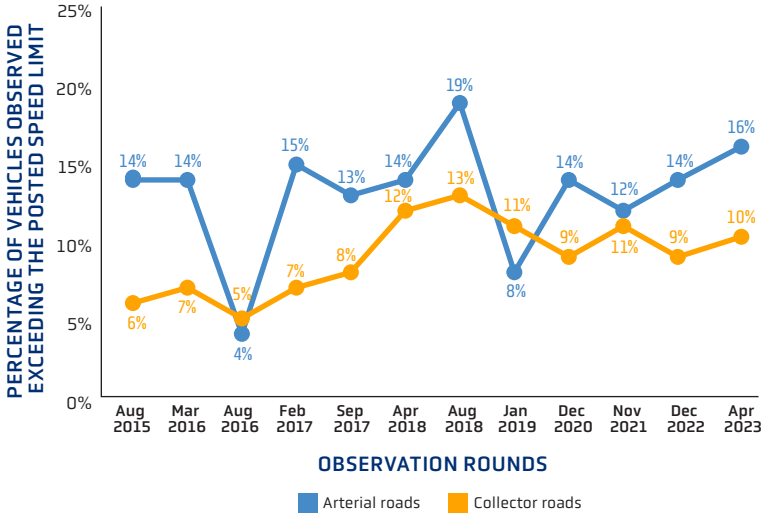
These roads provide less mobility than arterials at lower speeds and for shorter distances.

Key Findings on Speed in São Paulo City

Exceeding the posted speed limit remains highest among motorcycles



Speeding was often higher on arterial roads than on collector roads



Recommendations

São Paulo Military Police and the Companhía de Engenharia de Tráfego (CET)

- Increase enforcement of speed limits, focusing on:
  - Motorcycles.
  - Arterial roads.
  - Areas with the highest frequency of fatalities and serious injuries.
- Make enforcement operations regular, visible, and widespread.
- Expand speed enforcement competencies among Military Police officers.

Secretary of Mobility and Transit

- 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).
- Monitor and evaluate all enforcement activites and mass-media campaigns to assess their continuous effectiveness.
- 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.

Drink Driving in São Paulo City

Drink driving is a key risk factor for one out of three road injuries. The World Health Organization recommends countries stipulate blood alcohol content levels lower than 0.05g/dL for experienced drivers and 0.02g/dL for novice and commercial drivers.*

*World Health Organization. The SAFER technical package: five areas of intervention at national and subnational levels. Geneva: World Health Organization; 2019.

7% of all drivers tested positive for the screening test.

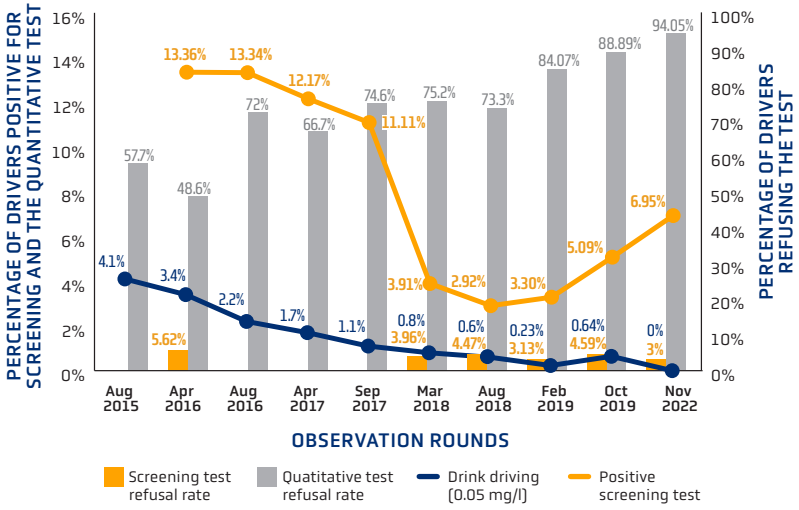
No drivers that were required and accepted the quantitative test were positive for drink driving.

