

“I drove after drinking alcohol” and other risky driving behaviours reported by young novice drivers

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Abstract

Background

Volitional risky driving behaviours including drink- and drug-driving and speeding contribute to the overrepresentation of young novice drivers in road crash fatalities, and crash risk is greatest during the first year of independent driving in particular.

Aims

To compare: 1) the self-reported compliance of drivers with road rules relating to substance-impaired driving and other risky driving behaviours including speeding and driving tired, one year after progression from a Learner to a Provisional (intermediate) licence; and 2) the interrelationships between substance-impaired driving and other risky driving behaviours (crashes, offences, and Police avoidance).

Methods

1268 drivers (373 males) aged 17-26 years were surveyed regarding their sociodemographics (age, gender) and self-reported driving behaviours including crashes, offences, Police-avoidance, and driving intentions.

Results

A relatively small proportion of participants reported driving after taking drugs (5.9% males, 1.3% females) and drinking alcohol (19.3% males, 11.6% females). In comparison, a considerable proportion of participants reported at least occasionally exceeding speed limits (85.7% novices) and driving when tired (82.7% novices). Substance-impaired driving was associated with avoiding Police, speeding, risky driving intentions, and self reported crashes and offences. Forty-four percent of illicit-drug drivers also reported alcohol-impaired driving.

Discussion and conclusions

The low self-reported prevalence of substance-impaired driving suggests official enforcement measures play a role in promoting compliance, in addition to social influences such as the broader community and the young novice drivers' social networks including friends and family. Conversely, the prevalence of speeding appears to reflect the pervasive cultural acceptance of this behaviour. Given the interrelationships between the risky driving behaviours, a deeper understanding of influential factors is required to inform targeted and general countermeasure implementation and evaluation during this critical driving period.

Introduction

Young novice drivers – drivers aged 17-25 years who hold an intermediate (Provisional) driver's licence and therefore are inexperienced drivers– constitute a major public health

concern due to their numbers of crashes, their rates of crash involvement, and the injuries and fatalities arising from those crashes. The overrepresentation of young drivers in road crashes is a persistent global road safety problem (European Transport Safety Council, 2011). In Australia in 2011, 17-25 year olds comprised 12.9% of the nation's population, but contributed 21.9% of the road crash fatalities (BITRE, 2012). Substance-impaired driving – driving after drinking alcohol or taking illicit drugs such as marijuana or ecstasy – is problematic for drivers of all ages and experience. Age and alcohol appear to have an interactive effect, increasing relative crash risk for the young driver (Peck et al., 2008). The likelihood of driving after drinking increases five-fold for the driver who drinks alcohol in conjunction with illegal drugs and the young drink driver is also significantly less likely to wear a seatbelt (Everett et al., 1999). Illicit drugs (e.g., marijuana) have been found to negatively impact on driving abilities by reducing alertness and concentration whilst increasing reaction times (Donald et al., 2006). A Danish study reported a 25 times greater risk of harm when driving after using illicit drugs either alone or in combination, increasing to 35 times greater if the driver also consumed alcohol (Twisk & Stacey, 2007).

Whilst substance-impaired driving is problematic for young, inexperienced drivers, other risky driving behaviours such as speeding, carrying passengers, and driving tired are also of concern. Young drivers who crashed whilst under the influence of alcohol in the United States between 2005 and 2009 were more likely to be males who were speeding, not wearing a seatbelt, and carrying passengers on a weekend night (Williams et al., 2011). Substance-impairment may reduce wearing of seatbelts and increase the number of passengers carried; young drivers occasionally are found to carry more passengers within the cabin of passenger vehicles than there are seats (and therefore seatbelts) (e.g., see Calligeros, 2009). Young drivers also drive at times which are in conflict with circadian rhythms and which may also involve alcohol and carrying peers who may be a negative influence upon their behaviour (Papadakaki et al., 2008). Further, regular mobile phone users report frequent speeding, crashes and driving violations (Schlehofer et al., 2010). Punishment avoidance (active attempts at avoiding punishment such as a traffic citation), or inadvertently receiving rewards (such as social status or a faster journey) for risky driving behaviours such as speeding appears to increase the likelihood that the risky behaviour will be repeated. As such, substance-impaired young novice drivers may actively engage in punishment-avoidant behaviour to evade detection and apprehension by Police. This paper summarises the self-reported risky driving behaviours of young drivers within the realms of substance-impaired driving, speeding, driving errors, general risky driving, and carrying passengers in risky circumstances, one year after progression from a Learner to a Provisional (intermediate) licence. The interrelationships between substance-impaired driving and other risky driving behaviours, crashes, offences, Police avoidance, and driving intentions will also be examined.

