Risky driving among young Victorian drivers: A longitudinal study

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Abstract

The Australian Temperament Project (ATP) is a longitudinal study that has followed the development and well-being of almost 1,000 children over the first 24 years of life. Self-reported information on young people's driving histories and practices was collected when subjects were 19-20 and 23-24 years of age.

By the age of 23-24 years, almost all (97%) subjects had a driving licence. Approximately half had been detected speeding during their driving careers and 60% had been involved in a crash, although injury crashes were rare. Risky driving was relatively common. In their last 10 trips, half reported exceeding the speed limit by between 11-25km/h and two-thirds had used a mobile phone. One fifth had driven when affected by alcohol in the previous month.

The sample was classified as either: high, moderate or low risk drivers based on the extent of risky driving they engaged in, and the stability of this was compared from when they were 19-20 years to when they were 23-24 years. Most low risk drivers stayed low risk and some moderate and high risk drivers reported less risky driving when they were 23-24 years.

The level of co-occurrence between risky driving and other risky behaviours was analysed. High and moderate risky drivers were significantly more likely to binge drink and use marijuana, ecstasy and amphetamines than low risk drivers. Risky driving appeared to be one element of a risk taking lifestyle for a number of young people.

The findings provide evidence that can inform intervention and prevention efforts aimed at reducing risky driving among young people.

Keywords

Alcohol; Speed; Young drivers; Risky driving; Problem behaviours; Longitudinal

Introduction

The overrepresentation of young drivers in motor vehicle crashes is a major public health concern [1, 2]. Young drivers' involvement in behaviours such as speeding and driving when affected by alcohol are seen as important contributors to this trend [2, 3]. Other 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.

Early adulthood can be a period of considerable risk-taking. The prevalence of substance use reaches a life-time high [4], while other forms of risk-taking common at this age include antisocial behaviour and gambling. It is increasingly recognised that many adolescent and early adult problem behaviours tend to co-occur and share common precursors [5, 6]. This may also be true of risky driving. Several studies have shown that those who engage in risky driving often engage in other risky or problematic behaviours [7, 8]. Little is known about the degree to which risky driving and substance use co-occurs among young people in their mid-twenties.

This paper summarises the findings from the first two reports of the *ATP Young Drivers Study* [9, 10]. This is a collaboration between the Australian Institute of Family Studies, the Royal Automobile Club of Victoria (RACV), and the Transport Accident Commission (TAC) of Victoria.

In 2002, RACV and TAC approached the Australian Institute of Family Studies to include some driving related questions on the Australian Temperament Project (ATP), a longitudinal community based study that had been regularly surveying a large cohort of children born in Victoria in 1983.

The study used data gathered over the course of the Australian Temperament Project (ATP) to identify factors associated with, and pathways to, problematic driving behaviour (risky driving, crash involvement and speeding offences) among a large sample of young drivers surveyed when they were aged 19 to 20 years and again when aged 23-24 years. This paper examines the self reported driving behaviours of these young adults, and the association between unsafe driving behaviours and other problem behaviours (substance use and antisocial behaviour).

Method

The ATP has followed the development and wellbeing of a large group of Victorian children over the first 24 years of life. The ATP commenced in 1983 and upon recruitment, the sample consisted of 2443 infants (aged four to eight months) and their parents, who were representative of the Victorian population.

Fourteen waves of data have been collected, via regular 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 socioeconomic background.

The findings presented here are based on the two latest waves of the study which were conducted in 2003 when the sample of young adults were aged 19-20 years (n=1,135) and then four years later in 2008 when they were aged 23-24 years (n=974).

Results

Driving Behaviours of Young people in their early 20's

Almost all the young people (97%) surveyed had obtained a driving licence by 23–24 years of age, with the average length of time that licences had been held being 6 years. About 3% had experienced a licence cancellation or suspension since first gaining their licence. Approximately half had been detected speeding during their driving careers, and 60% had been involved in a crash while driving since gaining their licence. Crashes resulting in property damage were the most common, while crashes resulting in injury or death were very rare.

Risky driving was relatively common. For example, on one or more of their ten most recent driving trips, close to half had exceeded the speed limit by 11–25 km/h, about two-thirds had driven when very tired, two-thirds had used a mobile phone function (such as receiving or sending an SMS), around half had talked on a mobile, and about one-fifth had driven when affected by alcohol. One in five 23–24 year-olds had driven when near or over the legal alcohol limit during the previous month.

Driving trends across the whole sample were examined to determine whether young people's driving tendencies remained similar or had changed as they gained more experience on the road. There was a slight decrease in high level of speeding and driving without a seatbelt from 19–20 to 23–24 years among the ATP sample (see Figure 1). However, rates of other types of risky driving tended to increase or remain stable. Driving when fatigued remained very prevalent, and driving when affected by alcohol increased substantially. Thus, when 23–24 year olds did engage in risky driving, they did so almost as frequently as did 19–20 year olds.

