



YOUNG VULNERABLE ROAD USERS

Traffic Injury Research Foundation, October 2014

Introduction

The safety of vulnerable road users (VRUs) is becoming an increasingly relevant road safety issue. The promotion of walking and cycling as forms of exercise and the growing popularity of motorcycling means that action must be taken to ensure that vulnerable road users are protected (Vanlaar et al. 2013). Vulnerable road users can be defined as:

- > pedestrians;
- > cyclists; and,
- > motorcyclists.

As it stands, protection for vulnerable road users has not kept pace with initiatives to provide protection for occupants of passenger motor vehicles (cars, trucks, vans).

With a lower percentage of fully licensed drivers than other age groups, there is the concern that persons aged 16-19 can be especially prone to being involved in a crash as a pedestrian or cyclist. Furthermore, given that riding a motorcycle requires experience, younger motorcyclists could also be more prone to injury and fatality compared to older riders.

This fact sheet, sponsored by Desjardins Insurance, examines the degree of fatalities among vulnerable road users in Canada aged 16-19.

Magnitude of fatalities among vulnerable road users aged 16-19

A brief analysis of fatalities among young VRUs (aged 16-19) was undertaken by examining the number of these persons who were killed in recent years. These results were compared with the number of fatally injured VRUs aged 20 and older. In Figure 1, the number of fatally injured VRUs aged 16-19 is plotted with blue bars and measured with the axis on the left. The number of VRUs aged 20 and older is plotted with a solid orange line and measured with the axis on the right. As can be seen, there has been a modest decrease in the number of fatally injured VRUs aged 16-19 from 47 in 2000 to 38 in 2010. Among fatally injured VRUs aged 20 and older, there has been a similar overall decrease from 453 in 2000 to 418 in 2010.

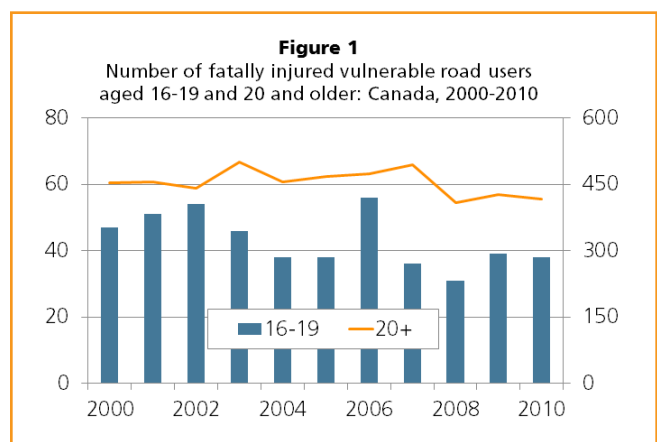
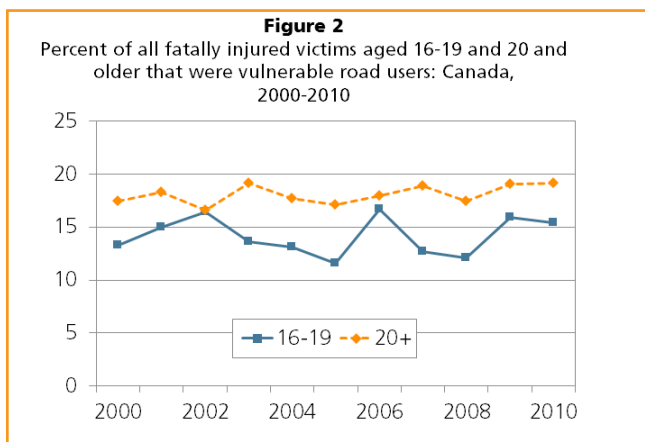


