

Young novice drivers and the risky behaviours of parents and friends during the Provisional (intermediate) licence phase: A brief report

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Abstract

Purpose: While there is research indicating that many factors influence the young novice driver's increased risk of road crash injury during the earliest stages of their independent driving, there is a need to further understand the relationship between the perceived risky driving behaviour of parents and friends and the risky behaviour of drivers with a Provisional (intermediate) licence.

Method: As part of a larger research project, 378 drivers aged 17-25 years ($M = 18.22$, $SD = 1.59$, 113 males) with a Provisional licence completed an online survey exploring the perceived riskiness of their parents' and friends' driving, and the extent to which they pattern (i.e., base) their driving behaviour on the driving of their parents and friends.

Results: Young drivers who reported patterning their driving on their friends, and who reported they perceived their friends to be risky drivers, reported more risky driving. The risky driving behaviour of young male drivers was associated with the perceived riskiness of their fathers' driving, whilst for female drivers the perceived riskiness of their mothers' driving approached significance.

Conclusions: The development and application of countermeasures targeting the risky behaviour of same-sex parents appears warranted by the robust research findings. In addition, countermeasures need to encourage young people in general to be non-risky drivers; targeting the negative influence of risky peer groups specifically. Social norms interventions may minimise the influence of potentially-overestimated riskiness.

1. Introduction

Novice drivers in motorised countries are typically young drivers, and they are disproportionately-represented in road crash fatality and injury statistics. In Queensland, Australia, in 2010, 13.4% of the licensed population was aged 17-24 years (Department of Transport and Main Roads (DTMR), 2011). In the 12 months to 26 May 2013, drivers aged 17-24 years contributed 22.0% of the fatalities on Queensland roads (approximately three quarters were male), and 28.4% of the road toll resulted from crashes involving a young driver aged 16-24 years (DTMR, 2013).

It is well-recognised that independent licensure remains the most-risky driving phase for the young novice driver, and non-compliance with road rules during this licence phase contributes to this increased crash risk. As such, the nature and mechanisms of influence upon the risky behaviour of young novice driver continue to be investigated (e.g., Shope, 2006, 2010; Simons-Morton et al., 2005), and in particular, the role of these influences on the behaviour of the young novice driver during the earliest stages of independent driving. A variety of factors have been found to be associated with the risky driving behaviour of young novice drivers, including the characteristics of: the young novice driver themselves which may (e.g., anxiety, depression, Scott-Parker et al., 2011a,2012a) or may not (e.g., age, gender, Romano et al., 2008; sensation seeking propensity, Jonah, 1997) be amenable to change; the vehicle they drive (e.g., Williams et al., 2006); and their journey (Williams et al., 2011).

The majority of the research regarding social factors which are associated with young novice driver behaviour has focused upon the peer network. Peers can be a model of behaviour to be imitated, thereby encouraging risky driving as, developmentally, young novice drivers are vulnerable to the negative influences of their peers and are susceptible to a need for social approval from these peers (Arnett, 2002). Importantly for road safety, engaging in risky behaviours which are subsequently reinforced by intergroup rewards such

as greater popularity and improved social standing (Rhodes et al., 2005; Williams et al., 2007) can increase the likelihood and magnitude of the riskiness of these behaviours. Male drivers in particular report greater pressure to – and more discomfort in refusing to – engage in risky driving behaviours (Suls and Green, 2003). *Perceptions* of friends' riskiness appear to be key: for some young drivers, the perceived risky on-road behaviour of friends is a significant predictor of their risky on-road behaviour (Taubman-Ben-Ari et al., 2004). In addition, more perceived risky modelling by friends has been found to predict greater willingness to engage in, and more self-reported, risky driving behaviour (Taubman-Ben-Ari and Katz-Ben-Ami, 2012).

