

(Abridged version)
Fast and Furious 3:
Illegal street racing, sensation seeking and risky driving behaviours in New Zealand

Warn, J. R., Tranter, P. J. and Kingham, S. (Department of Geography, University of Canterbury, Christchurch)
27th Australasian Transport Research Forum, Adelaide, 29 September – 1 October 2004

Abstract (200 words):

Illegal street racing is receiving increased media attention but there is little research in Australia and New Zealand to guide creative responses to this socially problematic behaviour. The paper investigates the relationship between interest in motor sport, illegal street racing and other risky driving behaviours amongst a sample of young male drivers in Christchurch. The study obtained questionnaire data from students in late high school, polytechnic college and university. The measured variables included a driving violations scale, attitudes to speeding, sensation seeking propensity, level of interest in motor sport and participation in illegal street racing. The results indicate that experience with motor sport was a significant factor in the explanation of both risky driving behaviour and the level of involvement in illegal street racing, taking into account the influence of sensation seeking. However, the way in which motor sport was linked with risky driving was different from the way it was linked with illegal street racing. Motor sport had a more direct influence on street racing, but influenced risky driving behaviour through the influence on attitude to speeding. The street racing group is characterised by high levels of sensation seeking and high levels of involvement in motor sport.

Illegal Street Racing

Street racing involves cars reaching extreme speeds on public roads and can result in injury or death to participants, bystanders or passing motorists. However little is known as to what environmental or dispositional influences exist to encourage participation in illegal street racing. In particular the influence of involvement or interest in organised motor sport on specific types of dangerous driving practices such as street racing, and risky driving in general is not known. Motor sport provides an environment that can shape interest in cars and speeding and possibly could encourage spectators to act out risky behaviours when driving on public roads. A more extreme form of acting out would be to participate in illegal street racing.

Aims

In this paper, motor sport is identified as an environmental factor and sensation seeking as the personality trait of most relevance. It is predicted that involvement in motor sport will promote positive attitudes to speeding and that in turn these attitudes will be related to risky driving behaviours. It is expected that high sensation seeking will attend to the stimulating aspects of motor sport, in particular the speeding, and will absorb supportive attitudes, norms, and beliefs about speeding and risk taking whilst driving. In addition to these indirect effects, it is predicted that sensation seeking can also have direct effects on behaviour. Risk perception (the notion of illusory invulnerability based on self-assessment of both driving skill and likelihood of accident involvement) is also expected to influence favourable attitudes to speeding (Ulleberg and Rundmo, 2003) especially for young drivers.

Four specific hypotheses were identified by the researchers:

1. Involvement in motor sport will be associated with attitudes that support the acceptability of speeding on public roads.
2. Involvement in motor sport will be associated with more risky driving behaviours on public roads, measured by a standard "violations scale".
3. Involvement in motor sport will be associated with involvement in illegal street racing.
4. Individuals with high levels of sensation seeking propensity will be attracted to both motor racing and to street racing. (If this is the case, then effects of sensation seeking will need to be separated from effects from motor racing.)

Method

Sample

A questionnaire was distributed amongst secondary and higher education students in Christchurch, New Zealand. The students comprised first year students at university, polytech motor vehicle engineering students and 5th-7th form (15-18 year olds) students from a boy's school. This aimed to produce a purposive sample in which a large percentage of the group would match the demographic of illegal street racers. A total of 260 questionnaires were returned (211 males, 49 females) and the analysis was restricted to males under 25 years of age ($n = 180$). The median age of the males in the sample was 18 years of age (age range was 15 to 24 years) and a licence had been held for an average of three years.

Measures

Sensation seeking was measured using the eight item Brief Sensation Seeking Scale - BSSS developed by Hoyle, Stephenson, Palmgreen, Lorch, and Donohew (2002). Cronbach's coefficient alpha was used to estimate the reliability of the scales. A measure of risky driving behaviours was based on the Manchester University Driver Behaviour Research Group's "Driver Behaviour Questionnaire" (DBQ) (Parker et al, 1998). In particular, the questionnaire examined "violations", a type of aberrant driving behaviour characterised as deliberately risky driving behaviours. Research has demonstrated that "self-reported commission of violations is significantly predictive of accident involvement, both retrospectively and prospectively" (Parker et al, 1998). Experience with motor sport was measured using seven items, Involvement in street racing was measured using four items, risk perception (a sense of invulnerability) was measured by two items and attitude to speeding was measured using five items.

