



## Road safety impact of Ontario street racing and stunt driving law



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### ABSTRACT

**Objective:** The purpose of this study was to conduct a process and outcome evaluation of the deterrent impact of Ontario's street racing and stunt driving legislation which came into effect on September 30, 2007, on collision casualties defined as injuries and fatalities. It was hypothesized that because males, especially young ones, are much more likely to engage in speeding, street racing and stunt driving, the new law would have more impact in reducing speeding-related collision casualties in males when compared to females.

**Methods:** Interrupted time series analysis with ARIMA modelling was applied to the monthly speeding-related collision casualties in Ontario for the period of January 1, 2002 to December 31, 2010, separately for young male drivers 16–25 years of age (primary intervention group), mature male drivers 26–65 years of age (secondary intervention group), young female drivers 16–25 years of age (primary comparison group) and mature female drivers 26–65 years of age (secondary comparison group). A covariate adjustment using non-speeding casualties was included.

**Results:** A significant intervention effect was found for young male drivers with, on average, 58 fewer collision casualties per month, but not for mature male drivers, when non-speeding casualties were controlled for. No corresponding effect was observed in either comparison (females) group.

**Conclusion:** These findings indicate a reduction in speeding-related casualties among young males of 58 fewer casualties per month subsequent to the introduction of Ontario's street racing and stunt driving legislation and suggest the presence of a general deterrent effect.

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## 1. Introduction

Street racing has a long history, largely becoming popular in the past century when cars became affordable and widely available to the public (Smart et al., 2010). Recently, street racing and associated driving behaviours, which are linked to increased risk of motor vehicle collisions, injuries and deaths, have been identified as a road safety problem in the research literature (Knight et al., 2004; Smart et al., 2011, 2012; Vingilis and Smart, 2009). Social surveys conducted in various international jurisdictions have found that the prevalence of self-reported street racing among young male drivers ranged between 18.8% and 69% (Fergusson et al., 2003; Arnett et al., 1997). Vingilis et al. (2011) found that 20.4% of Ontario high school

students in grades 11 and 12 reported street racing in the previous year and the adjusted odds for males racing was 12 times higher than for females.

Street racing typically involves extreme speeding. Therefore, all the dangers of speeding are highly relevant to street racing. The review of evidence suggests that a 1% increase in speed increases a driver's fatality risk by 4–12% (Vanlaar et al., 2008). The Traffic Injury Research Foundation reported that over 20% of all collisions in Canada involve excessive speeding or driving too fast for conditions and that in 2006 alone, such collisions resulted in about 800 deaths and about 3000 severe injuries (Vanlaar et al., 2008). After impaired driving, speeding is identified as the second most common contributor to motor vehicle fatalities (Vingilis and Smart, 2009). Police collision reports in Canada and most other jurisdictions do not include separate codes for racing, although street racing information can be added to the incident description section of the collision form (Peak and Glensor, 2004). Witnesses are often required to identify a driver's involvement in street racing

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activities. In the case of a collision, drivers are often not willing to admit to street racing and passengers and spectators of racing vehicles are not eager to be witnesses (Folkman, 2005; Vingilis and Smart, 2009). Thus, it is reasonable to assume that some collisions related to racing are identified as speeding-related in the official reports and statistics “because of the challenge for police to detect and list street racing as a contributor to collisions” (p. 150) (Vingilis and Smart, 2009).

### 1.1. New legislation

In the province of Ontario, new street racing/stunt driving legislation (Bill 203 – Ontario’s Street Racers, Stunt and Aggressive Drivers Legislation), was introduced on September 30, 2007. The definition of racing includes driving behaviours of one or more motor vehicles where the elements of competition or chasing are present, while motor vehicles are driven at a speed which clearly exceeds the allowed speed limit. Stunt driving included the following activities: causing some or all tires to lose traction with the surface of the highway while turning; spinning tires or causing a vehicle to circle; lifting some or all tires from the surface of the highway; driving while the driver is not sitting in the driver’s seat; preventing another vehicle from passing; driving two or more motor vehicles side by side where one of the motor vehicles occupies a lane for oncoming traffic; driving as close as possible to another vehicle, pedestrian or object without a reason; a ban on driving a motor vehicle on a highway with a connected nitrous oxide system and driving 50 km/h over the speed limit (Service Ontario, 2011).

Most charges for racing and stunt driving offences are laid for speeding 50 km/h or higher over the posted speed limit. Street racing and stunt driving offences, if detected, result in the following punishment under the new regulation:

1. an immediate 7-day roadside vehicle impoundment and driver’s licence suspension, prior to conviction;
2. upon conviction, a fine ranging \$2000–\$10,000, 6 demerit points, possible imprisonment for up to 6 months, up to 2 years licence suspension for the first conviction;
3. if second conviction occurs within 10 years of first conviction, up to 10 years licence suspension (Service Ontario, 2011).