3% of all drivers refused the screening test and **94% of drivers required to conduct a quantitative test refused it.**

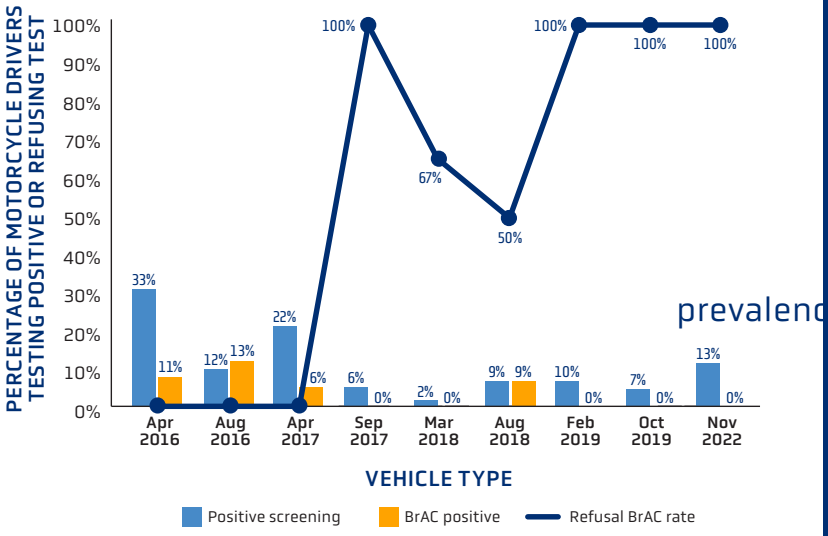
Since 2015, drink driving has been observed decreasing but has been accompanied by increased refusals to the screening test.

Key Findings on Drink Driving in São Paulo City

The percentage of detected drunk drivers has reduced as refusal to the quantitative test has increased



Motorcycles low BrAC positive rate is explained by the increased quantitative test refusal rate



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Recommendations

São Paulo Military Police and the Companhía de Engenharia de Tráfego (CET)

- Increase enforcement against drink driving through mobile, unpredictable, visible, widespread, and daily checkpoints around the clock.
- Promote strategies to persuade drivers to accept the quantitative test.

Secretary of Mobility and Transit

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on the dangers of drink driving.
- Advocate for changing the National Traffic Law so higher penalties can be applied for drivers refusing testing, in line with current evidence.
- Monitor and evaluate all enforcement efforts and mass-media campaigns to assess their sustained effectiveness, including combining data with forensic data.
- Continue promoting regular testing for alcohol for all road traffic casualties to improve the monitoring of this risk factor.

Speeding Trends (Overall)

