

Who takes risks? Targeting risky young drivers

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The study objectives were to identify the young drivers most likely to engage in risky driving behaviour; and to assess the influence of age, experience, over-confidence, aversive consequences and parental risky driving on risk-taking by young drivers. The study comprised a telephone survey of young ACT drivers and an analysis of traffic offences committed by inexperienced ACT drivers.

The telephone survey revealed that over-confidence contributes to speeding, using a hand-held mobile phone while driving and running red lights, but not to aggressive driving. Respondents explicitly acknowledged the influence of their parents' driving on their own driving style. The self-reported frequency of risky driving behaviours by the respondent was significantly associated with the frequency of their parents engaging in the same behaviours.

The rate of risky offences was found to be much higher for young males than for young females. Risky offence rates declined steeply with increasing age. After controlling for age, offence rates remained fairly constant for the first three years of driving experience, before rising sharply in the fourth year. The offence rate was far higher for drivers who had committed prior offences than for drivers who had not. Risky offences continue at high rates even after the driver's licence has been suspended or cancelled.

INTRODUCTION

Reviews of research into young novice drivers have consistently found that risky driving behaviours make an important contribution to the over-representation of young drivers in traffic accidents (e.g. Jonah, 1986; Macdonald, 1994; Catchpole, Cairney and Macdonald, 1994; Ferguson, 2003; Senserrick and Whelan, 2003).

Whilst the link between youth and risk-taking is firmly established, recent research by ARRB Group has identified several other factors that appear to contribute to risk-taking in the early years of driving (Catchpole, 2005; Styles, Imberger and Catchpole, 2004). These include over-confidence, habit and modelling of risky driving behaviour by parents.

The purpose of this study was to provide a sound basis for the development of measures to reduce risk-taking by young novice drivers. The objectives were to extend the findings of previous studies by:

- identifying and defining the sub-population of young novice drivers in the Australian Capital Territory (ACT) most likely to engage in risky driving behaviour
- quantifying the influence of age and experience on self-reported risk-taking by young novice drivers
- assessing the importance of over-confidence, aversive consequences, habit formation and parental risky driving as influences on risk-taking by young novice drivers.

The study comprised a telephone survey of young ACT drivers and an analysis of traffic offence data for recently licensed ACT drivers.

TELEPHONE SURVEY

Method

The survey was conducted on behalf of ARRB by an experienced market research company using computer-assisted telephone interviewing. The sample comprised 300 males and 100 females aged 17 to 21 years who held a provisional or full driver licence and drove a car, utility or van at least twice per week on average.

The survey questions elicited information about the frequency with which respondents and their parents engaged in four risky behaviours:

- speeding
- using a hand-held mobile phone while driving
- red light running
- aggressive driving.

Other questions addressed the reasons for engaging in each of these behaviours and various experiences and beliefs related to over-confidence.

Prevalence of risk-taking among ACT novice drivers

Table 1 shows that the most frequently reported risky behaviour was speeding: 90% of respondents admitted to some speeding within the last few weeks and 25% reported that they speed most times or every time they drive. Driving aggressively and using a hand-held mobile phone while driving were reported to be much less frequent, with 51% and 58% of drivers respectively stating that they had not engaged in these behaviours at all in the last few weeks. Red light running was the least frequent of the four risky behaviours, with 85% of respondents reporting that they had not run any red lights in the last few weeks.

Table 1 – Frequency of risky driving behaviours during the last few weeks (percentage of respondents)

RISKY BEHAVIOUR	Never	Very rarely	Occasionally	Most times I drive	Every time I drive	Total
Driving faster than the speed limit	10.3	22.3	42.3	16.8	8.5	100.0
Using a hand-held mobile phone while driving	57.9	21.1	14.8	3.3	3.0	100.0
Driving through a red traffic light	85.2	9.4	3.8	1.0	0.5	100.0
Driving aggressively	50.8	31.0	15.0	2.0	1.3	100.0

Reasons for risky driving

Most of the reasons offered by respondents for speeding, using a mobile phone while driving and running red lights implied that the respondent received some benefit as a result of the behaviour. For example, being in a hurry was the most frequently reported reason for speeding and for running red lights; the importance of the calls made or received was often mentioned as part of the reason for using a mobile phone while driving. The next most frequently reported group of reasons for engaging in these three behaviours carried

implications of over-confidence, including references to there being no other cars around, being familiar with the road, being a good enough driver and speed limits being set too low.