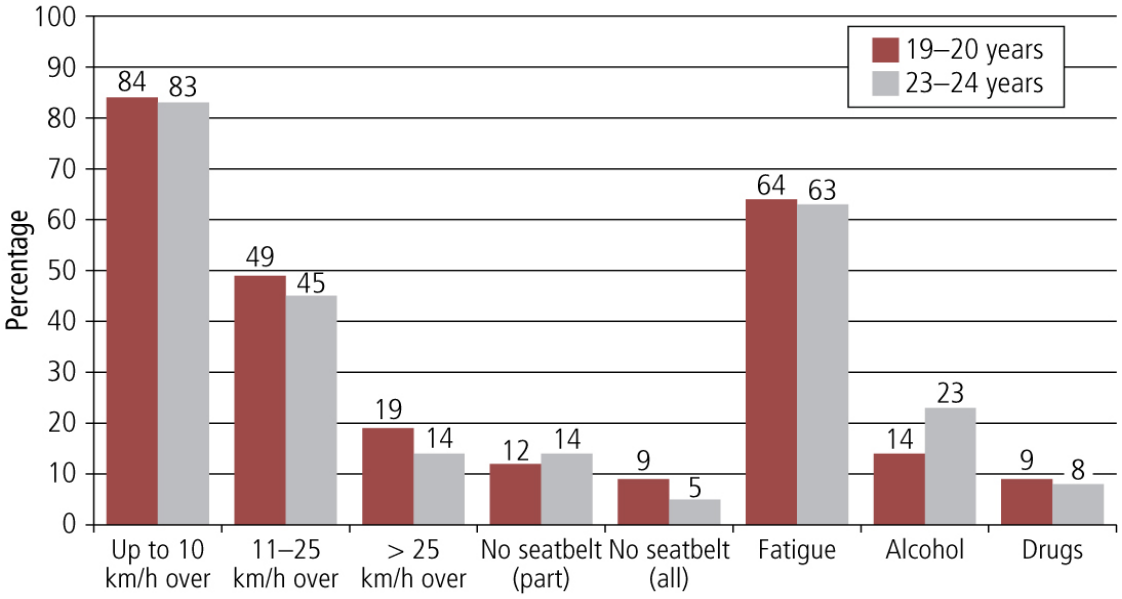

Figure 1: Engagement in risky driving during previous ten trips at 19-20 years and 23-24 years

When the subjects were aged 23-24, they were asked some additional questions about drink driving. The results indicated that over 40% had friends who engaged in drink-driving, and about one in eight had a partner who had driven when over the legal limit. Two-thirds of young people "always" made plans to avoid drink-driving, and about three-quarters of those who made plans did not subsequently engage in drink-driving. The most common strategies used to avoid drink-driving were to plan ahead and arrange alternate transport to one's destination (e.g., have someone else drive, take a taxi or ride on public transport), or to alter their drinking habits (e.g., not drink at all, or reduce the amount of alcohol consumed). These are shown in the table below.

Table 1: Percentage who used strategies to avoid drink-driving in past month among 23-24 year olds

Drink-driving avoidance strategies	n	%
Planned ahead and got someone else to drive there	665	68.4
Planned ahead and took a taxi or public transport there	571	58.7
Didn't drink alcohol	513	52.8
Cut down the amount I drank	376	38.7
Planned ahead and found another way to get there	292	29.2
Stayed overnight	281	28.9
Counted or spaced my drinks	256	26.3
Drank more water or soft drink	248	25.5
Left my car there and arranged to be driven by someone else	195	20.1
Left my car there and used a taxi or public transport	188	19.3
Left my car there and found another way to get home	125	12.9
Drank low alcohol beer	103	10.6
Limited the money I spent on alcohol	78	8.0
Used a breath testing machine to check my level	39	4.0
Did nothing	37	3.8
Slept in my car	18	1.9
Never drink alcohol (teetotaller)[1]	15	1.5

Note: percentages do not add to 100 as respondents were able to select multiple options.

[1] While this was not one of the response options listed for this question, a number of individuals (n=15) indicated that they did not need to use any of the listed strategies, as they did not drink alcohol.

Risky driving and substance use at 23–24 years

Two main questions were explored. First, whether young people who engaged in drink driving were more likely to engage in other types of risky driving. This was found to be the case, with speeding, and driving without a seatbelt, when fatigued, under the influence of an illegal drug, or when using a mobile phone, all considerably more common among young drink-drivers than among other young drivers.

Second, young people who showed high, moderate and low levels of risky driving were compared on their engagement in substance use. The young adults in the study were assigned to low, moderate or high risky driving groups on the basis of their self-reported risky driving behaviour during their ten most recent trips.

Binge drinking, and marijuana, ecstasy and amphetamine use were all significantly higher among high- and moderate-level risky drivers, with the strongest differences being found on binge drinking and marijuana use. Further, high- and moderate-level risky drivers more often engaged in multi-substance use (see Figure 2), and did so more frequently than low-level risky drivers.