Statistical analysis

As far as the authors are aware, no previous study has been able to use quantitative data to demonstrate statistically the likely impact of interest in motor racing on driver behaviour. Two criterion measures (risky driving behaviours, participation in street racing) are predicted using the same set of variables (sensation seeking, participation in motor sport, attitude to speeding, risk perception). In Analysis 1 sensation seeking, motor sport participation, risk perception, attitude to speeding, were used to predict risky driving whilst in Analysis 2 the same measures were used to predict participation in street racing.

Results

The fit measures given in Table 1 overleaf indicate that the Analysis 1 model (Figure 1) fitted the data well. The model predicted 32% of the total variance in risky driving behaviour. Sensation seeking was directly associated with risky driving and indirectly through motor sport. Involvement in motor sport was directly associated with risky driving and indirectly through attitudes to speeding.

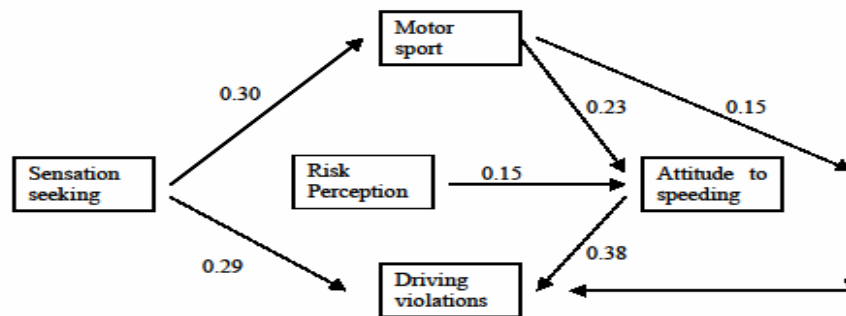


Figure 1: Analysis 1 variables predicting risky driving behaviour with standardised path coefficients

Sensation seeking		Motor Sport	
Direct	0.29	Direct	0.15
Indirect via motor sport and attitudes	0.07	Indirect via attitudes	0.01
Total	0.36	Total	0.24

Table 1: Direct, indirect and total effects of sensation seeking and involvement in motor sport on risky driving behaviour (standardized coefficients)

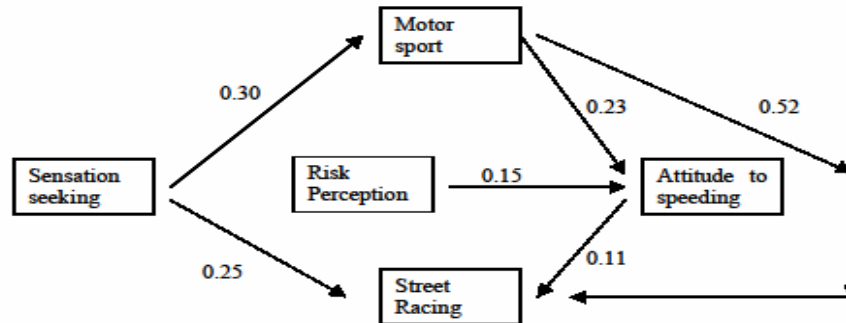


Figure 2: Analysis 2 variables predicting participation in street racing with standardised path coefficients

The fit measures given in Table 2 indicate that the Analysis 2 model shown above in Figure 2 fitted the data well. The model predicted 45% of the total variance in illegal street racing behaviour. Sensation seeking and involvement in motor sport were directly associated with involvement in street car racing. This analysis indicates that motor sport has a strong direct effect on the likelihood of involvement in street racing, independent of any effect of sensation seeking propensity. Also, interest in motor sport produces more problematic attitudes to speeding, but this does not appear to influence involvement in street racing.

Sensation seeking		Motor Sport	
Direct	0.25	Direct	0.49
Indirect via motor sport and attitudes	0.14	Indirect via attitudes	0.01
Total	0.39	Total	0.50

Table 2: Direct, indirect and total effects of sensation seeking and involvement in motor sport on street car racing behaviour (standardized coefficients)

Discussion

The results of the path analysis indicate that involvement in motor sport has an impact on driving behaviour. This produces a negative effect for road safety. However, the manner in which motor sport influences behaviour depends on whether the focus is on ‘violations’ (general driving behaviours) or on illegal street racing. Risky driving is a different type of problem to street racing. The antecedents of risky driving are attitudes and social norms (flowing from involvement in motor sport) whereas the antecedents of street racing is a ‘need for speed’ (measured by sensation seeking) and opportunity to observe how to do it (attendance at motor sport events).