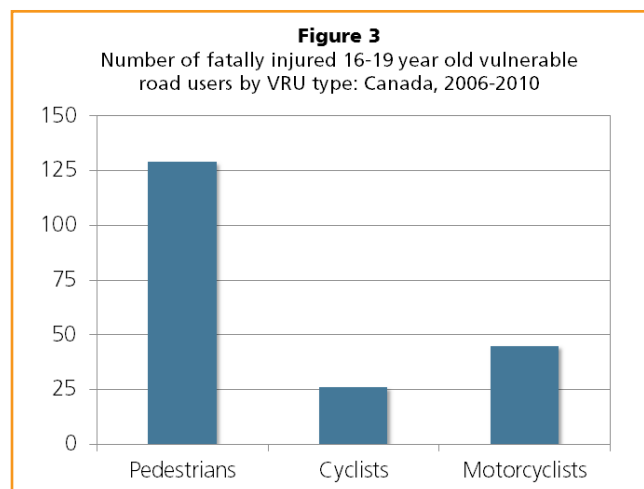
Figure 2 compares the percentage of all fatally injured victims aged 16-19 and 20 and older who were VRUs from 2000 to 2010. The percentage of 16-19 year old victims is plotted with a solid line and the percentage of victims aged 20 and older is plotted with a dotted line. The percentage of 16-19 year olds who were VRUs is not as great as the percentage among those victims aged 20 and older. However, it still represents a considerable percentage. In 2000, 13.2% of fatally injured 16-19 year olds were VRUs, eventually decreasing to 11.6% in 2005. The percentage of fatally injured 16-19 year olds who were VRUs peaked at 16.7% in 2006. In 2010 15.4% of fatally injured 16-19 year olds were VRUs. Among fatally injured victims aged 20 and older, the percentage of those who were VRUs has been more stable. In 2000, 17.4% of fatal victims were VRUs. In 2010, almost one-fifth (19.2%) of fatally injured victims aged 20 and older were VRUs, which is the highest level throughout this 11-year period.



Characteristics of fatally injured vulnerable road users aged 16-19

This section examines differences in demographic and collision-related factors that are present in fatalities among VRUs aged 16-19. First of all, comparisons are made among fatally injured VRUs aged 16-19 based on VRU type. Given that the relative number of cases is small and the data are only for 2006 to 2010 combined, caution should be taken in interpreting these results.

From 2006 to 2010, there were 200 fatally injured 16-19 year old VRUs in Canada and almost two-thirds of these persons were pedestrians. Figure 3 shows that there were 129 pedestrians, 45 motorcyclists, and 26 cyclists among fatally injured VRUs during this period of time.



From 2006 to 2010, a substantial majority of fatally injured VRUs aged 16-19 were males. Figure 4 shows the number of fatally injured VRUs aged 16-19 among the three road user types by gender. Among fatally injured 16-19 year olds, males accounted for 87 of 129 (67.4%) of pedestrians, 21 of 26 (80.8%) of cyclists, and 37 of 45 (82.2%) of motorcyclists from 2006 to 2010.

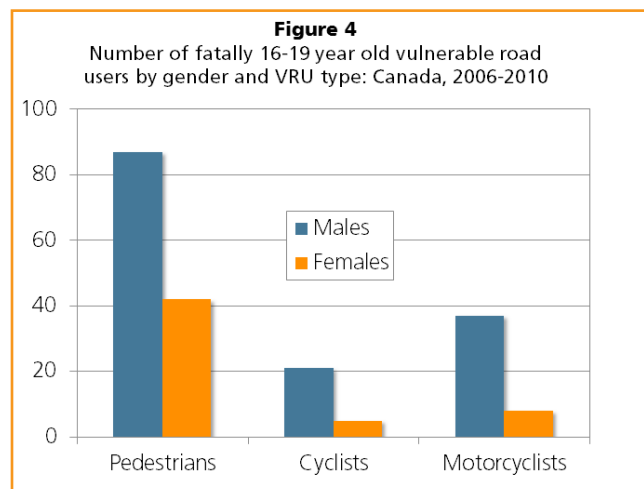
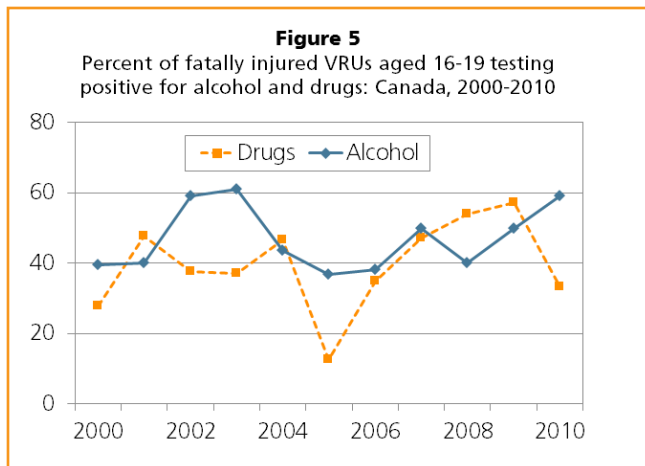


Figure 5 shows the percentage of fatally injured 16-19 year old VRUs who tested positive for alcohol and drugs from 2000 to 2010. The results, particularly those for drug use, should be treated with caution since only 43.7% of fatally injured VRUs were tested for drugs, as opposed to 73.0% who were tested for alcohol. As can be seen, for most years, a greater percentage of fatally injured VRUs aged 16-19 tested positive for alcohol than for drugs. Furthermore, there has been a general increase in the percentage of fatally injured VRUs testing positive for alcohol from 39.4% in 2000 to 59.3% in 2010. There have been greater

