



Self-reported likelihood of speeding: The effects of attitudes, personality, and perceived legitimacy of enforcement

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Centre for Accident Research & Road Safety - Queensland

CARRS-Q is a joint venture initiative of the
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and Queensland University of Technology



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Introduction

- There has been a steady reduction in the number of fatalities and trauma from road crashes
- Speeding remains a prevalent risky driving behaviour
- Drivers views regarding the risks associated with speeding may be different to their actual behaviours
 - Speeding is usually cited as the most common risky driving behaviour that contributes to crash risk
 - However, a substantial proportion of driver will speed

Introduction (2)

- Younger drivers and male drivers engage in speeding more frequently
- Personality constructs are associated with increased speeding behaviours
 - ↑ extraversion, ↓ conscientiousness, ↓ agreeableness
- Risk taking propensity is also linked to speeding
- Having positive attitudes towards speeding leads to increases in speeding behaviours
- Perceptions of the legitimacy of speeding enforcement could be salient for compliance

Study Aims (*'vision'*)

- 1) Examine the **associations** between self-reported speeding behaviours and demographic, personality constructs, attitudes, and perceptions of the legitimacy of speed enforcement
- 2) Perform a **subgroups analysis** examining how **positive and negative attitudes** and perceptions of enforcement affects the likelihood to engage in self-reported speeding behaviours

Method

- Participants
 - Drive on Queensland roads, have held an Open (unrestricted) drivers' licence
 - A total of 312 respondents, only 293 were valid
- Procedure
 - Invited to participate via QUT email distribution lists, social networking sites, and the CARRS-Q research participation webpage
 - Online survey took approximately 10-15 minutes to complete
 - Could enter draw for one of six \$50 petrol vouchers as small thank you gift for taking part in survey

Method (2)

- Measures and variables
 - 5-point Likert scales, higher scores indicate greater agreement
 - **DV: Self-reported likelihood** of speeding in next month
 - **IV1: Demographic info**, age and gender
 - **IV2: Personality**, a five-factor model of personality
 - International Personality Item Pool (Goldberg, 1999)
 - **IV3: Risk taking** in the context of driving (4-point Likert scale)
 - Risky Driving Scale (Donovan, 1993)
 - **IV4: Attitudes** towards speeding
 - Definitions component from Akers' SLT (Akers et al., 1979)
 - **IV5: Perceived legitimacy** of speed enforcement
 - Purpose designed items (Poulter & McKenna, 2007)

Results

Variable	M	SD	α	No of items
Likelihood of speeding	2.94	1.33	.95	4
Age	39.06	14.96	-	-
Gender (male)	40.90%	-	-	-
IPIP Extraversion	32.63	7.27	.88	10
IPIP Conscientiousness	33.66	5.30	.80	9
IPIP Agreeableness	40.39	5.23	.79	10
IPIP Emotional stability	33.68	7.17	.87	10
IPIP Intellect/imagination	37.59	5.09	.74	10
Risk taking	1.20	0.36	.90	8
Attitudes	2.29	0.96	.89	6
Perceived legitimacy	3.66	0.98	.91	7

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Risk taking (some)	46.90%	-	.90	8
Attitudes	2.29	0.96	.89	6
Perceived legitimacy	3.66	0.98	.91	7

Results (2)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Speeding likelihood	-										
2. Age	-.27**	-									
3. Gender (male) ^a	-.04	-.18**	-								
4. IPIP Extraversion	-.18**	-.17**	-.28**	-							
5. IPIP Conscientious	-.16**	-.17	-.02	-.11	-						
6. IPIP Agreeableness	-.09	-.04	-.36**	-.41**	-.23**	-					
7. IPIP Emotional Stability	-.09	-.15*	-.19**	-.16**	-.34**	-.13*	-				
8. IPIP Intellect Imagination	-.03	-.07	-.20**	-.38**	-.13*	-.31**	-.11	-			
9. Risk taking (some) ^a	-.37**	-.15*	-.19**	-.06	-.16**	-.08	-.05	-.11	-		
10. Attitudes	-.64**	-.20**	-.03	-.01	-.13*	-.11	-.05	-.04	-.29**	-	
11. Perceived legitimacy	-.40**	-.07	-.04	-.05	-.02	-.03	-.09	-.05	-.24**	-.71**	-

** $p < .01$, * $p < .05$; ^a Point bi-serial correlation

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8. IPIP Intellect Imagination	-.03	-.07	-.20**	-.38**	-.13*	-.31**	-.11	-			
9. Risk taking (some) ^a	-.37**	-.15*	-.19**	-.06	-.16**	-.08	-.05	-.11	-		
10. Attitudes	-.64**	-.20**	-.03	-.01	-.13*	-.11	-.05	-.04	-.29**	-	
11. Perceived legitimacy	-.40**	-.07	-.04	-.05	-.02	-.03	-.09	-.05	-.24**	-.71**	-