Other research has focused upon the social influence of parents. In addition to being the predominant driving supervisors of the young Learner driver (Scott-Parker et al., 2011b), from the earliest ages parents are models of (un)safe driving behaviours. The influence of these models through the independent Provisional licence phase can be observed in the behaviour of the young novice, with evidence suggesting the risky driving of the young novice is associated with parental risky driving (e.g., Brookland et al., 2009; Catchpole and Styles, 2005; Chen et al., 2008; Ferguson et al., 2011; Fleiter et al., 2010; Prato et al., 2009, 2010; Wilson et al., 2006), and the driving of same-sex parents in particular (Taubman-Ben-Ari et al., 2005). Similarly, *perceptions* of parent riskiness appear to be central: young drivers who perceive their parents as being safe driving models have reported being safer, less-aggressive, drivers than those young drivers who reported their parents were not safe driving models (Taubman-Ben-Ari and Katz-Ben-Ami, 2012).

The social influence of parents, however, within the context of the social influence of the peer network requires further consideration, and this will be done in the context of the Australian graduated driving environment. As such the study aims were to examine the relationship between perceived riskiness of parents and peers' driving behaviour, the extent

to which the young driver patterns their driving behaviour upon the driving behaviour of their parents and peers, and the self-reported risky driving behaviour of the young driver during the Provisional licence phase.

2. Method

2.1. Participants

Drivers ($n = 378$, 113 males) aged 17-25 years ($M = 18.22$, $SD = 1.59$, Mode = 17, Median = 18) who had held a Provisional 1¹ (P1) drivers licence for 6 months completed an online survey as part of a larger research project.

2.2. Procedure and design

Every Learner driver in the state of Queensland, Australia, who passed their practical driving assessment and progressed from a Learner to a P1 driver's licence April through June 2010 was offered the opportunity to participate in a larger longitudinal research project. A total of 9393 drivers of all ages were eligible to participate, and 1333 drivers aged 17-38 years chose to complete the online Learner Survey (an overall 14.4% response rate, however the response rate for drivers aged 17-25 years could not be calculated due to privacy restrictions). Six months later the hyperlink for the Provisional Survey was sent to the Learner Survey participants. Two reminders were also sent, and the retention rate between surveys was 34.4%². It is noteworthy however that the Learner and Provisional driver samples reflected the geographic distribution of the state of Queensland's population, with 61.8% of the Learner and 62.9% of the Provisional sample participants residing in inner city areas (which contain 60.0% of the state's population), and 2.2% of the Learner and 1.7% of the Provisional participants residing in remote areas (which contain 2.0% of the state's population) (Commonwealth Department of Health and Aged Care, 2010).). Both surveys offered incentives including the opportunity to win petrol vouchers and/or cinema tickets. The online survey tool was created in KeySurvey Enterprise Online Survey Software.

2.3. Measures

Participants reported their age (*years*) and gender in both surveys. Perceptions of overall driving riskiness were measured by the three-part item ‘*How risky a driver: was your Mother/ Father/ were your friends when you were a Provisional driver?*’ (1 *never risky*, 7 *always risky*) (herein referred to as *risky*). Patterning was measured by the item ‘*How much did you base your first six months of driving without a supervisor: on your Mother’s/ Father’s/ friends’ driving?*’ (1 *not at all*, 7 *all of it*) (herein referred to as *pattern*)³. Self-reported risky driving was measured by the Behaviour of Young Novice Drivers Scale (BYNDS) (1 *never*, 5 *nearly all the time*) comprising subscales of transient violations (e.g., exceeding posted speed limits), fixed violations (e.g., driving after drinking alcohol), risky driving exposure (e.g., carrying friends as passengers at night), misjudgements (e.g., misjudging the speed exiting a main road), and driver mood (e.g., driving faster if in a bad mood) (Scott-Parker et al., 2010) (44 items, $\alpha = .92$; skewness = .37; kurtosis = .34)⁴.

2.4. Statistical analyses

Bivariate correlations were used to explore the strength of association between the study variables: between continuous variables utilised Pearson’s product moment correlation (r); between continuous and dichotomous variables utilised point biserial correlations (r_{pb}). There was no missing data. For the hierarchical multiple regression, a minimum sample size of $n \geq 50 + 8m$ (m = number of independent variables) (Tabachnick and Fidell, 1996) is required for a preferred power of 80% and to detect a medium effect size of .20. Sample size requirements were met. Analyses were conducted using PASW version 21.0.