The reported motivations for aggressive driving differed markedly from those for the other three risky behaviours. Aggressive driving was most often blamed on the behaviour of other drivers, with only a small minority of respondents implying that any benefit was obtained from aggressive driving and no respondents citing reasons directly related to confidence.

None of the reasons reported by respondents for any of the four risky behaviours indicated that the formation of habits was partly responsible for risk-taking. Whilst this result does not rule out some contribution by habit, it does suggest that respondents are not aware of any such influence.

Demographic factors

Not surprisingly, the self-reported frequency of speeding, using a mobile phone while driving, and driving aggressively was higher for males than for females. There was little apparent difference between males and females in relation to driving through red lights and most people reported that they never engage in this behaviour. There was no obvious relationship between age and the frequency of the risky behaviours measured. It appeared that respondents who usually drove their own car tended to engage in all four risky behaviours more frequently than those who typically drove a parent's car. Respondents who were employed over 30 hours per week reported that they engage in each of the four risky behaviours more frequently than students and those unemployed and those employed less than 30 hours per week.

Influence of parents' driving style

Reported levels of risk-taking by respondents' parents were lower than self-reported levels of risk-taking by respondents themselves. Fathers were reported to engage in higher levels of risk-taking than were mothers. For both fathers and mothers, the frequency ranking of the four risky behaviours was similar to the frequency ranking for respondents: speeding was the most commonly reported, followed by aggressive driving and mobile phone use, with red light running being the least often reported.

The majority of respondents considered that their own driving was influenced by the driving style of their father and mother. Both male and female respondents reported greater levels of influence by their father's driving style than by their mother's driving style. When respondents were asked about their perception of the influence of their parents' driving style on their own driving, female respondents were more likely than male respondents to report being influenced by their parents. However, when self-reported risk-taking was compared with the risk-taking of respondents' parents, the opposite pattern emerged: the associations between risk-taking by respondents and their parents were stronger for male respondents than for female respondents. For male respondents, statistically significant associations were found between the frequency of:

- respondent's speeding and father's speeding
- respondent's red light running and father's red light running
- respondent's aggressive driving and father's aggressive driving
- respondent's mobile phone use and mother's mobile phone use
- respondent's red light running and mother's red light running
- respondent's aggressive driving and mother's aggressive driving

For female respondents, the only statistically significant associations were between:

- respondent's red light running and father's red light running
- respondent's aggressive driving and father's aggressive driving
- respondent's red light running and mother's red light running

All significant associations were positive: higher levels of risk-taking by the parents were associated with higher levels of risk-taking by the respondent. The driving style of mothers appeared to be almost as influential as that of fathers, with five out of eight comparisons involving fathers' behaviour and four out of eight comparisons involving mothers' behaviour revealing statistically significant associations.

Influence of gender, age, experience and over-confidence

Logistic regressions were conducted to assess the influence of gender, age, driving experience, confidence, expectation of adverse consequences and experience of adverse consequences on the frequency of engaging in each of the four risky driving behaviours and on changes in the frequency of each behaviour since obtaining a provisional licence. These analyses revealed that:

- The frequency of speeding was significantly higher for drivers who had held a licence for longer; drivers who had been fined for speeding; and drivers who did not consider themselves to be safer than other drivers of their age and gender.
- The frequency of speeding was significantly more likely to have increased since the first few weeks after the respondent obtained a licence for females and for drivers who had been fined for speeding.
- The frequency of red light running was significantly more likely to have increased for males; for drivers with more total hours of driving experience; and for drivers who did not consider themselves to be safer than other drivers of their age and gender.
- There were no statistically significant predictors of the frequency of using a hand-held mobile phone while driving; increased frequency of mobile phone use; increased frequency of red light running; or increased frequency of aggressive driving.