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7. IPIP Emotional Stability	-.09	-.15*	-.19**	-.16**	-.34**	-.13*	-				
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Results – Aim 1

Step and variable	β	B	SE b
Step 1			

** $p < .01$, * $p < .05$

Results – Aim 1

Step and variable	β	B	SE b
Step 1			
Age	-.28**	-.03	.01
Gender (male)	-.09	-.23	.17
Adjusted $R^2 = .07$; $F(2, 253) = 10.56^{**}$			

** $p < .01$, * $p < .05$

Results – Aim 1

Step and variable	β	B	SE b
Step 2			
Age	-.16*	-.01	.01
Gender (male)	-.01	-.02	.17
IPIP Extraversion	.20**	.04	.01
IPIP Conscientiousness	-.06	-.02	.02
IPIP Agreeableness	-.11	-.03	.02
IPIP Emotional stability	-.04	-.01	.01
IPIP Intellect/imagination	-.06	-.02	.02
Risk taking (some)	.31**	.83	.16
Adjusted $R^2 = .19$; $F(8, 245) = 8.27^{**}$; Δ Adjusted $R^2 = .12$; $F_{change}(6, 245) = 7.01^{**}$			

** $p < .01$, * $p < .05$

Results – Aim 1

Step and variable	β	B	SE b
Step 3			
Age	-.16**	-.01	.01
Gender (male)	.07	.20	.13
IPIP Extraversion	.18**	.03	.01
IPIP Conscientiousness	.01	.01	.01
IPIP Agreeableness	-.08	-.02	.01
IPIP Emotional stability	-.08	-.02	.01
IPIP Intellect/imagination	-.09	-.02	.01
Risk taking (some)	.16**	.44	.13
Attitudes	.60**	.84	.07
Adjusted $R^2 = .51$; $F(9, 244) = 30.70^{**}$; Δ Adjusted $R^2 = .32$; $F_{change}(1, 244) = 165.64^{**}$			