3. Results

3.1. Descriptive analyses

Very few novices perceived their mother’s (1.1%; reported by 1.8% of male and 0.8% of female participants) and father’s (5.9%; reported by 8.0% of male and 5.0% of female

participants) driving was risky. In comparison, 18.4% of novices (22.1% of male and 14.0% of female participants) perceived their friends were risky drivers. Around one third of novices reported patterning their driving on their mother (36.8%; 32.8% of male and 38.5% of female participants) and father (38.1%; 45.1% of male and 35.1% of female participants). Again in contrast, only 10.5% of young drivers reported patterning their driving on their friends (12.3% of male and 9.8% of female participants). Table 1 reports the means and standard deviations for each of the variables in the study, and the correlations amongst the variables. As expected, the perceived riskiness of mother's driving, father's driving, and friends' driving was significantly associated with self-reported risky driving behaviour. In addition, patterning driving on friends' driving was associated with self-reported risky driving.

[insert Table 1 here]

3.2. Hierarchical multiple regression

To explore the extent that *risk* and *pattern* predict self-reported risky driving behaviour, a HMR model was created, with gender entered at step one and the risk and pattern measures entered at step two. As shown in Table 2, the overall model was significant, $F(7, 370) = 10.62, p < .001$, accounting for 15.2% of variance in self-reported risky driving. The significant predictors at the final step suggest that young drivers who perceive their friends are risky drivers, and who pattern their driving on their friends' driving, are more risky drivers⁵.

[insert Table 2 here]

The HMR was conducted separately for each gender (see Table 3), accounting for 14.4% and 16.1% of variance in self-reported risky driving for males and females respectively.

Interestingly, young *female* drivers who perceived their friends were risky drivers, and based their driving on their friends' driving, reported more risky driving. Perceptions regarding their mothers' driving-related riskiness approached significance. Conversely, young *male*

drivers who perceived their *fathers* and friends were more risky drivers, and patterned their driving on their friends' driving, reported more risky driving.

[insert Table 3 here]

4. Discussion

The overall model highlighted that having friends who are perceived to be risky drivers, and then patterning their behaviour, was predictive of risky driving reported by young drivers who have been driving independently for only 6 months. One potentially effective peer-based approach is to encourage adolescents in general to be good role models of good driving behaviour throughout the Learner and P1 period. Interventions such as the 'Speak Out' campaign (Elvik, 2000, cited in Ulleberg, 2004), highlight the capacity for young passengers in particular to intervene in the risky behaviour of their friends. Novice drivers also need to be aware that the driving behaviour of their friends can negatively influence their own driving behaviour, and be cautioned against patterning risky driving behaviour. Young drivers appear to have insight into their capacity to be influenced by the driving behaviour of their friends, with some young drivers experiencing difficulty resisting overt peer pressure (Scott-Parker et al., 2012b). Resilience training may facilitate peer-pressure resistance, and whilst no difference in offences were detected between groups of young novice drivers, participants of extended resilience-focused education in New South Wales, Australia, were found to have a 44% lower relative risk of crash than drivers who participated in a one day driving-risk workshop (Senserrick et al., 2009).

Interestingly, the influence of the perceived riskiness of fathers' driving behaviour also was significant. To further elucidate the relationships amongst the variables, gender-based analyses were undertaken. Consistent with earlier research (e.g., Taubman-Ben-Ari et al., 2005) and important for intervention is the finding that the *gender* of the young novice driver's parent is also crucial, with the perceived riskiness of mother's driving approaching

significance for the risky driving of their daughters, and the perceived riskiness of fathers driving influential in the driving behaviour of their sons, highlighting the apparent robustness of the findings in different cultural contexts. Additional analyses which also considered examining the interactions between the risky driving of parents and friends were not significant, suggesting that rather than an interactive effect, parents and peers may influence the risky behaviour of young drivers through a cumulative effect of multiple influences. The research findings have implications for ongoing development of theory in explaining the role of modelling in young driver risky behaviour. In addition, theory also needs to be able to explain how social influences have different effects on different groups (e.g., females, males).