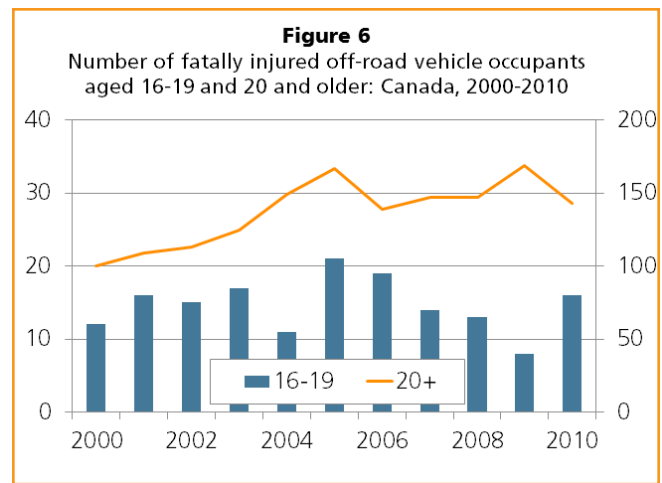
fluctuations in the percentage of fatally injured VRUs aged 16-19 testing positive for drugs. For example, in 2000, 27.8% of fatally injured VRUs tested positive for drugs and this percentage declined to 12.5% in 2005. However, there was a steady increase until 2009, when 57.1% of fatally injured 16-19 year old VRUs tested positive. By 2010, however, this percentage decreased to 33.3%.



Off-road vehicle users

Another type of vulnerable road user is the occupant of an off-road (ORV) vehicle. These vehicles include snowmobiles, dirt-bikes, and all-terrain vehicles. Across Canada, off-road vehicles are not regulated as vigorously as highway vehicles and ORV operators do not always receive the same amount of training. Furthermore, operators under 20 years of age may lack the experience needed to operate any type of vehicle (Vanlaar et al. 2014).

Figure 6 shows the number of fatally injured ORV occupants from 2000 to 2010 aged 16-19 and 20 and older. The number of fatally injured ORV occupants aged 16-19 is plotted with blue bars and measured with the axis on the left. The number of ORV occupants aged 20 and older is plotted with a solid line and measured by the axis on the right. As can be seen, the number of ORV occupants aged 16-19 generally increased from 12 in 2000 to 21 in 2005, decreased to eight in 2009, before increasing again to 16 in 2010. Among fatally injured ORV occupants aged 20 and older, there were 100 in 2000, steadily increasing to 167 in 2005. More recently, the number of ORV occupant fatalities in this age group has stabilized to a level of 143 in 2010.



Conclusions

Between 2000 and 2010, there have been modest decreases in the number of fatally injured VRUs among both victims aged 16-19 and those aged 20 and older. In terms of the percentage of all fatalities who were VRUs, both those aged 16-19 and those aged 20 and over represented a substantial share of all fatalities within their age group.

In terms of the types of vulnerable road users who were fatally injured among 16-19 year olds from 2006 to 2010, it was revealed that almost two-thirds of these persons were pedestrians. Motorcyclists and cyclists, respectively, accounted for the remainder of fatally injured VRUs.

Among fatally injured VRUs aged 16-19, the vast majority were males. This was particularly true among motorcyclists and cyclists, and evident to a lesser degree among pedestrians.

In general, a greater percentage of fatally injured VRUs aged 16-19 tested positive for alcohol than for drugs. From 2000 to 2010, there was an increase in the percentage of fatally injured VRUs testing positive for alcohol. There has been greater variability in the percentage of fatally injured VRUs that tested positive for drugs during this same period. However, compared to 2000, there has been a modest increase among fatally injured 16-19 year old VRUs who tested positive for drugs and a more pronounced increase regarding alcohol.

There has been considerable volatility in the number of 16-19 year old fatally injured off-road vehicle occupants from 2000 to 2010. Ongoing monitoring of future data is needed to determine if any trends emerge. Among the 20 and older age group, there was a consistent increase in the

number of fatally injured ORVs from 2000 to 2005, followed by a period of stagnation.

References

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Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety research institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

Traffic Injury Research Foundation (TIRF)

171 Nepean Street, Suite 200

Ottawa, Ontario K2P 0B4

Phone:(877) 238-5235

Fax:(613) 238-5292

Email: tirf@tirf.ca

Website: www.tirf.ca

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