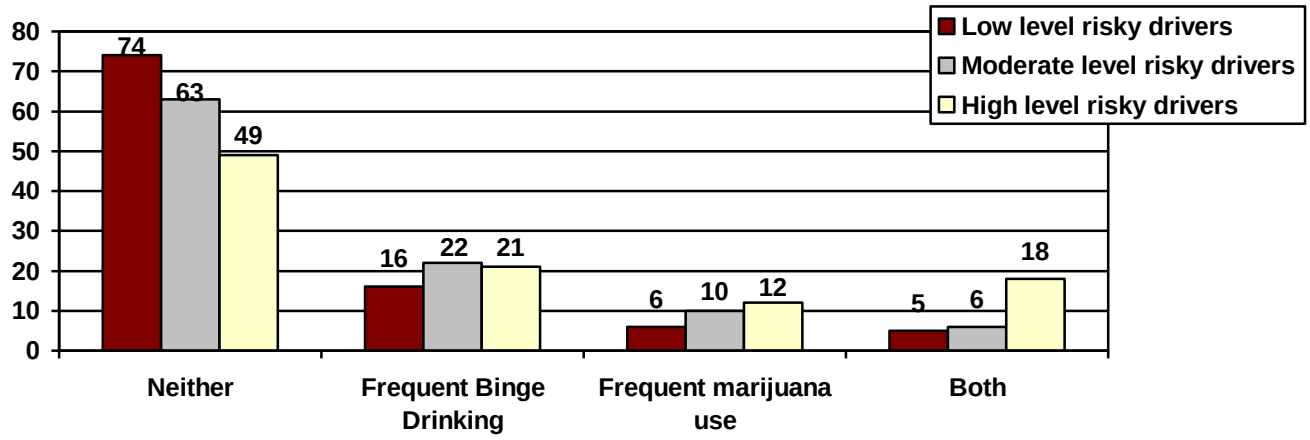

Figure 2: Frequent binge drinking and marijuana use in past month, high-, moderate- and low-level risky drivers at 23-24 years.

Consistency of driving behaviours from 19–20 to 23–24 years

Young people identified as showing high, moderate and low levels of risky driving at 19–20 years were followed forward to determine whether they would continue to show similar driving patterns at 23–24 years. High stability was found among those with low levels of risky driving, but less stability was found among those showing moderate and high levels, the majority of whom were less problematic at 23–24 years.

Precursors of risky driving, crashes and speeding in 19-20 years sample

The precursors and correlates of three problematic driving outcomes were investigated when the sample was aged 19-20 years. Three outcome measures were used: 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.

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.

Tables 2 and 3 provide a summary of the precursors of each of the three problem driving outcomes. As a guide to interpreting this table, a "tick" (✔) indicates that a particular individual characteristic (for example, lower task persistence) was found to be associated with a particular driving outcome (for example, risky driving) at a minimum of one developmental stage, while a cross (✖) indicates that this characteristic was not associated with a particular outcome at any time at which it was assessed.

Table 2. Summary of individual attributes associated with different problem driving outcomes

Aspect	High risky driving	Multiple crashes	Multiple speeding violations
Temperament style Less task persistent	✔	✔	✔
More negatively reactive	✖	✔	✖
More sociable	✖	✖	✔
Behavioural problems More aggressive	✔	✔	✔
More hyperactive	✔	✖	✔
More anti-social behaviour	✔	✔	✔
More multi-substance use	✔	✔	✔
Emotional problems Less anxious	✖	✖	✔
Less depressed	✖	✖	✔
Social competence Less cooperative	✔	✖	✔
Less responsive	✔	✖	
Less empathic	✔	✖	✔
Less self-control	✔	✖	✔
Coping strategies More acting out, less adaptive coping	✔	✔	✔
Criminal justice contacts More driving offences	✔	✔	✔
More offences (general)	✖	✖	✔
Civic Engagement Lower civic engagement	✔	✖	✖

Table 3. Summary of environmental aspects and current life circumstances associated with different problem driving outcomes

Aspect	High risky driving	Multiple crashes	Multiple speeding violations
School adjustment and achievement More school adjustment problems	✔	✖	✔
Lower level completed secondary education	✖	✖	✖
Peer relationships Higher anti-social peer affiliations	✔	✔	✔
Poorer quality peer relationships	✔	✖	✖
Parent-child relationship Poorer quality parent-child relationship	✔	✖	✖
Higher conflict in parent-child relationship	✖	✔	✖
Less warmth in parent-child relationship	✔	✖	✖
Learner driver experience and current driving behaviour Higher stress experienced when practising driving	✖	✔	✖
More time spent driving	✔	**NA**	**NA**
Current circumstances More likely to be in paid employment	✖	✖	✔
Less likely to be studying	✖	✖	✔

Discussion

These studies provide an examination of the degree to which young people engage in risky driving practices once they have become more experienced drivers, as well as the continuity of risky driving from their novice driving years. The findings provide significant Victorian evidence that can inform intervention and prevention efforts aimed at reducing risky driving among young people.

The benefits of young people not engaging in risky driving in the early years of their driving careers were highlighted, since very few subsequently became moderate- or high-level risky drivers. Encouragingly, the findings demonstrated that young problem drivers were not destined to continue posing a road safety risk as they grew older, with improvement found to be common.

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.

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.

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 be displayed on the road).

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).

It also 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.

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.

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.

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