A report on the ATP Young Drivers Study from the collaborative partnership between the Australian Institute of Family Studies, the Royal Automobile Club of Victoria and the Transport Accident Commission of Victoria
Young adults are consistently over-represented among those injured or killed in traffic accidents. Risky driving behaviours such as speeding, driving when fatigued, and driving under the influence of alcohol are often implicated in these crashes. Although considerable research has examined the driving patterns of this age group, and the situational, structural and legal factors that influence their driving behaviour, much less is known about earlier characteristics or circumstances in young drivers’ lives that may have influenced their current driving behaviour.

This report, the product of a collaboration between the Australian Institute of Family Studies (AIFS), the Royal Automobile Club of Victoria (RACV), and the Transport Accident Commission (TAC) of Victoria, addressed this issue using data collected over the course of the Australian Temperament Project.

The Australian Temperament Project (ATP) is a longitudinal community study that has followed the development and wellbeing of a group of Victorian children from infancy to young adulthood. The initial sample comprised 2443 infants (aged 4-8 months) and their parents, who were representative of the Victorian population. Approximately two-thirds continue to participate in the study after 20 years.

Thirteen waves of data have been collected, via annual or biennial mail surveys. Parents, teachers and the young people themselves have completed questionnaires at various stages during the project. The findings presented in this report are based on a sample of 1135 young adults (56 per cent female) and their parents, who participated in this most recent data collection wave, conducted in 2002, when the young adults were aged 19-20 years.

Three specific issues related to young adult driving behaviour were investigated in the ATP Young Drivers Study: first, the learner driver experiences and current driving behaviour of young drivers; second, the longitudinal precursors of differing patterns of unsafe or unlawful driving behaviours (risky driving, crash involvement and speeding violations); and third, the association between risky driving behaviour and other types of problem behaviour – namely, substance use and antisocial behaviour.

This report is the first in Australia to have examined the possible connections between driver attributes and driving behaviour using data collected from infancy to adulthood. Some of the most important findings from the report are highlighted in this Executive Summary:

- Unsafe driving behaviours such as speeding and driving when fatigued were relatively common among young drivers. Nevertheless, only a small proportion of young drivers (7 per cent) reported a consistent pattern of highly unsafe driving.

- The group of drivers who engaged in high levels of risky driving behaviour in early adulthood (high risky drivers) could be distinguished from other drivers as early as mid childhood (5-8 years), while differences between those who had been detected speeding on multiple occasions (multiple speeding violation group) and other drivers were evident from late childhood (9-12 years).

- Common risk factors for unsafe or unlawful driving behaviours included a less persistent temperament style, higher aggression and hyperactivity, higher engagement in antisocial activities, higher multi-substance use, lower cooperation, higher school adjustment difficulties, more difficulties in relationships with parents, more frequent affiliation with antisocial peers and a tendency to react explosively or use drugs to cope with stress.

- Young adults who frequently engaged in highly unsafe driving behaviours were more likely to engage in other high risk activities such as substance use and/or antisocial behaviour.

A more comprehensive account of the study can be obtained by accessing the full report. For copies, contact the Australian Institute of Family Studies, the RACV or TAC, or access these organisations’ websites. Appendices containing statistical details are also available upon request.

**Trends in young adult driving behaviour**

Eighty-six per cent of young adults had obtained their probationary car driver’s licence by the age of 19-20 years. Very few (2 per cent) had gained a motorcycle licence. Most driving was reported to take place during the week in the day-time. Night-time driving was less common.

Forty-three per cent of young drivers reported that they had been involved in a crash while driving a car or riding a motorcycle. Most crashes (95 per cent) had resulted in property damage only, and almost two-thirds (62 per cent) occurred when the driver was alone. Almost one-third of young drivers (31 per cent) had been detected speeding by police at least once.

Speeding was also one of the most common unsafe driving behaviours reported (Figure 1). Exceeding the speed limit by up to 10km/h was very common (80 per cent reported doing so on at least one of their last ten
trips), and almost half reported exceeding the speed limit by 10 to 25 km/h on at least one of these occasions. Driving when fatigued was also relatively common, with 64 per cent of young drivers reporting that they had recently driven when very tired. Other unsafe driving behaviours, such as failing to wear a seatbelt or motorcycle helmet and driving when affected by alcohol or illegal drugs were less prevalent, with rates of occurrence ranging from 8 to 14 per cent. Young men reported engaging in most unsafe driving behaviours more frequently than young women (particularly speeding, driving when affected by alcohol, and failing to wear a seatbelt or motorcycle helmet). Young men were also more likely than young women to have been detected speeding by police.