- Prevalence under 10%
- Prevalence between 11% and 20%
- Prevalence above 21%

Guadalajara (R5)
30% prevalence
Speeding **=**

Cali (R5)
48% prevalence
Speeding ↓

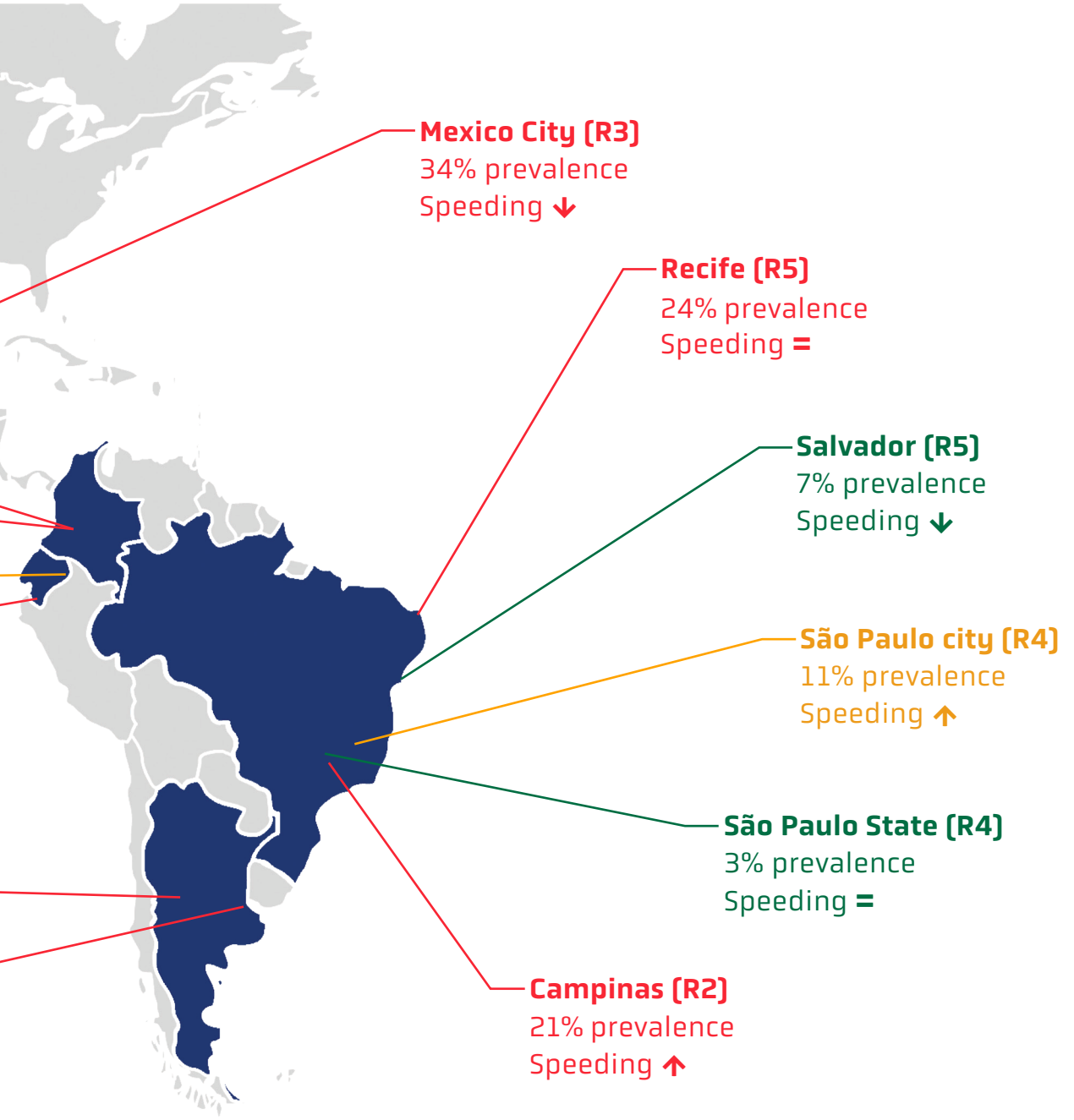
Bogotá (R4)
39% prevalence
Speeding ↑

Quito (R4)
20% prevalence
Speeding ↓

Guayaquil (R1)
53% prevalence
Speeding **N/A**

Cordoba (R1)
29% prevalence
Speeding **N/A**

Buenos Aires (R4)
29% prevalence
Speeding ↑


Mexico City (R3)
34% prevalence
Speeding ↓
Recife (R5)
24% prevalence
Speeding =
Salvador (R5)
7% prevalence
Speeding ↓
São Paulo city (R4)
11% prevalence
Speeding ↑
São Paulo State (R4)
3% prevalence
Speeding =
Campinas (R2)
21% prevalence
Speeding ↑

Helmet Use* in São Paulo City

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.