TRAFFIC OFFENCE ANALYSIS

Method

Information about all traffic offences committed by drivers first licensed during the period January 1994 to December 2004 was supplied by the Rego.ACT section of the ACT Department of Urban Services.

Offences were classified as risky if they involved:

- speeding
- alcohol
- running a red or yellow traffic signal
- using a hand-held phone while driving
- failing to wear a seat belt
- careless or negligent driving
- failing to give way
- failing to signal
- unaccompanied driving by a learner
- wrong way driving
- improper turns
- improper overtaking
- driving without headlights at night
- carrying unrestrained passengers
- burnouts
- street racing
- disobeying certain critical signs
- dangerous parking/stopping/standing.

Non-risky offences (such as most parking offences, driving unlicensed and failing to display L or P plates) were excluded from the analysis. Offences relating specifically to bicycles, motorcycles, heavy vehicles, pedestrians and passengers were also excluded. The analysis included 44,707 risky offences committed by 43,542 drivers.

Gender and age

The rate of risky offences per thousand drivers per year is shown as a function of driver age and gender in Figure 1. The chart shows that the offence rate for males is much higher than that for females at all ages. The overall offence rate across all ages for males was 309.8 offences per thousand licence holders per year, just over double the overall rate of 145.7 offences per thousand licence holders per year for females. For males, the offence rate drops steeply with increasing age from age 17 onwards, whereas for females there is little change in offence rate until about age 22 years.

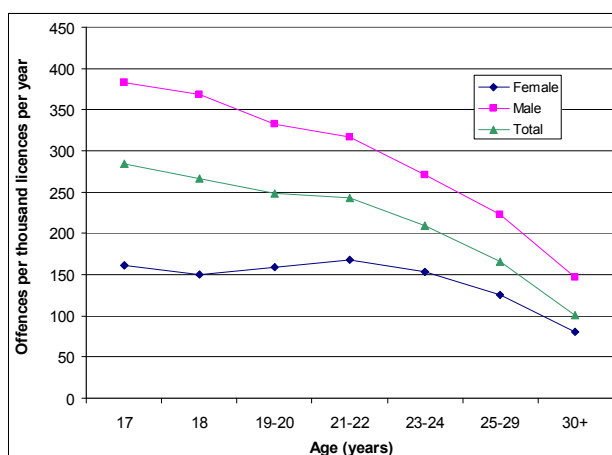


Figure 1 – Offence rate by driver age and gender

Driving experience

In order to assess the separate effects of age and experience on risk-taking, offence rates were examined as a function of experience for drivers in different age groups. Figure 2 reveals that for most age groups the offence rate is fairly flat for the first three years, before rising steeply for the next several years. In Figure 3, driving experience has been classified as the first three years versus the fourth and subsequent years. Offence rates are clearly higher for drivers with at least three years experience than for those of the same age with less than three years experience.