Method

Participants

Drivers ($n = 1268$, 373 males) aged 17-26 years ($M = 19.09$, $SD = 2.11$) completed a paper survey one year after obtaining their Queensland Provisional 1 (P1) driver's licence.

Design, Procedure, Materials and Statistical Analysis

Queensland drivers who progressed from a Learner to a Provisional licence in the period April through June 2010 received a survey from the state government licensing authority (Department of Transport and Main Roads) on behalf of the research team one year after obtaining their licence later. Of the 9393 drivers aged 17 years and older who were eligible to

participate, 1268 surveys were returned by drivers aged 17-26 years. Survey items included gender and age; punishment avoidance through paying attention to, and avoiding, Police (*no, yes*); future driving intentions to bend (1 *definitely will not*, 7 *definitely will*), and likelihood of bending (1 *very unlikely*, 7 *very likely*), road rules; and self-reported crash involvement and offence detection (*no, yes*). The 44-item Behaviour of Young Novice Drivers Scale (BYNDS) (Scott-Parker et al., 2010) assessed self-reported risky driving behaviour (1 *never*, 5 *nearly all the time*), including driving after drinking alcohol ('drink driving') and driving after taking illicit drugs such as marijuana and ecstasy ('drug driving'). Analysis of variance and Pearson chi-square were used to compare means, evaluated at significance $\alpha = .05$.

Results

As shown in Table 1 nearly 16% of participants reported drink driving and 3% reported drug driving. One fifth reported being involved in between one and three crashes during the first year of their P1 licence; 84.8% reported one crash only. One quarter reported being detected for between one and six offences; 72.7% reported one offence only. Males reported more risky and illegal driving behaviours including substance-impaired driving; more punishment avoidance behaviour; and stronger intentions to drive riskily in the future (Table 1). A significantly greater proportion of males reported that they had been detected for an offence; male participants reported between one and six offences, and female participants reported between one and five offences (66.9% and 76.5% respectively one offence only, $p < .001$).

Table 1: Proportion of young drivers reporting at least occasionally performing behaviour, crash-involvement and offence-detection, and future driving, by gender.

Risky driving behaviours, future driving intentions, crashes and offences	Proportion (%) of drivers		
	Total N=1268	Males N = 373	Females N = 895
<i>Substance-impaired driving</i> ¹			
When thought over legal alcohol limit	15.9	19.3	11.6 ***
After taking illicit drugs	2.7	5.9	1.3 ***
<i>Speeding</i> ¹			
Up to 10 km/hr over speed limit	85.7	76.9	85.3 **
Went 10-20 km/hr over speed limit	50.6	58.4	47.3 ***
More than 20 km/hr over speed limit	31.2	41.0	27.2 **
Over speed limit if detection unlikely	64.0	67.5	62.6 **
Sped up when lights went yellow	77.7	75.3	78.7
Deliberately sped when overtaking	69.2	75.7	66.5 ***
Raced out of intersection on green light	50.3	58.6	46.8 **
Sped at night on poorly-lit roads	23.5	32.7	19.7 ***
Too fast around a corner	48.1	47.0	48.5
<i>Novice driving errors</i> ¹			
Misjudged speed exiting main road	35.4	40.5	37.5
Misjudged stopping distance needed	46.3	38.3	49.7 *
Misjudged gap overtaking	20.9	18.8	21.7
Misjudged gap turning right	19.4	16.1	20.8
Misjudged speed oncoming vehicle	33.5	26.9	36.3 *
Turned right into path of vehicle	14.0	15.5	13.4
<i>General risky driving</i> ¹			
Spoke on handheld mobile	38.4	41.8	36.9
Drove through red light if no camera	5.1	8.6	3.7 ***
Didn't always wear seatbelt	5.7	7.8	4.8 *
Didn't wear seatbelt for short trip	7.8	10.2	6.0 **
Drove when knew were tired	82.7	81.5	83.2
Drove faster if in bad mood	58.1	58.7	57.8
Driving affected by emotions	63.5	61.7	64.3

<i>Carrying passengers in risky circumstances</i> ¹			
Exceeded night passenger limits ²	48.5	51.3	47.3
Passengers didn't wear seatbelts	4.9	6.2	4.4
Carried more passengers than seatbelts	3.2	5.4	2.2 *
Carried more passengers than legally fit	3.2	5.6	2.1 **
Car full of friends as passengers	69.0	70.4	68.4
Carried friends as passengers at night	77.5	79.1	76.8
<i>Punishment avoidance</i>			
Pay attention to Police presence	91.0	88.9	91.9
Avoid Police presence	15.2	23.3	11.9 ***
<i>Driving outcomes</i>			
Crash-involved	22.2	19.5	23.3
Offence-detected	26.5	34.6	23.1 **
<i>Future driving</i>			
Intentions	8.9	12.9	7.1 ***
Likelihood	22.9	28.9	20.4 ***

