

The effectiveness of enforcement and publicity campaigns on serious crashes involving young male drivers: Are drink driving and speeding similar?

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Abstract

This study re-evaluated the effectiveness of the anti-drink driving and anti-speeding enforcement and publicity campaigns implemented in the Australian State of Victoria which have thus far yielded mixed results in several evaluations. As opposed to previous evaluations, this study focused on the effects of these campaigns on young male drivers who formed the primary target and examined the combined effects of the campaigns on the total number of serious crashes. Our results showed that the anti-drink driving enforcement and publicity campaigns had a significant independent effect in reducing crashes but their interactive effect was anti-complementary. Conversely, the anti-speeding enforcement and publicity campaigns had no independent effect but their interactive effect was significant in reducing serious crashes involving young male drivers.

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1. Introduction

Road crashes are a major cause of death and serious injuries in many countries and extract a high cost on society (Decker et al., 1988; Kenkel, 1993). In Australia, for example, there were 1970 fatalities and 21,989 serious injuries resulting from road crashes in 1996 and the annual social cost was estimated at A\$ 15 billion (BTE, 2000). Transport authorities in Australia have therefore implemented many road safety countermeasures targeted at some of the more significant contributing factors to serious crashes including speeding and drink driving (also known as drunk driving, driving while intoxicated, driving under the influence of alcohol and alcohol impaired driving in some countries). The main approach adopted in most states is a very high level of enforcement that is supported by intensive publicity campaigns, particularly television advertising campaigns.

The most well known among these campaigns in Australia is the Transport Accident Commission television advertising campaign that was designed to support the intensive anti-drink driving and anti-speeding enforcement campaigns. Since their implementation, the Victorian campaigns have been extensively evaluated with mixed results (Cameron et al., 1993; Newstead et al., 1995; White et al., 2000; Cameron and Newstead, 2000; Tay, 2004, 2005a). These evaluations examined the effects of the anti-drinking driving enforcement and publicity campaigns on the number of serious crashes during high alcohol hours (as a surrogate for alcohol related crashes) and the effects of the anti-speeding enforcement and advertising campaigns on the number of low alcohol hours crashes (as a surrogate for speed related crashes). It should be noted that the validity and reliability of these measures have not been firmly established, which is not surprising because any definition of alcohol related or speed related crashes will inadvertently be imperfect and somewhat subjective.

Also, even though the use of alcohol related crashes as a measure of performance for anti-drink driving enforcement

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and publicity campaigns has high face validity, it nevertheless suffers from serious biases. First, although random breath testing programs are designed to detect and deter drink driving, the presence of traffic police on the roads is expected to have spill over effects into other risky and illegal driving behaviours such as speeding, joy riding and aggressive driving. Likewise, the presence of anti-speeding traffic enforcement on the roads will have a deterrent effect on other risky and illegal driving behaviours besides speeding. The two enforcement programs are thus expected to have complementary effect on alcohol related and speed crashes as well as spill over effects on other types of crashes, which have thus far been ignored in the road safety literature.

Similarly, since one of the outcomes of any mass media campaign in road safety is to raise the overall awareness of road safety issues and garner public support for other road safety countermeasures, the anti-speeding and anti-drink driving publicity campaigns are expected to have the same complementary effect on each other as well as spill over effects on other types of crashes. Also, many of the advertisements depicted multiple risky behaviours even though they focussed on a specific behaviour. For example, in one of the advertisements, a group of highly intoxicated young males who were hooning along the streets late in the night were distracted by another group of young males travelling in the opposite direction and their vehicle ran off the road. The driver managed to get out in time to witness the car going up in flames, with his passengers still in it. Although the advertisement clearly portrayed the risk of drink driving, with a punch “If you drink then drive, you are a bloody idiot”, it also highlighted other risky activities like hooning, driving late into the night and driver distraction.

On the other hand, traffic police conducting random breath tests will not be operating speed cameras and vice versa. Therefore, the two traffic enforcement programs, as well as the two publicity campaigns, will also have a substitution effect, owing to their competition for scarce resources, which is a reasonable assumption under most circumstances. Hence, it is important that further research be conducted to examine the total effect of these enforcement and publicity campaigns on all serious crashes regardless of contributing factors because the sum of the parts may be more or less than the total depending on whether the campaigns are complements or substitutes.

Another area of further research that is important to examine is the effectiveness of these campaigns on young male drivers who form the primary target group. Despite the apparent success in many road safety interventions in reducing the number of fatal crashes in general, crashes involving young male drivers continue to be a major social problem (Mayhew and Simpson, 1995; Tay, 2001a). In the Australian state of Victoria, for example, 22.6% of all road users killed between 1988 and 2002 were males between the ages of 16 and 25 (VicRoads, 2004). More importantly, the Victorian campaigns, especially the television advertising campaigns, were targeted at young male drivers and relied heavily on the

appeal to the emotion of fear (Lewis et al., 2003; Tay et al., 2004; Tay and Watson, 2002). However, Lewis et al. (2003) found that young male drivers had a greater tendency to discount and dismiss these fear based road safety messages as irrelevant (classic third person effect) and engage in defensive avoidance behaviours instead of dealing with the dangers associated with these risky driving behaviours.

The conceptual framework underlying fear appeal has been well discussed in the literature (Tay, 1999; LaTour and Zahra, 1988). In its simplest form, the process consists of three steps (LaTour and Zahra, 1988). The first step involves the creation of a fearful situation designed to activate a person's sense of risk and vulnerability. In the road safety arena, such situations arise from risky driving behaviours such as drinking-driving and speeding. In the second stage of employing the fear appeal, the danger is depicted to be serious enough to warrant attention. For example, in the Victorian advertising campaign, this danger is often depicted by a bloody crash scene. In the third phase, a solution is provided as a means of addressing the danger and reducing the fear.

In a study of the fatigued related road safety advertising, Tay and Watson (2002) found that response efficacy (provision of suitable coping strategies) was the most important attribute that determined the acceptance of the message and the only message characteristic that was significantly correlated with self-reported behaviours 2 weeks after the participants viewed the advertisement. In relation to drink driving and speeding, these two risky behaviours are rather different with respect to this important message attribute. Whilst there are many feasible coping strategies to avoid the dangers associated with drink driving such as having a designated driver and taking public transport, few coping strategies exist for speeding. Therefore, it is expected that the anti-drink driving publicity campaign will have a greater potential to change driver behaviour than the anti-speeding campaign.

The conceptual framework underlying traffic enforcement has always been the deterrence theory. In economics, the main focus of the deterrence theory is on increasing the individual's perceived expected cost of engaging in an illegal activity (Becker, 1968; McCarthy and Oesterle, 1987; Kenkel, 1993; Tay, 2005b). An increase in the expected cost is posited to decrease the level of illegal activity consumed by the individual or decrease the likelihood of the individual to engage in the illegal activity. This increase in the perceived cost could be a result of an increase in the severity of the sanction, probability of apprehension or the swiftness of punishment. In the road safety arena, the main impetus of law enforcement is in increasing the certainty of apprehension and punishment, which is a subjective probability that depends on the individual's information set, and two of the major determinants are the level of police presence on the roads and the hit (apprehension) rate, with different enforcement programs focusing on different aspects of deterrence.

Prior to September 1989 when the program of increased random breath testing using highly visible booze buses started

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