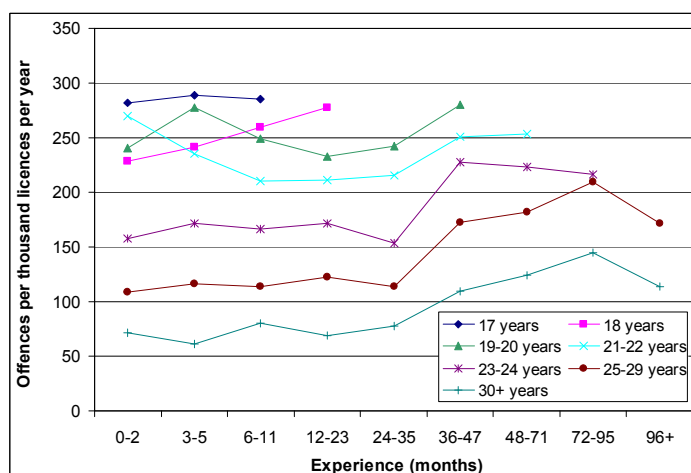


Figure 2 – Offence rate by driving experience and age

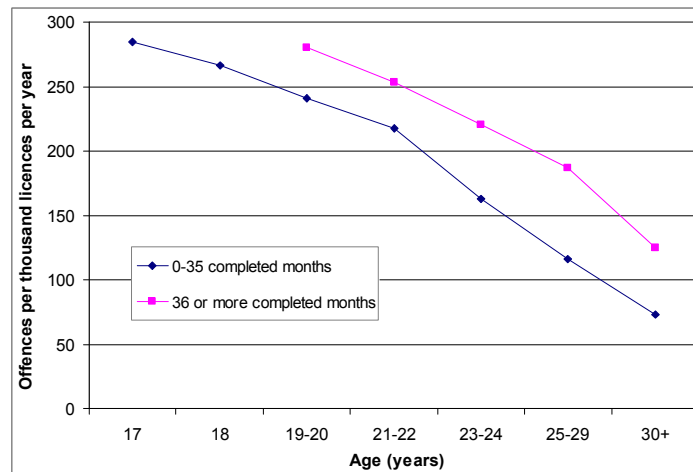


Figure 3 – Offence rate by age and driving experience (simplified)

Previous offences

In order to compare offence rates for drivers with and without prior offences, the time each driver was in the study was divided into two periods:

- The period from the date of obtaining a provisional licence up to and including the date of the first offence was defined as the ‘no prior offences’ period. For drivers with no recorded offences, this period comprised the whole of the time the driver spent in the study.
- The period from the day after the first offence until the end of the study (or the date when the licence became inactive, whichever was earlier) was defined as the ‘prior offences’ period. For drivers with no recorded offences, this period was zero days.

Figure 4 shows that offence rates decline substantially with increasing age among drivers with and without prior offences. However, even the oldest drivers with prior offences have an offence rate similar to that of the very youngest drivers without prior offences.

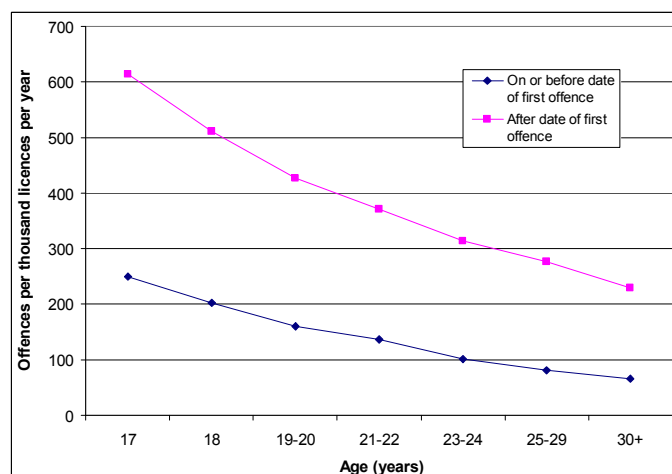


Figure 4 – Offence rate by age and offence history

Driving bans

The data file received from Rego.ACT identified drivers who were currently banned from driving (due to their licence being cancelled, suspended or disqualified) and the date the ban commenced. Thus it was possible to calculate the number of days since the current ban (if any) commenced and to identify offences committed since the commencement of the current ban. No information was available about previous, expired bans.

The offence rate for drivers during their current driving ban was 152.5 offences per thousand licence holders per year, 32% lower than the overall average of 225.4 offences per thousand licence holders per year but marginally higher than the rate of 148.7 offences per thousand licence holders per year for drivers with no prior offences. The offence rate for males banned from driving was 32% lower than the overall average for all males and 51% lower than the rate for males with prior offences, whereas the rate for banned females was 61% lower than the rate for all females and 79% lower than the rate for females with prior offences. Thus driving bans appear to be more effective in reducing offending by females than by males.

