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# Relationships between interest in motor racing and driver attitudes and behaviour amongst mature drivers: An Australian case study

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ABSTRACT

Interest in motor racing is investigated as a possible source of influence on driver attitudes toward speeding and driver behaviour. Previous studies have identified links between motor racing and road accidents on public roads. One study found that the level of interest in motor racing was positively correlated with risky driving behaviours of young male drivers. This paper outlines a conceptual framework for investigating the association between interest in motor racing and speeding violations on public roads. A sample survey of households in Queanbeyan, NSW, was used to examine the relationship between the level of interest in motor racing and attitudes to speeding and driving violations in a group of mature drivers. Results indicate that the level of interest in motor racing is significantly related to attitudes towards speeding, controlling for age, education level and sensation seeking propensity. Higher levels of interest in motor racing are associated with higher pro-speeding attitudes. Unlike the previous research on young male drivers, there was no significant relationship between interest in motor racing and speeding violations for this study of mature drivers. The implications of the study for road safety interventions are discussed.


## 1. Introduction

A range of variables influence drivers' attitudes to speeding, driving violations and accident involvement. Among the most significant of these variables are age, gender and sensation seeking propensity (Dobson et al., 1999; Jonah et al., 2001; Laapotti and Keskinen, 2004; Turner and McClure, 2003). There are also important environmental influences on attitudes to speeding and driving behaviour, including peer involvement with alcohol (Elliot et al., 2006). One possible source of environmental influence on driver attitudes and behaviour is the sport of motor racing. While, this has attracted relatively little focus from road safety researchers, existing research indicates a link between motor racing and road accidents.

As well as the obvious dangers to drivers and spectators from crashes during motor racing events, there is evidence that motor racing events are linked with an increase in road accidents off the racetrack. Racing drivers themselves have been shown to be poor role models in terms of their own safety record on public roads (Williams and O'Neill, 1974). Accident rates can also be higher in localities that have been associated with motor racing events. Road accidents in South Australia around the time of Adelaide's first Grand Prix increased significantly (Arnold et al., 1989; Fischer et al., 1986). This increase, which could not be explained by variables such as traffic volumes and weather conditions, was believed to be due to the glorification of speed and daring associated with the motor racing event. In another instance, casualty accident rates on public roads around Melbourne's Albert Park more than doubled after the roads were used as a Formula One race circuit (Bannerman, 2000). The causal mechanism for this increase in accidents on the Albert Park racing circuit is unknown. The increase could be due to motorists emulating racing drivers on the circuit: "risks will be taken by motorists testing their skill as potential racing car drivers" (Urie, 1994). Alternatively, it could be due to engineering changes to the roads, or to a combination of these factors.

One study explicitly examined the possible link between interest in motor racing and driver behaviour, focussing on young male drivers (Warn et al., 2004). In this study, in Christchurch, New Zealand, young males who were more interested in legal motor sport events were more likely to engage in risky driving behaviours (as measured by a violations scale) as well as more likely to be involved in illegal street racing. This study controlled for the impact of the level of sensation seeking propensity. Thus while there is potential for motor racing to provide a positive impact on road safety (e.g. through anti-drink driving messages and seat belt

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wearing campaigns) (Tranter, 2003), available research evidence indicates that the actual impact of this sport on road safety is a negative one.

## 2. A conceptual framework for understanding possible links between motor racing and road safety

There are several plausible causes of an association between motor racing and road safety. It is possible that motor racing attracts certain personality types (both as participants and as spectators), particularly those with a high sensation-seeking propensity. As sensation seeking has been demonstrated in numerous studies to be linked with risky driving, attitudes to speeding and increased accident rates (Arnett, 1996; Desrichard and Denarie, 2005; Heino et al., 1996; Jonah, 1997; Whissell and Bigelow, 2003), this variable needs to be controlled in any analysis of the impact of motor racing.

Another factor explaining the possible association of motor racing and road safety is that motor racing has some effect on driver behaviour that could lead to increased accident rates. Such an effect of motor racing on driver behaviour could occur through vicarious learning, when motorists observe the behaviour of racing drivers during racing events, and subsequently emulate this behaviour. As explained below, when motorists drive like motor racing drivers, the risk of accidents increases.

Research evidence supports the argument that observation of behaviours in the media is associated with the subsequent enactment of those behaviours (Anderson and Bushman, 2002, p. 2377). Just as aggressive behaviour is influenced by watching violent displays in the media (Huesmann et al., 2003; Johnson et al., 2002), we hypothesise that watching speeding and aggressive driving in motor racing events will lead to increased speeding on public roads. Driving behaviour, like all behaviours, cannot be fully understood without examining the social context within which it occurs. The behaviour of drivers is influenced by the behaviour of other drivers, including driving behaviour observed in the media.