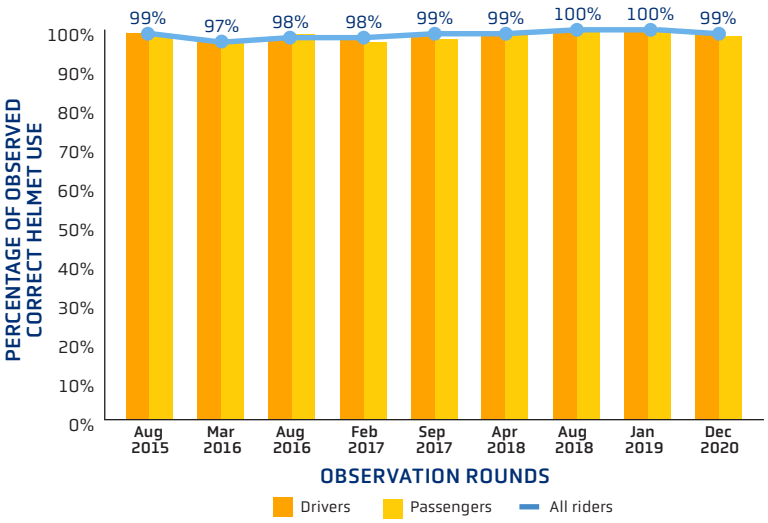
*Overall helmet use was defined as strapped or unstrapped use of a helmet of any type.
**Correct helmet use was defined as the use of a standard helmet that was worn correctly and with the chin strap fastened.

Correct helmet use was high among all riders (at or above 97%) between 2015 and 2020.

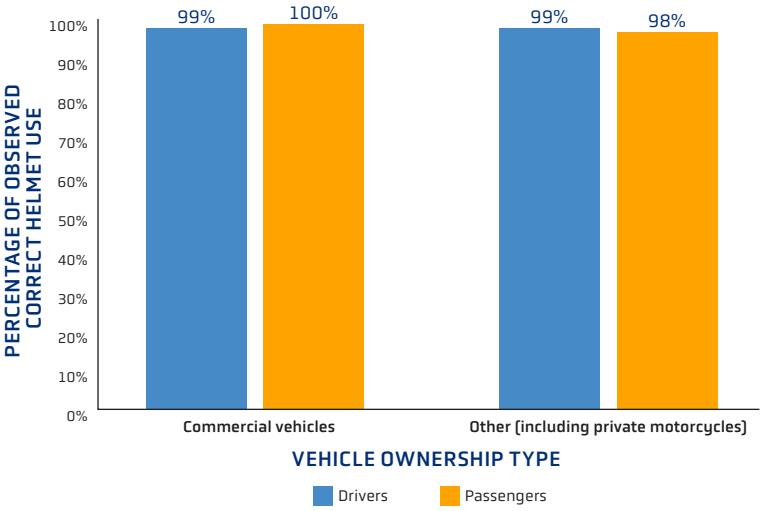
Correct helmet use was similar among commercial vehicles (99%) and private or government vehicles (99%).

Key Findings on Helmet Use in São Paulo City

Correct helmet use remains high



Correct helmet use was similar among passengers and drivers regardless of motorcycle ownership



Recommendations

São Paulo Military Police and the Companhía de Engenharia de Tráfego (CET)

- Continue enforcement of correct helmet use among all riders.
- Make enforcement operations regular, visible, and widespread.

Secretary of Mobility and Transit

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on correct helmet use.
- Advocate for enforcement of penalties and fines for driving without wearing a helmet correctly.

Seat–Belt and Child Restraint Use in São Paulo City

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 was very low among adult rear-seat passengers (17%) compared with adult front-seat passengers (86%).

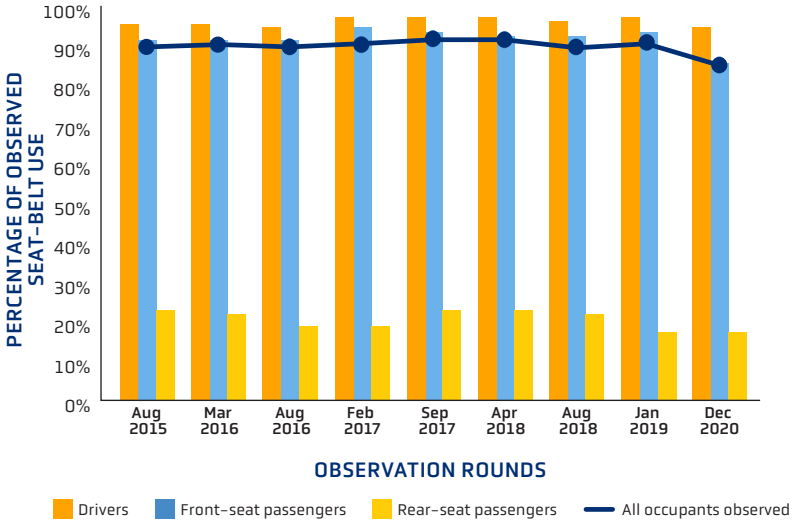
Seat-belt use among drivers was higher (95%) compared with adult front-seat passengers (86%).