** $p < .01$, * $p < .05$

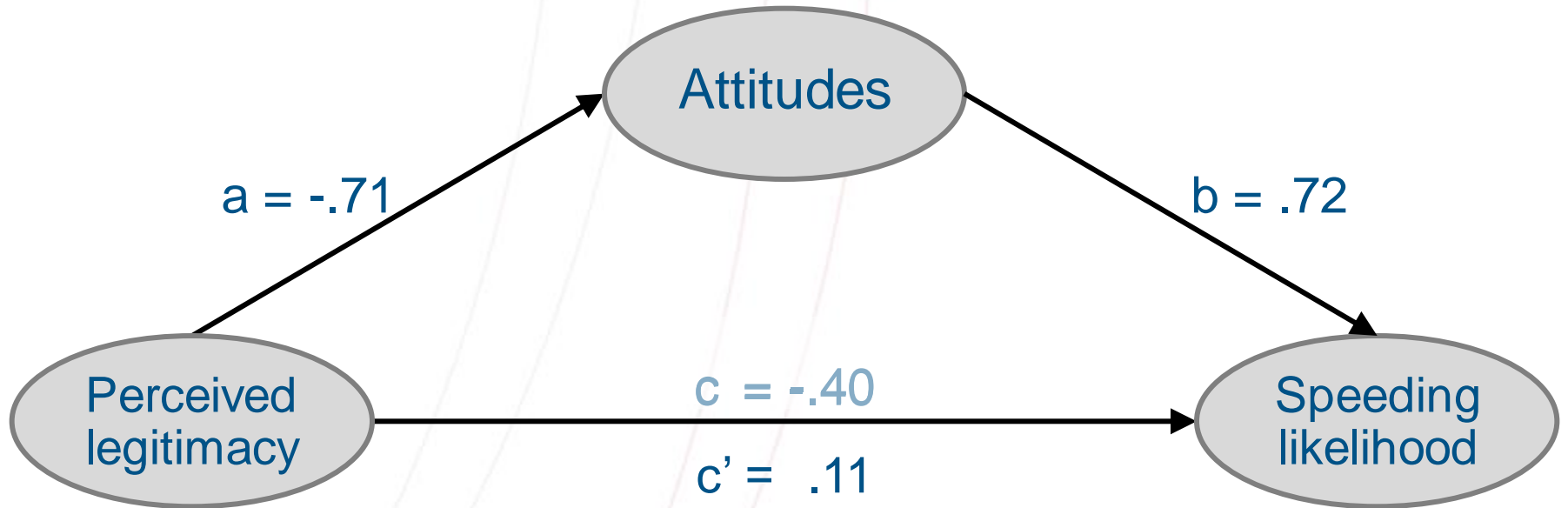
Results – Aim 1

Step and variable	β	B	SE b
Step 4			
Age	-.17**	-.02	.01
Gender (male)	.08	.22	.13
IPIP Extraversion	.18**	.03	.01
IPIP Conscientiousness	.01	.01	.01
IPIP Agreeableness	-.07	-.02	.01
IPIP Emotional stability	-.08	-.01	.01
IPIP Intellect/imagination	-.09	-.02	.01
Risk taking (some)	.17**	.46	.13
Attitudes	.69**	.97	.09
Perceived Legitimacy	.13*	.17	.09

Adjusted $R^2 = .52$; $F(10, 243) = 28.39^{**}$; Δ Adjusted $R^2 = .01$; $F_{change}(1, 243) = 4.11^*$

** $p < .01$, * $p < .05$

Results - Aim 2



- **Attitudes** significantly mediated the relationship between **Perceived Legitimacy** and **Speeding Likelihood** ($Z = -9.03$, $p < .001$).

Results - Aim 2

	Negative attitudes	Positive attitudes
Step and variable	β	β
Age		
Gender (male)		
IPIP Extraversion		
IPIP Conscientiousness		
IPIP Agreeableness		
IPIP Emotional stability		
IPIP Intellect/imagination		
Risk taking (some)		
Perceived Legitimacy		
Adjusted $R^2 =$		

Results - Aim 2

	Negative attitudes	Positive attitudes
Step and variable	β	β
Age	-.31**	
Gender (male)	.01	
IPIP Extraversion	.11	
IPIP Conscientiousness	-.04	
IPIP Agreeableness	-.14	
IPIP Emotional stability	-.09	
IPIP Intellect/imagination	-.23**	
Risk taking (some)	.19*	
Perceived Legitimacy	-.17*	
Adjusted $R^2 =$.25; $F(9, 121) = 5.69^{**}$	

Results - Aim 2

	Negative attitudes	Positive attitudes
Step and variable	β	β
Age	-.31**	-.09
Gender (male)	.01	.11
IPIP Extraversion	.11	.24**
IPIP Conscientiousness	-.04	.05
IPIP Agreeableness	-.14	-.07
IPIP Emotional stability	-.09	-.07
IPIP Intellect/imagination	-.23**	.14
Risk taking (some)	.19*	.18
Perceived Legitimacy	-.17*	-.13
Adjusted $R^2 =$.25; $F(9, 121) = 5.69^{**}$.15; $F(9, 106) = 3.24^{**}$

Discussion

- Overall, a number of factor were associated with likelihood of speeding at the bivariate level
 - Age, extraversion, conscientiousness, risk taking, attitudes, and perceived legitimacy
- At the multivariate level most of the factors were still associated with likelihood of speeding
 - Attitudes (positive) was the strongest predictor;
 - Higher levels of extraversion and greater risk taking;
 - Age (being younger);
 - Perceived legitimacy (positive perceptions)
- Attitudes significantly mediated the relationship between perceived legitimacy and likelihood of speeding

Effects of Attitudes

- Differential factors were predictive of likelihood of speeding for positive and negative attitudes
- For the negative attitudes subgroup:
 - Age, intellect/imagination, risk taking, perceived legitimacy were predictors of likelihood of speeding
 - Perceived legitimacy associated with reduced likelihood of speeding
- For the positive attitudes subgroup:
 - Only the extraversion variable was predictive of likelihood of speeding
- Potential '*action*' for future interventions

Next Steps

- Address the limitations of the current study
 - Convenience sample
 - Self-selection bias
 - Self-report, social desirability, and illegal driving behaviours
- Future research
 - Examination of dynamics between attitudes and perception of legitimacy and methods to influence these variables
 - Move from questionnaires to on-road behaviours
 - The relationships between attitudes and perceptions of legitimacy and GPS and accelerometer data

Conclusion

- The '*vision*' of this study was to better understand the inter-relationships of factors that influence the likelihood of speeding
- A number of factor were associated with the likelihood of speeding, however, attitudes towards speeding affected the nature these associations
- Understanding how these factors influence speeding behaviour will assist with appropriate '*actions*' for different groups of drivers
- Tailored educational messages may be more effective to provide better '*results*' of reducing speeding behaviour and associated road trauma

Thank you for listening!

**Comments
or
Questions?**

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