

# Executive summary

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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. In an effort to shed light on these road safety problems, considerable research has been devoted to examining the driving patterns and behaviours of this age group, as well as the situational, structural and legal factors that influence their driving behaviour. However, much less is known about the earlier circumstances or factors in young drivers' lives that may have influenced their current driving behaviour.

This report presents findings from the *ATP Young Drivers Study* – a collaboration between the Australian Institute of Family Studies, the Royal Automobile Club of Victoria (RACV), and the Transport Accident Commission (TAC) of Victoria. The study used data gathered over the course of the Australian Temperament Project (ATP) to identify factors associated with, and pathways to, three different types of problematic driving behaviour (risky driving, crash involvement and speeding offences) among a large sample of young drivers aged 19 to 20 years. The report also examined the learner driver experiences and driving behaviours of these young adults, and the association between unsafe driving behaviours and other problem behaviours (substance use and antisocial behaviour). This Executive Summary highlights some of the most important findings emerging from this report.

## Australian Temperament Project

The Australian Temperament Project (ATP) is a longitudinal community study that has followed the development and wellbeing of a large group of Victorian children from infancy to young adulthood. Upon recruitment, the sample consisted of 2443 infants (aged four to eight months) and their parents, who were representative of the Victorian population. Approximately two-thirds are still participating in the study. 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. Information has been collected on temperament style, behavioural and emotional adjustment, school attachment and achievement, health, social skills, antisocial behaviour, substance use, civic engagement, road safety, peer and family relationships, as well as family functioning, parenting practices, family structure and family socio-economic background.

The findings presented here 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 when the young adults were aged 19-20 years. Self-, parent- and teacher-reported information collected over the course of the study were used in the longitudinal analyses.

In the following sections, ATP participants' learner driver experiences are first described, and are followed by an account of their current driving behaviour, including time spent on the road, risky driving behaviour, incidence of crashes

and apprehension for speeding. The precursors and correlates of risky driving, crash involvement and speeding violations are next discussed, and finally, the degree to which risky driving behaviour is associated with other problem behaviours such as antisocial behaviour and substance use is described.

## Learning to drive experiences

When reflecting on their learner driver experiences, most young adults (about 80 per cent) recalled practising driving on at least a weekly basis. They typically practised with their parents. Many young adults (78 per cent) and parents (87 per cent) reported experiencing some stress or conflict when practising driving together, although this was minor for the majority. Driving practice with persons other than parents, while less common, was generally stress-free. While there was considerable diversity in the number of professional driving lessons young adults had undertaken, most commonly it was between one and five, and only approximately one-fourth of young people had taken more than ten lessons.

Young women tended to have taken more professional driving lessons, experienced higher levels of stress and conflict in their driving practice sessions with parents, and had practised driving more frequently with persons other than their parents, than young men.

Young adults living in metropolitan areas had undertaken more professional driving lessons than those in regional or rural areas, while those in regional areas recalled practising driving less frequently than rural or metropolitan drivers.

### *Discussion*

These findings suggest that both parents and young adults are generally heeding the message communicated by road safety authorities that novice drivers should gain substantial driving experience before attaining their probationary licence. However, further efforts may be warranted to ensure that learner drivers living in regional and rural areas are provided with sufficient opportunities to acquire and practice driving skills.

While participants generally rated driving practice with persons other than parents as a stress-free experience, most young adults (especially young women) and their parents reported experiencing some stress or conflict during practice sessions. Hence, parents and learner drivers may benefit from advice or strategies to reduce the stressful nature of this experience.

## Driving behaviour

Eighty-six per cent of young adults had obtained their probationary car driver's licence by 19-20 years of age. Very few (2 per cent) had gained a motorcycle licence. Most driving was reported to take place during the week in daylight hours. 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. 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 10-25 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 seat-belt or motorcycle helmet and driving when affected by alcohol or illegal drugs were less prevalent, ranging in incidence from 8 -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 non-seat-belt use). Young men were also more likely to have been detected speeding by police.

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

### **Discussion**

Consistent with other research, the findings from the *ATP Young Drivers Study* 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 communications are not connecting with all young drivers and how they might be better targeted.

## **Precursors of risky driving, crashes and speeding**

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

For *risky driving behaviour*, 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 seat-belt or motorcycle 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 composition of these groups is shown in Table A.

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

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.

While 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 violations 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 less persistent temperament style (have difficulty in seeing tasks through to completion); use more licit and illicit substances; have friendships with peers who tended to be involved in antisocial activities; and have had more police contact for driving-related offences. In addition, those 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 to 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, for example, shared risk factors.

### **Discussion**

These findings have a number of important implications, which will now be discussed.

#### ***Risk factors could be identified from childhood***

Looking back in life, high risky drivers and those with multiple speeding violations tended to be more aggressive, more hyperactive and less persistent than their counterparts from mid to late childhood. High risky drivers also tended to have experienced more difficulties adjusting to the routines and demands of school life, while those with multiple speeding violations were generally rated as less cooperative and self-controlled from this time. 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, 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 consistently 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 than other young adults in their relationships with their parents.

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, this 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. Those 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 many young adults were found to engage 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 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 intervention 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.

## Relationship between unsafe driving behaviour and other problem behaviours

The relationship between unsafe driving (as measured by 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 longitudinal precursors of risky driving, persistent adolescent antisocial behaviour and adolescent multi-substance use were compared, to see if these three types of problem behaviour shared similar risk factors. Some overlap in the longitudinal precursors of risky driving, persistent adolescent antisocial behaviour and multi-substance use was found, with aspects of temperament style, behaviour problems, school adjustment and interpersonal relationships predicting all three outcomes.

Second, the co-occurrence of unsafe driving, substance use and antisocial behaviour was examined. While the overlap between these problem behaviours was far from complete, young adults who engaged in high levels of risky driving behaviour also tended to engage more frequently in antisocial activities and use alcohol, marijuana or both substances more often than less risky drivers. 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 for 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 problem 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 prevention and intervention approaches.

## Conclusion

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, attentional problems) were evident from mid childhood and are likely to be physiologically based. The findings of 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 the 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 trialling and evaluating various preventative interventions. Re-examination of road safety issues in the next ATP survey wave (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 mature and gain increased driving experience.

Taken together, the findings from the ATP Young Drivers study have increased 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. The 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.