The importance of this social context in road safety has been the focus of considerable research (Warner and Aberg, 2006; Zaidel, 1992). As Zaidel (1992, p. 585) argued "drivers are sensitive to the 'culture of driving' around them and emulate it". Other drivers not only provide a source of information, but their behaviour can be imitated by others. Part of the "culture of driving" is the sub-culture of motor racing, where particular behaviours are practiced and glorified.

According to social cognitive theory (Bandura, 1977, 2001) vicarious learning can occur through observational learning, when for example a person watches another driver behave in a certain way and then imitates that behaviour. The effect of this learning is enhanced if the behaviour is modelled by a celebrity or someone with a high level of status (Atkin, 1989). In the case of motor racing, spectators may vicariously acquire and imitate a set of driving behaviours that are not conducive to safe on-road driving (e.g. dangerous overtaking, tailgating, fast driving and hard cornering). Inhibitory constraints on this behaviour are reduced when watching motor racing, because high levels of skill amongst the motor racing drivers, along with crash-protective cars, reduce the frequency of injury or death. There is also rarely any legal punishment for motor racing drivers, even for aggressive driving and deliberate crashing into other cars during racing events. Indeed, motor racing drivers have been criticised by commentators for not being aggressive enough (Tranter, 2003). The constant repetition of dramatic chases in motor racing events or television programs contributes to the "feeling among some thrill-seeking viewers that risky driving is an exciting, exhilarating, glamorous, and challenging activity" (Atkin, 1989, p. 21). The glorification of motor racing through the combination of motor racing events with major spectacles (parades, etc.) in significant public places (Tranter and Lowes, 2005), reinforces the learning of such behaviours (Atkin, 1989).

The types of driver behaviour typically exhibited by motor racing drivers on the racetrack also need to be considered in terms of their similarity to the driving violations that have been linked with increased road accidents. Research using the Manchester University Driver Behaviour Questionnaire has shown that people reporting high levels of "driving violations" are significantly more likely to be involved in accidents (Meadows et al., 1998). "Driving violations" are classified as dangerous deliberate violations, which are distinct from "driving errors" (dangerous mistakes and slips) and "lapses" (harmless slips and lapses of concentration). While errors and lapses are not significant predictors of accident involvement, the driving violations are.

Motor racing glorifies a range of driving behaviours that are defined in the road safety literature as "driving violations" when practiced on public roads. These behaviours include high-speed driving, tailgating and dangerous overtaking. In normal on-road driving, all of these behaviours are related to higher accident levels (Horswill, 2001; Parker et al., 1995; Parker and Stradling, 2001). The relationship between driving violations and accident involvement exists throughout the full range of ages of drivers (Parker et al., 2000, 1995).

The principle of vicarious learning would predict that motorsport enthusiasts who watch racing events frequently are more likely than non-motor racing fans to be influenced by these events. This vicarious learning may influence accident involvement, either directly through its effect on driver behaviour, or indirectly through its impact on attitudes to speeding. Both direct and indirect effects were found to operate in the impact of interest in motorsport on risky driving for young males in the Christchurch study noted above (Warn et al., 2004).

Previous research has shown that not only is speeding an important variable in accident involvement, but also that attitudes to speeding can be linked with accident involvement (Iverson and Rundmo, 2004; Warner and Aberg, 2006). While the relationship between speed and accidents is complex, the evidence is overwhelming that lower speeds result in fewer collisions of lesser severity (Department for Transport, 2000). Reducing average traffic speeds, even by 5% "leads to approximately a 10% decrease in injury accidents and a 20% decrease in fatal accidents" (OECD, 2006, p. 7). A recent review of the literature on the link between speed and crash rate concluded that speed not only affects the severity of crashes, but also increases the risk of being involved in a crash, and that "without exception, a vehicle that moved (much) faster than other traffic around it, had a higher crash rate" (Aarts and Schagen, 2006). If drivers drive more than 10–15% above the speed of surrounding traffic, they are much more likely to have an accident (Taylor et al., 2000).

Speed is a central component of motor racing, and speed is glorified in motor racing. Thus it seems plausible that attitudes to speeding may be influenced by frequent exposure to motor racing. Attitudes have been found to have a discernible impact on drivers' risk taking, particularly attitudes to speeding. A recent Norwegian study found that not only were attitudes to speeding related to age and gender, but attitudes towards speeding were strongly related to risk behaviour in traffic and involvement in near accidents and accidents (Iverson and Rundmo, 2004). Other research (Warner and Aberg, 2006) also identified a link between attitudes to speeding and accident involvement.

This paper extends earlier research (Warn et al., 2004) that indicated a negative effect of interest in motor racing on the driving attitudes and behaviours of young male drivers. Warn et al. (2004) found that higher levels of interest in motorsport were associated