CONCLUSIONS

Extent of risky driving among young drivers in the ACT

The telephone survey revealed that almost all young drivers in the ACT engage in some form of risky driving on at least an occasional basis. Ninety per cent of survey respondents reported that they had exceeded the speed limit at some time in the last few weeks. There was considerable variation in the frequency of speeding, with many respondents reporting that they do so very rarely, but a quarter of all respondents indicating that they speed most times or every time they drive. There was also considerable variation in frequency between different risky driving behaviours, with over 40% of respondents admitting to driving aggressively and using a hand-held mobile phone while driving in the last few weeks but only 15% reporting that they had run a red light in the last few weeks.

Influences on risky driving

The study investigated the importance of a variety of factors in determining the frequency of risk-taking by young ACT drivers.

Gender: In the telephone survey, the self-reported frequency of speeding, using a hand-held mobile phone while driving and driving aggressively was slightly higher for males than for females, although only for aggressive driving did the gender difference emerge as significant in the logistic regressions. The influence of gender on risky traffic offences was much more clear-cut, with the rate per thousand drivers per year for males being roughly double that for females. Exposure differences partly explain the higher rate of risky offences for males, but it seems likely that gender differences in risk-taking also result from physiological differences and/or the differing social norms and expectations applying to young males and females.

Age: There was no apparent effect of age on self-reported risk-taking for the four risky behaviours examined in the telephone survey; however, it should be noted that survey respondents were restricted to a narrow age range (17–21 years). Examination of the rate of risky traffic offences per thousand drivers per year revealed a clear decrease in risk-taking with increasing age, especially for males. The influence of age was even more apparent once the effect of experience was removed, with drivers in each experience group showing a steep decline in offence rates with increasing age.

Experience: Speeding, the most commonly reported of the four risky behaviours examined in the telephone survey, was found in the logistic regressions to be significantly influenced by driving experience, with respondents who had held a solo licence for longer being more likely to report speeding at least occasionally over the last few weeks. Experience also had a statistically significant effect on the frequency of aggressive driving: the more total hours of driving experience the driver had accumulated since acquiring a provisional licence, the more likely it was that the driver would report having driven aggressively in the last few weeks. Traffic offence rates decrease with increasing experience, but this was found to be an artefact

of the high correlation between experience and the age of the driver. Once the influence of age was removed (by examining the effect of experience within narrow age bands), it became clear that offence rates not only do not decrease with increasing experience but, on the contrary, increase markedly after three years of driving. It seems likely that this increase is related to the relaxation of BAC and demerit point restrictions when graduating from a provisional licence to a full licence. Increased consumption of alcohol may lead to increased risk-taking even among drivers who do not exceed the legal BAC limit. The higher demerit point limit applying to full licence holders removes an important inhibiting factor and may result in increased willingness to take risks.

Habit: Telephone survey respondents offered a variety of reasons for engaging in risky behaviours, most of which related to the utility of the behaviour, to over-confidence or to the actions of other road users. None of the responses implied that the formation of driving habits contributed to the performance of risky driving behaviours. Although respondents did not mention habits, their involvement cannot be ruled out on the basis of the present study. Habits are by definition subconscious and thus they are less likely than factors such as confidence to be described in response to open ended questions like those used in the present study. The role of habit in risky driving requires further investigation by other methods.

Over-confidence: The reasons offered by telephone survey respondents for engaging in each of four risky driving behaviours implied that over-confidence contributes to speeding, using a hand-held mobile phone while driving and running red lights, but not to aggressive driving. However, neither higher levels of confidence nor lower expectations of adverse consequences were found in the logistic regressions to be significantly associated with higher levels of risk-taking. On the contrary, **not** believing oneself to be safer than other drivers of the same age and gender was found to be associated with more frequent speeding and aggressive driving, suggesting an accurate rather than an over-confident self-assessment. The contribution of over-confidence to the increase in risk-taking with driving experience requires further clarification.