Age-appropriate child restraint use was very low among children 5-11 years old (18%) compared with children <5 years old (60%).

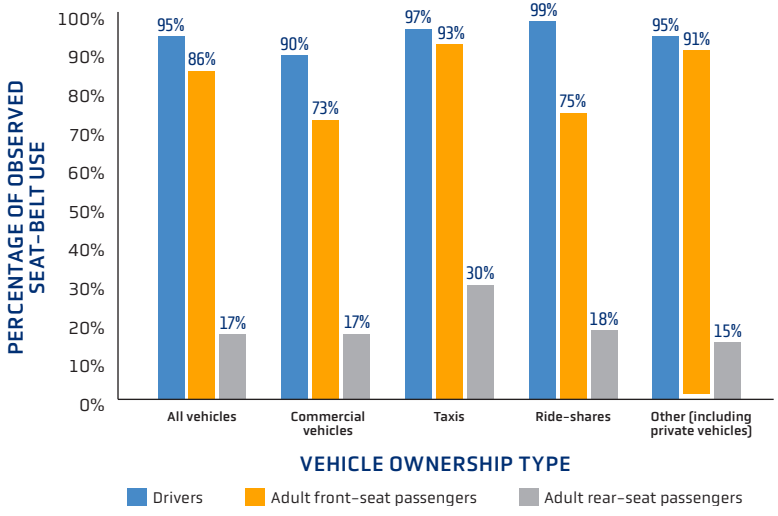
Seat-belt use among rear-seat passengers in private vehicles was very low (15%).

Key Findings on Seat-Belt and Child Restraint Use in São Paulo City

Seat-belt use among adult rear-seat passengers has remained low since August 2015



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



Recommendations

São Paulo Military Police and the Companhía de Engenharia de Tráfego (CET)

- Increase enforcement of:
  - Seat-belt use among all vehicle occupants, focusing on rear-seat passengers.
  - Seat-belt use among passengers in commercial vehicles and ride-shares.
  - Child restraint use, especially for children aged 5–11.
- Increase enforcement of penalties for not using seat-belts and age-appropriate child restraints.
- Make enforcement operations regular, visible, and widespread.

Secretary of Mobility and Transit

- Implement mass-media campaigns in coordination with enforcement efforts, focusing on:
  - Seat-belt use among rear-seat passengers.
  - Age-appropriate child restraint use.
  - The harms of child passengers in the front seat.
- Monitor and evaluate all enforcement efforts and mass-media campaigns to assess their sustained effectiveness.

City staff promoting child restraint use during the road safety week in São Paulo City, Brazil.

METHODS

Since 2015, the Johns Hopkins International Injury Research Unit has partnered with the Universidade de São Paulo 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 de São Paulo. This report provides results from observational surveys that represent the population-level (citywide) prevalence of important road safety risk factors—speed, drink driving, helmet use, and seat-belt and child restraint use—at baseline. In the last round of observations, for speed, there were 19,107 observations (April 2023); for drink driving there were 878 observations (November 2022); for helmet use, there were 4,864 observations (December 2020); and for seat-belt and child restraint use, there were 4,864 observations (December 2020).

Observation sites were randomly selected, conditional on the safety of observers. Four 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 four 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 8:15 a.m. and 5:30 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

Technical support was provided by officials in São Paulo City, Brazil; a consortium of international initiative partners; and local collaborators at the Universidade de São Paulo.

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CITATION:
Status Summary Report 2023: Road Safety Risk Factors in São Paulo City, Brazil, 2015–2023. Baltimore: Johns Hopkins International Injury Research Unit; 2023.

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