Individuals living in non-metropolitan areas were more likely to engage in some unsafe driving behaviours such as driving when affected by alcohol (higher among regional drivers) and not wearing a seatbelt or motorcycle helmet when driving or riding (higher among rural drivers).

Discussion

Consistent with other research, these trends suggest that some level of unsafe driving behaviour is common among young adults, particularly young males. While the findings strongly reinforce the objectives of current initiatives targeting unsafe driving, especially speeding and driving when fatigued, they also suggest that the current range of initiatives may not be reaching some people. Further efforts may be needed to understand why these approaches are not connecting with all young drivers and how they might be better targeted.

Precursors and correlates of risky driving, crashes and speeding

The precursors and correlates of three problematic driving outcomes were investigated: risky driving, crash involvement and speeding violations (Table 1). For each outcome participants were divided into three separate groups on the basis of their self-reported driving behaviour:

For **risky driving**, young adults were assigned to low, moderate or high risky driving groups on the basis of their self-reported risky driving behaviour (for example, speeding, failure to wear a seatbelt or helmet, driving when fatigued or driving when affected by alcohol or illegal drugs), during their ten most recent trips.

For **crash involvement**, young adults were allocated to no, single or multiple crash groups depending upon the number of crashes they reported having been involved in when driving (or riding a motorcycle).

For **speeding violations**, young adults were assigned to no, single or multiple speeding violation groups based on the number of times they reported having been detected speeding by police.

The correlates and precursors of each outcome type were then investigated by comparing the relevant outcome groups (for example, for risky driving; the low, moderate and high risky driving groups) on characteristics assessed at 19-20 years (correlates) or earlier in life (precursors). When investigating the correlates and precursors of crash involvement and speeding violations, the amount of time young adults reported driving each week was statistically controlled.

### Table 1. Size and gender composition of the risky driving, crash involvement and speeding violation trips

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Groups</th>
<th>n</th>
<th>% sample</th>
<th>% male</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risky driving</strong></td>
<td>Low</td>
<td>675</td>
<td>64</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>306</td>
<td>29</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>74</td>
<td>7</td>
<td>77</td>
</tr>
<tr>
<td><strong>Crash involvement</strong></td>
<td>No</td>
<td>596</td>
<td>57</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>312</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>Multiple</td>
<td>136</td>
<td>13</td>
<td>54</td>
</tr>
<tr>
<td><strong>Speeding violations</strong></td>
<td>No</td>
<td>712</td>
<td>69</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>209</td>
<td>20</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Multiple</td>
<td>113</td>
<td>11</td>
<td>68</td>
</tr>
</tbody>
</table>

Note: <10km/h over = drove up to 10 km/h over the limit; 10-25km/h over = drove between 10 and 25 km/h over the limit; >25km/h over = drove more than 25 km/h over the limit; alcohol = drove when affected by alcohol; no seatbelt = forgot seatbelt (or helmet) for all of the trip; fatigue = drove when very tired; and drugs = drove when affected by an illegal drug.
The precursors and correlates of risky driving, crash involvement and speeding violations were investigated separately (details may be found in the full report). Only the general trends and common precursors across all three outcome types are presented here.

Young adults in the high risky driving, multiple crash and/or multiple speeding violation groups differed from other drivers on a wide range of domains. Most notably, in comparison to other drivers they tended to: be more aggressive; engage more frequently in antisocial acts (for example, property offences or violence); have a more inattentive, less persistent temperament style (for example, have difficulty in seeing tasks through to completion); use more licit and illicit substances; have friendships with peers who were involved in antisocial activities; and have had more police contact for driving-related offences.

In addition, young adults in the high risky driving and/or multiple speeding violation groups tended to be more hyperactive, less cooperative, and had experienced more school adjustment difficulties than other drivers. Common precursors shared by the high risky driving and multiple crash groups were a more difficult parent–child relationship and a tendency to use drugs or react explosively when stressed.