The research findings reinforce the need for a multifaceted approach – which considers social mechanisms and sources of influence – to countermeasures designed to reduce the risks experienced by young novice drivers (Taubman-Ben-Ari and Katz-Ben-Ami, 2012). Parents need to be aware of the need to model safe driving behaviour for their child, particularly for same sex parents. Social norms interventions, which seek to recalibrate any overestimations of engagement in risky behaviours (e.g., Martens et al., 2006), may prove useful in not only minimising the risky behaviour of young drivers more generally, but also may minimise the negative influences of their same-sex parents and risky friends specifically.

Whilst numerous attempts were made to recruit more participants for the Learner survey, including the offering of incentives such as petrol vouchers, a low overall response rate was achieved. In addition, numerous attempts were made to retain more participants in the longitudinal research; however extreme weather including cyclones and flooding which affected electricity supplies across much of the state during the follow-up period of the online survey appears to have contributed to the high attrition rate (AAP, 2011). Notwithstanding the low initial response rate and high attrition over the study period, the participants represented the state geographically, as noted in subsection 2.2 *Procedure and design*. The

attrition resulted in the final sample comprising 70% female participants, and separate HMR's were conducted for each gender. It is noteworthy also that the final sample was significantly more likely to be studying, and this may have implications for the generalisability of the research findings which remain unclear at this time. Anonymity afforded by the online survey which did not collect any personally-identifying information and which was completed at a time and location convenient for each participant, is likely to have minimised any biases in the self-reported data, and access to the novice driver's perceptions and behaviours could not be collected via any other means.

The nature and magnitude of influence of parents in the risky behaviour of young drivers merits further longitudinal analysis: based on the findings it appears that the gender of the parent is central, and parent-gender-influences from the pre-Licence and through the Learner licence phase may similarly be crucial. In addition, future research which could examine cross-lagged effects between novice drivers and friends over two time points may clarify the quandary of whether the selection of risky friends, who are then observed and patterned, is key; or is it that friends, who may be observed driving in a risky manner, then patterned, that is the key? Whilst beyond the scope of the research project, the relationships between parent and young driver gender warrants attention, particularly if the amount of exposure to the driving of fathers and mothers by sons and daughters respectively –during the pre-Licence, Learner, and/or Provisional licence phase – is important. Also, the mediating role of personal traits such as sensation seeking could be examined. Whilst the perspective of the young novice driver was paramount in the research, considering the perspectives of all parents and friends may help to further elucidate the interactive relationships which increase the riskiness of the young novice driver's behaviour.

5. Conclusions

Despite a multitude of interventions, young novice drivers continue to be overrepresented in road crash statistics. Consideration of the relationships between the perceived riskiness of, and patterning upon, the driving behaviour of parents and friends upon the riskiness of the young driver's behaviour revealed that risky friends are a considerable negative influence. In addition, the important relationship between the gender of the parent and that of their novice child revealed that risky mothers are a negative influence upon their daughter's driving, whilst risky fathers are a negative influence upon their son's driving. The robustness of this finding in the Australian context is a unique contribution of this paper, in addition to the finding that the influence of parents and peers appears to be a cumulative effect of multiple influences, rather than an interactive effect. Countermeasures which seek to address the risky behaviour of young drivers in general, and peer groups specifically, appear warranted, as do gender-targeted parental interventions.

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Footnotes

¹ In Queensland, Australia, the novice driver progresses from a Learner licence to a Provisional (intermediate) licence upon successful completion of a practical driving assessment. The Provisional licence period is divided into two stages. The first stage, Provisional 1, must be held for a minimum one year duration and has a number of restrictions, such as passenger limits of one peer passenger between the hours of 11pm and 5am, excluding family members. After passing an online hazard perception test, the novice

driver progresses to a Provisional 2 (P2) licence which must be held for a minimum two year duration (Queensland Transport, 2007).