Risky driving by parents: The telephone survey clearly revealed the influence of parental driving style on risk-taking by respondents. Respondents explicitly acknowledged the influence of their fathers' and their mothers' driving on their own driving style. In addition, there were statistically significant associations between the self-reported frequency of risky driving behaviours by the respondent and the frequency of their parents engaging in the same behaviours. All associations were positive, with a higher frequency of risky behaviour by the parent being associated with a higher frequency of the same risky behaviour by the young driver.

Target groups for countermeasure development

The study has clearly identified several potential target groups for the development of measures to reduce risky driving behaviour. Different countermeasures are required for the different target groups.

The primary focus of efforts to reduce risky driving offences should be on drivers who have already committed at least one risky driving offence, since they are more likely than other drivers to offend in the future. The impact of prior offences on future offence rates is greater than the effect of either gender or age, so focussing on drivers with prior offences is the most efficient way of identifying potential future offenders. It is also likely to be more acceptable to the community to focus on drivers who have already committed offences than to focus on demographic groups whose members are considered likely to commit future offences.

After prior offences, the next most important influence on the frequency of risky driving behaviour is gender, with young males admitting to more frequent risky behaviour and having roughly twice as many risky offences per driver as young females. It would not be acceptable to the community to apply mandatory programs selectively to males only. Nevertheless, it is important that optional programs, such as the ACT's existing Road Ready Plus program, be marketed in ways that appeal particularly to males. Furthermore, the content of all programs intended to reduce risk-taking, whether mandatory or optional, should be designed to cater especially for the needs of male participants.

High levels of risky driving are associated specifically with youthfulness rather than with lack of driving experience. Older novice drivers have a much lower rate of risky driving offences than do younger novice drivers. Programs intended to reduce the frequency of risky driving should focus on the youngest drivers rather than the least experienced drivers.

Offence rates indicate that, particularly among males but also to some extent among females, significant levels of risk-taking continue even when the driver's licence is suspended, cancelled or disqualified. Indeed, the rate of risky offences is higher among males currently banned from driving than among females overall (the vast majority of whom are not banned) and approximately equal to the rate among males with no prior offences. Thus there is a clear need to address risky driving by people, especially males, who are currently banned from driving. This might be achieved by an enforcement campaign targeting those who continue to drive while banned, supported by appropriate publicity. Although only a small proportion of drivers have their licence suspended at any one time, the publicity could be tailored to remind all drivers of the penalties for traffic offences.

The substantial increase in the rate of risky offences in the fourth year of driving implies a need for a program aimed at the transition from provisional to full licence. When provisional licence holders graduate to a full licence, their legal BAC limit increases from 0.02 to 0.05 g / 100 mL and the maximum number of demerit points that can be accumulated before a licence suspension is imposed increases from 4 to 12 points. It may be possible to reduce risk-taking among new full licence holders by educating them about the effect of alcohol on driving behaviour at legal BACs as well as illegal BACs. To reduce the impact of the sudden relaxation of the demerit point limit on risky driving behaviour, it would be worth considering a graduated relaxation of the limit. For example, the demerit point limit could be set at six points in the first year on a full licence, increasing by two points per year and reaching twelve points in the fourth year of driving on a full licence. This change would require an adjustment to the demerit point incentive offered to drivers to complete the Road Ready Plus program. Perhaps the most appropriate adjustment would be an immediate increase from four to six points on completion of Road Ready Plus, followed by a further two point increase each year thereafter until a maximum of twelve points is reached. In other words, drivers could commence the graduated increase from four to twelve points immediately on completion of Road Ready Plus, without having to wait until they hold a full licence.

The links established by the present study between the risk-taking of novice drivers and their parents suggest that risk-taking by novices could be reduced by programs that address risky driving by the parents of pre-driving-age children. The present study did not investigate the age at which children are most susceptible to the influence of their parents' driving behaviour, but it seems reasonable to suppose that behaviour in the years immediately before the child begins learning to drive will be the most closely observed and best understood by the child and will therefore have the greatest influence on the child's normative beliefs. This suggests that a program aimed at parents should probably focus on the parents of pre-driving secondary school students.

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