While there was considerable overlap between the predictors and correlates of risky driving, crash involvement and speeding violations, group differences among the risky driving and speeding violation groups tended to be more powerful, more consistent and emerge earlier (in mid to late childhood) than differences among the crash involvement groups (which emerged in mid/late adolescence). There were also some personal attributes and environmental characteristics that were uniquely associated with each driving outcome.

Some of the similarity in the profiles of the high risky driving and multiple speeding violation groups may have resulted from some overlap in the membership of these two groups. Nevertheless, it is important to note that the majority of young adults in these groups displayed only one of these types of problem driving behaviour. Hence it is likely that other factors also contributed to the similarity in the group profiles.

A discussion of these findings follows.

Risk factors could be identified from childhood

Looking back in life, high risky drivers and those with multiple speeding violations could be differentiated from their counterparts from mid to late childhood on a range of individual characteristics and environmental factors. These findings suggest that some antecedents of problematic driving behaviour are noticeable as early as mid to late childhood, many years before a person first drives a car or motorcycle.

There are several ways in which characteristics which develop in childhood and adolescence might influence and contribute to unsafe driving behaviour in early adulthood. First, these characteristics may directly influence driving behaviour (for example, aggressive tendencies could lead to road rage). Second, childhood and adolescent factors may indirectly impact on later driving behaviour, by contributing to the development of cognitive, emotional or behavioural response styles that are associated with problematic driving behaviours (for example, cognitive deficits that underlie
attentional difficulties may limit a young driver’s ability to divide and switch attention between competing driving tasks.

Finally, these factors may be a sign of the onset of a problematic developmental pathway, which may lead to a range of later difficulties, including problematic driving (for example, aggressive behaviour is a risk factor for antisocial behaviour, which may lead to the development of a constellation of other problem behaviours including unsafe driving). Given the connections between childhood and adolescent factors and subsequent driving outcomes found here, it is likely that intervention programs implemented at earlier stages of development could reduce the development of a number of problematic outcomes including unsafe driving, and thus may prove a useful addition to current road safety initiatives.

**Individual attributes were important predictors**

Across all types of problematic driving, the most problematic drivers could be distinguished from other drivers on a range of individual attributes and behaviours during adolescence and early adulthood. Common risk factors for all outcomes were a less persistent temperament style, higher aggression, and higher rates of involvement in antisocial behaviour and multi-substance use.

As well as focusing on skill development, road safety initiatives and driver education programs could be broadened to include a component highlighting the contribution of individual style and personal factors to driving behaviours and skills. For example, those who are impulsive or risk takers may be more prone to take impetuous, potentially dangerous actions while those who have a highly reactive temperament style may be more prone to become upset or irritated by the actions of other drivers.

Suggestions on how to manage such individual characteristics in the driving situations could be communicated to learner drivers via group workshops, road safety websites and/or information kits.

**The role of social factors**

Factors related to the peer and school environments were important predictors of all types of problematic driving outcomes. During adolescence (and even earlier among risky drivers) those who became the most problematic drivers had experienced more school adjustment difficulties than other drivers and associated more often with peers who engaged in antisocial behaviour and/or multi-substance use. There was also a trend for individuals who engaged in high levels of risky driving and/or had been involved in multiple crashes to experience more difficulties in their relationships with their parents than other young adults.

Thus it seemed that adolescents who did not feel connected to their school environment and experienced difficult interpersonal relationships more often traversed problematic developmental pathways leading to unsafe or illegal driving behaviours. As stated earlier, it is possible that intervening in these pathways may help to reduce or prevent the development of a number of later problem outcomes, including unsafe driving.

**Predicting crash involvement is less easy**

The findings suggest it is more difficult to predict crash involvement than risky driving or speeding offences, presumably because situational factors play a considerable role in whether crashes occur and because crashes are relatively infrequent events. Precursors of crash involvement were only apparent from mid adolescence on and were generally less powerful than those identified for risky driving and speeding violations.

Nevertheless, the ATP Young Drivers Study did identify some personal and environmental characteristics that appeared to increase the risk that a young adult would be involved in a crash when driving. Young adults who had been involved in a crash tended to have greater difficulties remaining focused on tasks, react more intensely when frustrated or upset, exhibit more behaviour problems and engage in more antisocial behaviour and multi-substance use than those who had not been involved in a crash. Many of these characteristics are similar to those identified as precursors of risky driving or speeding offences.