² A comparison of the sociodemographic characteristics of the 792 novices who did not complete the Provisional Survey with the 378 who did revealed that those who participated in both surveys were significantly more likely to be female and studying ($p < .001$).

³ Likert scores of 5, 6 and 7 were collapsed to represent 'a risky driver' and 'did pattern'.

⁴ All variables, including the BYNDS composite score, were logarithmically-transformed to rectify violations of normality (e.g., BYNDS skewness = .99, kurtosis = 1.31), which also rectified the non-linearity and heteroscedasticity of the variables.

⁵ Regression analyses incorporating three interaction terms (Risky Mother * Risky Friends, Risky Father * Risky Friends, Risky Mother * Risky Father) at the third step (and second step in the case of the separate gender analyses) did not reveal any significant influence.

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Table 1

Descriptive characteristics of and correlations between the *risk*(*riskiness* appraisal of driving) and *pattern* (current [P1] driving is *patterned* on others' driving) measures and the Behaviour of Young Novice Drivers Scale (BYNDS) ($n = 378$).

Key Measures	BYNDS	G	RMO	RFA	RFR	PMO	PFA	PFR
BYNDS	1							
Gender (G)	-.07	1						
Risky Mother (RMO)	.27***	.03	1					
Risky Father (RFA)	.28***	-.03	.68***	1				
Risky Friends (RFR)	.34***	-.12**	.33***	.34***	1			
Pattern Mother (PMO)	.02	.07	-.05	.04	.04	1		
Pattern Father (PFA)	.01	-.06	.03	.02	.01	.46***	1	
Pattern Friends (PFR)	.25***	-.04	.13**	.10*	.10*	.19***	.25***	1
Descriptives								
<i>M</i>	75.85	–	1.83	2.05	2.95	3.65	3.64	2.26
<i>SD</i>	14.96	–	1.03	1.24	1.48	1.94	1.95	1.51

* $p < .05$, ** $p < .01$, *** $p < .001$. – = not applicable

Table 2

Hierarchical multiple regression results for gender, risk, and pattern predicting risky driving

Variables	β	p	sr^2	R^2	$Adj R^2$	ΔR^2
Step 1						
Gender	-.02	.635				
				.004	.001	.004
Step 2						
Risky Mother	.03	.674				
Risky Father	.14	.037	.01			
Risky Friends	.22	<.001	.04			
Pattern Mother	.00	.989				
Pattern Father	-.05	.382				

Pattern Friends	.21	<.001	.04			
				.167	.152***	.164

*** $p < .001$. The variables at the final step are illustrated. Final model, $F(7, 370) = 10.62, p < .001$; Step one $F(1, 376) = 1.41, p = .240$. All variables, including the BYNDS composite score, were logarithmically-transformed to rectify violations of normality (e.g., BYNDS skewness = .99, kurtosis = 1.31), which also rectified the non-linearity and heteroscedasticity of the variables.

Table 3

Hierarchical multiple regression results for risk and pattern predicting risky driving, by gender

Variables	Males ($n = 113$)				Females ($n = 265$)			
	β	p	sr^2	$Adj R^2$	β	p	sr^2	$Adj R^2$
Risky Mother	-.18	.150			.14	.089		
Risky Father	.26	.038	.03		.09	.278		
Risky Friends	.20	.033	.04		.20	.002	.03	
Pattern Mother	-.02	.833			.03	.636		
Pattern Father	-.16	.130			-.01	.894		
Pattern Friends	.30	.003	.07		.19	.002	.03	
				.144***				.161***

*** $p < .001$. The models at the final step are illustrated. Male model, $F(6, 106) = 4.14, p = .001, R^2 = .190$; Female model, $F(6, 258) = 9.44, p < .001, R^2 = .180$. All variables, including the BYNDS composite score, were logarithmically-transformed to rectify violations of normality (e.g., BYNDS skewness = .99, kurtosis = 1.31), which also rectified the non-linearity and heteroscedasticity of the variables.