One of the purposes of new legislation, such as Ontario’s street racing/stunt driving law, is deterrence. Classical deterrence theory states that there is an inverse relationship between violation of the law and the certainty, severity and swiftness of the punishment (Davey and Freeman, 2011). The higher the certainty of detection by police and punishment upon detection, the higher the severity and celerity of the punishment, the higher the chance that drivers will refrain from potential violations of traffic laws (Vingilis, 1990). Thus, legislation with certain, severe and swiftly administered sanctions should deter illegal street racing and stunt driving activities.

Deterrence theory would also suggest that in order for the law to be effective in deterring the offenders, it has to be publicized and well enforced (Vingilis et al., 1988). To increase public awareness about the stunt driving law, a number of activities were implemented by the Ministry of Transportation of Ontario (MTO), such as educational campaigns targeting high school students, development and distribution of brochures on speeding and stunt driving, presenting information on the new legislation in the Driver’s Handbook, installation of road signs on major Ontario highways with the information on penalties under the new law (Personal communication, 2013). Mass media in Ontario widely covered the details of the legislation, especially in the first two years of its implementation, mainly due to controversial opinions

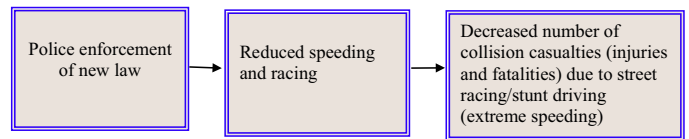


Fig. 1. The causal model of Ontario street racing/stunt driving legal intervention.

raised by this law in the public (Daigle et al., 2014). Some suggested the law unconstitutional due to a provision of the possibility of imprisonment for up to 6 months, with no fault of harm or injury.

Enforcement of the law with roadside licence suspensions and subsequent convictions are expected to increase the perception of certainty of punishment. Vehicle impoundment is considered to be a severe penalty by street racing and stunt driving offenders (Leal et al., 2009), as not only it entails removal of the vehicle from an offender, but also imposes towing and storage fees on the driver who may possibly face an increase in vehicle insurance for a street racing/stunt driving conviction. A fine charged upon conviction, even at a minimum amount of \$2000, is also a severe penalty relative to income level, especially for a young driver. Immediate suspension of a licence is a manifestation of the punishment’s swiftness.

Ontario’s street racing/stunt driving legislation has not been formally evaluated in terms of its road safety impact. Researchers in other jurisdictions have evaluated vehicle impoundment provisions of similar legislation, the results of which provide mixed evidence about the deterrent effect of vehicle impoundment laws (Leal et al., 2009; Leal, 2010; Clark et al., 2011). These studies, however, did not use a multiple time series design to examine the impact of the legislation.

A previous study examined whether Ontario’s street racing/stunt driving legislation had an effect on extreme speeding convictions which included the provision of licence suspensions that did not exist for speeding before this new law came into effect (Meirambayeva et al., 2014). A significant reduction in monthly convictions for speeding 50 km/h or more over the posted speed limit was found for male drivers after the introduction of the Street Racers, Stunt and Aggressive Drivers Law (the intervention parameter estimate =  $-45.1$ ,  $P = .004$ ). No pre-post change in monthly convictions for speeding 50 km/h or more over the posted speed limit was found for female drivers after the introduction of the new law (the intervention parameter estimate =  $-2.89$ ,  $P = .3$ ). The purpose of this study was to conduct a process (implementation) and outcome evaluation of the impact of Ontario’s street racing/stunt driving legislation on casualties (injuries and fatalities) from speeding-related collisions. In order to strengthen the validity of the findings, we followed standard program evaluation methodology, by using both a theory-based causal model and multiple measures to allow for triangulation (e.g. Grembowski, 2001; Rossi et al., 1999; Weiss, 1998). Triangulation includes “theory triangulation” whereby results are congruent with existing theory and “methods triangulation” whereby different data sources, data collection procedures and measures show consistency in the direction of results (Grembowski, 2001). The use of administrative data can be problematic because the data are not captured for research purposes and can have quality and other problems; triangulation can strengthen validity of findings as the different bias and measurement error on one measure and data collection method can be offset by another (Grembowski, 2001; Rossi et al., 1999). The causal model, based on deterrence theory, of this legal intervention is presented in Fig. 1. According to deterrence theory, an intervention should be well publicized and adequately enforced to make the public aware of the punishment in relation to the offence. As an intermediate outcome, the drivers may respond by less speeding,

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