¹Items from the Behaviour of Young Novice Drivers Scale (BYNDS; Scott-Parker et al., 2010) except for 'Exceeded night passenger limits'.² GDL night passenger limit restriction (≤ 1 peer passenger 11pm-5am). * $p < .05$, ** $p < .01$, *** $p < .001$. Significant gender differences are bolded for ease of reference.

Drinking drivers reported more drug driving, speeding, driving errors, general risky driving behaviour, carrying passengers in risky circumstances, and reported stronger intentions to drive riskily in the future (Table 2). Thirty-two percent of drinking drivers avoided on-road Police presence, compared to 12.6% of non-drinking drivers ($p < .001$). Participants who reported drug driving also reported significantly more drink driving, speeding, novice driving errors, general risky driving behaviour, and carrying passengers in risky circumstances. Drug drivers also reported stronger risky driving intentions (Table 2), whilst 35% of drug drivers reported avoiding on-road Police presence, compared to 14.7% of non-drug drivers ($p < .01$).

Table 2: Means (and standard deviations) for the risky driving behaviours, future driving intentions, and number of crash-involvements and offences-detected.

Risky driving behaviours, future driving intentions crash-involvement and offences	Drink-Drive <i>M (SD)</i>		Drug-Drive <i>M (SD)</i>	
	No <i>N</i> = 1091	Yes <i>N</i> = 176	No <i>N</i> = 1234	Yes <i>N</i> = 34
<i>Substance-impaired driving</i> ¹				
When thought over legal alcohol limit	—	—	1.15 (.40)	1.79 (1.15)***
After taking illicit drugs	1.04 (.32)	1.14 (.51)**	—	—
<i>Speeding</i> ¹				
Up to 10 km/hr over speed limit	2.47 (.98)	2.95 (.99)***	2.53 (.99)	2.85 (1.08)
Went 10-20 km/hr over speed limit	1.62 (.82)	2.18 (1.01)***	1.68 (.82)	2.12 (1.07)**
More than 20 km/hr over speed limit	1.36 (.65)	1.81 (.90)***	1.41 (.69)	1.76 (1.05)**
Over speed limit if detection unlikely	1.93 (.95)	2.62 (1.13)***	2.01 (1.00)	2.53 (1.21)**
Sped up when lights went yellow	2.18 (.95)	2.75 (1.06)***	2.25 (.99)	2.38 (1.02)
Deliberately sped when overtaking	2.06 (1.05)	2.82 (1.18)***	2.16 (1.09)	2.59 (1.33)*
Raced out of intersection on green light	1.70 (.93)	2.34 (1.13)***	1.78 (.99)	1.97 (.97)
Sped at night on poorly-lit roads	1.25 (.56)	1.79 (1.08)***	1.30 (.66)	2.15 (.93)***
Too fast around a corner	1.54 (.68)	1.86 (.76)***	1.59 (.70)	1.53 (.71)
<i>Novice driving</i> ¹				
Misjudged speed exiting main road	1.39 (.59)	1.60 (.85)***	1.41 (.61)	1.79 (1.23)***
Misjudged stopping distance needed	1.53 (.66)	1.71 (.69)**	1.55 (.66)	1.65 (.88)
Misjudged gap overtaking	1.19 (.44)	1.54 (.75)***	1.23 (.49)	1.62 (1.02)***
Misjudged gap turning right	1.20 (.46)	1.33 (.62)**	1.21 (.46)	1.62 (1.02)***
Misjudged speed oncoming vehicle	1.36 (.56)	1.54 (.74)***	1.38 (.58)	1.56 (.89)
Turned right into path of vehicle	1.14 (.38)	1.27 (.52)***	1.15 (.39)	1.50 (.71)***
<i>General risky driving</i> ¹				
Spoke on handheld mobile	1.47 (.75)	1.97 (.96)***	1.54 (.80)	1.56 (.71)
Drove through red light if no camera	1.05 (.26)	1.18 (.55)***	1.05 (.27)	1.56 (.99)***
Didn't always wear seatbelt	1.05 (.31)	1.23 (.63)***	1.07 (.33)	1.47 (1.08)***