Involvement in motor racing is associated with an increase in driving violations (and hence an increase in the chance of involvement in an accident). The most important causal mechanism for this is through the effect of motor racing on attitudes to speeding. Motor racing enthusiasts (e.g. those who are more likely to attend motor racing events) are more likely to believe that speed limits are too restrictive or that driving over the speed limit is acceptable if you are a skilful driver. This effect is independent of the influence of sensation seeking propensity. This finding is consistent with other

research. Ulleberg and Rundmo (2003) report risky driving behaviour being influenced by attitudes to speeding. Also research in the US has found that racing car drivers were more likely to have been fined for speeding and to have been involved in accidents than other drivers. The racing drivers were clearly more skilful than the average driver, but this skill may have led them to believe that speeding was acceptable because they had the skills to make it safe. Data on their accident involvement indicates that they over-estimated their driving skill.

Interest in motor sport also increases the likelihood of involvement in illegal street racing, even controlling for sensation seeking. However, the likely causal effect appears to operate in a different way. Interest in motor sport had a more direct effect on street racing than on risky driving in general. This may have been a case of vicarious learning, learning by observation, particularly if the motor sport involved was a drag racing event.

Implications for policy

The findings of this research suggest that it is important to counteract the pro speeding messages (glorification of speed and risky driving behaviour) emanating from motor sport in order to shape attitudes about driving behaviour on public roads and to reduce risky driving behaviour on public roads, and to address driver's perception of risk in relation to driver's own level of confidence in their own driving skill. This indicates the value of interventions based on social cognitive assumptions for risky driving behaviour. In other words, there is support for the notion that people's attitudes (in this case to speeding) do shape their behaviour, in this case measured by driving violations.

The direct relationship between sensation seeking and risky driving behaviour poses greater difficulty for designing appropriate road safety interventions. However sensation seeking is not necessarily linked to illegal behaviour. Hansen and Breivik (2001) found associations between a range of risky behaviours amongst adolescents that could be classified as socially deviant or acceptable (eg. ski downhill at high speed). In interviews with the Christchurch street racers, a number suggested that easy accessibility to legal facilities for burn-outs would reduce the incidence of illegal activities. The attraction to street racing was expressed as "chicks and fast cars" rather than a desire to engage in illegal activity. The important theme here is that a road safety intervention cannot change personality (sensation seeking) but can control potential environments in which it will be expressed.

One policy direction could be to shift interest from the sport of motor racing to other sports that have less social impact (e.g. mountaineering, sky diving or mountain bike riding). A problem with motor racing as a sport is that spectators who wish to emulate the behaviour of the motor racing drivers, can only emulate this behaviour on public roads. This then redistributes the burden of risk onto other road users who may happen to be in the vicinity of any illegal racing activity (either organised or spontaneous).

The difficulty with shifting interest from motor sport is the passion that many young people (particularly males) direct towards their cars. Therefore, they are more likely to act out their desire for sensation seeking through their cars.

Some research suggests that when legal drag racing events are held, there is little illegal activity on that night (Leigh, 1995). However, the question remains whether a reduction in illegal activity for one night is outweighed by a possible increase in interest in motor sport, and a possible consequent increase in illegal racing at other times.

References

- Hansen, E B and Breivik, G (2001) Sensation seeking as a predictor of positive and negative risk behaviour among adolescents *Personality and Individual Differences* 30, 627-640
- Hoyle, R H Stephenson, M T Palmgreen, P Lorch, E P Donohew, R L (2002) Reliability and validity of a brief measure of sensation seeking. *Personality and Individual Differences*, 32, 401-414
- Leigh, A (1995) Youth and street racing, *Current Issues in Criminal Justice*, 7 (3), 388-393
- Parker, D Lajunen, T and Stradling, S (1998) Attitudinal predictors of interpersonally aggressive violations on the road *Transportation Research Part F* 1 (1), 11-24
- Ulleberg, P and Rundmo, T (2003) Personality, attitudes and risk perception as predictors of risky driving behaviour among young drivers. *Safety Science*, 41, 427-443