**Which drivers should be targeted?**

While the study findings indicated that most young adults engaged in some unsafe driving behaviour, it should be noted that most did so only occasionally. Only a small number (approximately 7 per cent) exhibited a consistent pattern of highly unsafe driving. This small group of young drivers would appear to represent a major road safety concern, and hence, interventions aimed at this type of driver would appear worthwhile.

These findings prompt an important intervention question. Namely, which group of young drivers is it more important to target: the large number who occasionally engage in high risky driving behaviour or the few who frequently engage in unsafe driving behaviour? Targeting the behaviour of which group will lead to the greatest gains for road safety and will the same types of interventions be equally effective with both groups? Further research is needed to examine the efficacy of intervention approaches aimed at these two very different groups of young drivers.
Overlap in problem behaviours

The relationship between risky driving, substance use and antisocial behaviour was examined to determine the extent to which these problem behaviours were interrelated. First, drawing upon previous ATP research, the precursors of these three types of problem behaviours were compared, to see if they shared common risk factors. Some overlap was evident, with aspects of temperament style, behaviour problems, school adjustment and interpersonal relationships predicting all three outcomes.

Second, in terms of the co-occurrence of problem behaviours, those who frequently engaged in risky driving also tended to engage more often in antisocial activities (Figure 2), and use alcohol and/or marijuana more often than less risky drivers, although the overlap in problem behaviours was far from complete. Furthermore, looking back in time, high risky drivers had displayed higher levels of these problem behaviours during adolescence. These trends were particularly notable for antisocial behaviour (40 per cent of risky drivers had consistently engaged in antisocial behaviour across adolescence) and alcohol use (one third had been consistently high alcohol users across adolescence).

Discussion

The findings of the ATP Young Drivers Study suggest that risky driving, substance use and antisocial behaviour are interrelated. These findings offer partial support for the view that such behaviours are related to each other, and may be caused by a common underlying trait or propensity for problem behaviour. This view thus suggests a shift in focus from preventing specific problem behaviours to intervening in the development of individuals upon problematic pathways.

These findings have important implications, as they suggest that interventions targeted at a single type of problem behaviour (for example, substance use, antisocial behaviour or risky driving) may have broader benefits and impact on the development of other types of problem behaviours. Nevertheless, considerable variability was found among young adults who engaged in high levels of risky driving behaviour, highlighting the need for a range of both broad and more targeted prevention and intervention approaches.

Conclusions

It is clear from this research that some antecedents of problematic driving behaviours appear at early developmental stages, well before driving age. Consequently, initiatives aimed at early intervention and prevention that can be targeted at likely high-risk groups should be supported. Ideally, these should be implemented in mid to late childhood.

It is also evident that there is some overlap between young drivers who engage in problematic driving behaviour and those who engage in other high-risk activities. As a result, broader initiatives that address common risk factors, such as aggressive tendencies, attentional capacities and social skills, should be implemented in addition to single-issue initiatives that concentrate on a specific outcome – for example, road safety or substance use.

Some factors which consistently emerged as risk factors (for example, aggression, hyperactivity and attentional problems), were evident from mid childhood and are likely to be physiologically based. The findings from the ATP Young Drivers study suggest that such underlying physiological propensities may be of greater concern than previously acknowledged in road safety. Further research is needed to investigate this issue, its relevance to this field and its intervention implications.

While this research has helped identify some of the characteristics of high-risk young drivers, it is important that future efforts are also channelled to trialing and evaluating various preventative interventions. Re-examination of road safety issues in the next ATP survey (scheduled to take place when participants are aged 24 years) would also be beneficial, to help determine whether any changes in these behaviours have occurred as this cohort of young drivers increases in age and driving experience.

Taken together, the findings from this collaborative project have increased our understanding of the development of “normal” and “problematic” driving patterns, and have implications for the nature and timing of interventions aimed at reducing or preventing risky driving, crash involvement and speeding behaviours among young novice drivers.

These findings are a reminder that the attributes and capacities that young people bring to the task of driving influence their skills and effectiveness as drivers, together with situational, structural, and legal factors associated with the driving environment.