Study reveals that people who travel by car are four times more likely to be injured than people who travel by city bus

8 May 2018

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Taking the bus is a whole lot safer than taking the car - and it's also safer for cyclists and pedestrians who take the same routes, according to a new study led by the Université de Montréal Public Health Research Institute (IRSPUM).

Published in the *Journal of Urban Health*, the study looked at the risk of injury along the 10 busiest bus routes on the island of Montreal and showed that the risk is four times greater for car occupants than for bus occupants.

Besides looking at specific routes, the study is the first to compare the effect of car and bus use on the safety of pedestrians and cyclists. Per kilometre travelled, car trips were associated with a greater number of pedestrian injuries (four times more), cyclist injuries (five times more), and fatal and severe injuries (five times more) compared to bus trips.

There were 28 times more seriously injured people in cars (278 over 10 years, including 19 deaths) than bus occupants (10 seriously injured, no deaths). Forty-two pedestrians and three cyclists were killed by cars, versus four pedestrians and zero cyclists by bus.

Why is bus travel safer? For one, drivers are professionally trained. Second, they drive more slowly than cars. Third, buses travel along designated routes and usual stick to the right lane, which make them more predictable in traffic. Fourth, far fewer buses than cars are needed to transport the same number of people.

In Montreal, a shift towards public transit will help reduce the number of injuries, the study argues. For the period studied, 2001 to 2010, it estimates that bus travel along these 10 routes saved 1,805 vehicle occupants, 156 cyclists and 476 pedestrians from injury.

"The fundamental point is that pedestrians, cyclists and motor-vehicle occupants are mostly injured where the speeds are highest and where there are the most vehicles, on the major arteries," said lead author Patrick Morency.

"The solution? Permanent structure to reduce speeds, and public transit,' said Morency, an assistant clinical professor at IRSPUM who works at the Montreal Public Health Department.

Helped by colleagues there and along with others at the Réseau de transport métropolitain (RTM) and the Sociéte de transport de Montréal (STM), Morency looked at weekday collision and injury data compiled in police reports to Quebec's automobile insurance board, the SAAQ, between 2001 and 2010. During that period, car travel on the 10 routes accounted for four times as many passenger kilometres annually than bus travel: 1.3

billion versus 257 million.

(Car travel was actually much higher, since the data include all vehicles and don't differentiate cars from heavy trucks and buses.)

The busiest car and bus routes were along Henri-Bourassa Blvd., Sherbrooke St. and Côte Vertu Blvd. and Sauvé St. But those weren't the most dangerous routes; the highest injury rates in cars were seen along Jarry St., Jean-Talon Blvd. and Beaubien St. The highest cyclist injury rates associated with car travel were Beaubien, Jarry and Sherbrooke; for pedestrians, Beaubien, Jarry and Jean-Talon. Lacordaire Blvd. and (involving pedestrians) Pie-IX Blvd. were also in the top 3 for bus accidents.

Although newer injury data, up to 2016, is available, precise traffic data for the routes studied were not, and so the current research had to be limited to 2001-2010, Morency said. He is now working with Jillian Strauss and Catherine Morency (Polytechnique Montréal) on compiling figures not only for the 10 busiest routes but also for the Montreal metropolitan area. In the meantime, he has presented his latest study to Montreal transit officials, and hopes they'll use the analysis in public-information campaigns touting not just the savings but also the safety of traveling by bus.

More information: Patrick Morency et al, Traveling by Bus Instead of Car on Urban Major Roads: Safety Benefits for Vehicle Occupants, Pedestrians, and Cyclists, *Journal of Urban Health* (2018). DOI: 10.1007/s11524-017-0222-6