Didn't wear seatbelt for short trip	1.07 (.35)	1.34 (.77)***	1.10 (.41)	1.44 (1.08)***
Drove when knew were tired	2.32 (.95)	2.95 (.98)***	2.41 (.98)	2.68 (1.09)
Drove faster if in bad mood	1.78 (.89)	2.45 (1.14)***	1.87 (.96)	2.18 (.94)
Driving affected by emotions	1.88 (.91)	2.51 (1.08)***	1.95 (.95)	2.59 (1.23)***
<i>Carrying passengers in risky circumstances</i> ¹				
Exceeded night passenger limits ²	1.72 (.95)	2.09 (1.13)***	1.76 (.97)	2.32 (1.27)**
Passengers didn't wear seatbelts	1.06 (.32)	1.14 (.49)**	1.06 (.34)	1.32 (.64)***
Carried more passengers than seatbelts	1.03 (1.66)	1.14 (1.78)***	1.03 (.22)	1.41 (.82)***
Carried more passengers than legally fit	1.03 (.21)	1.10 (.41)**	1.03 (.21)	1.26 (.79)***
Car full of friends as passengers	2.22 (1.11)	2.57 (1.14)***	2.27 (1.12)	2.18 (1.24)
Carried friends as passengers at night	2.31 (1.05)	2.65 (1.04)	2.34 (1.05)	2.85 (1.11)**
<i>Driving outcomes</i>				
Number of crashes	1.16 (.41)	1.21 (.41)	1.16 (.41)	1.40 (.52)
Number of offences	1.34 (.70)	1.53 (.87)	1.35 (.68)	1.93 (1.44)**
<i>Future driving</i>				
Intentions	2.15 (1.37)	3.25 (1.57)***	2.28 (1.44)	3.09 (1.73)**
Likelihood	2.90 (1.66)	4.14 (1.78)***	3.07 (1.72)	3.09 (2.28)

In addition to footnotes of Table 1, ___ = not applicable.

Discussion

The self-reported prevalence of drink driving amongst young drivers with only one year's independent driving experience was nearly 16%, which is approximately half of the one third of drivers generally who report drink driving in Queensland (Watson & Freeman, 2007), suggesting broad general enforcement using random breath testing (RBT) should continue. Similarly, the noteworthy proportion of young drivers who use drugs and also drive after drinking suggests that current RBT efforts augmented by roadside saliva-based drug testing should continue. The desirability of transportation alternatives in particular also need to be considered in intervention development, particularly as young drivers report desirability of alternative transportation is more important than its availability (Nygaard et al., 2003). The alarming proportion of young drivers who report driving in excess of speed limits, and the rates of speeding reported by substance-impaired drivers in particular, suggests that increased enforcement of speed limits is required generally. Other technology such as speed limiting devices (e.g., Lahrman et al., 2012) may also prove beneficial in young driver road safety.

The breadth of driving errors reported by participants, effectively *two years* after they began driving suggests the need for a more structured approach to the Learner period. Almost half the participants reported violating Queensland's graduated driver licensing night-time passenger restrictions, with those reporting substance-impaired driving reporting more frequent passenger limit violations. Interestingly, many young drivers reported driving even though tired, suggesting they may be unaware of impending sleep associated with such fatigue, or that driving to and arriving at their destination as planned is more important than resting when fatigued. Targeted interventions highlighting the risks associated with driving tired, incorporating suggestions for journey planning including transportation alternatives and effective time management practices, are required. Three in five adolescents reported driving in response to their moods, and specifically to driving faster if they were in a bad mood. Rather than an efficient and economical method of getting from the point of departure to the destination, young drivers report driving serves a multitude of purposes, including being an outlet for emotional outbursts and resolving emotional distress (e.g., Redshaw, 2006). Targeted interventions which similarly highlight the riskiness of this driving purpose, in addition to alternatives to resolve emotional distress, warrant further investigation.

Conclusion

Young drivers are at considerable risk on the road, and the first year of independent driving is the most risky time for all young novice drivers. Substance-impaired driving, speeding, novice driving errors, general risky driving, carrying passengers in risky circumstances, punishment avoidance, and risky anticipated driving behaviours have been found to increase the crash risks for young novice drivers, placing themselves, their passengers, and other road users at greater risk of injury and death. Substance-impaired young drivers report the most risky current and anticipated driving behaviour, suggesting that targeted countermeasures such as random breath and saliva testing require ongoing enhancement. In addition, interventions targeting the tired young driver and the speeding young driver are warranted, as are efforts to reduce the benefits of, and opportunities for, active punishment avoidance.

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