

# The Association between Psychological Distress and Alcohol Consumption Behaviour in Risky Driving

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## Abstract

The present research explores how mental health related factors such as psychological distress and alcohol consumption patterns predict risky driving behaviour, as measured by the Driver Behaviour Questionnaire (DBQ). Questionnaire data from 1,365 drivers who took part in a case-control study were used. Psychological distress was seen to be predictive of errors, lapses, violations and aggressive violations, whilst alcohol consumption was associated with violations and aggressive violations only. These findings demonstrate the significant contribution of mental health in risky driving behaviour.

## Background

Risky driving behaviour is a well-established contributor to crashes on Australian roads. However, limited understanding exists on how complex factors such as mental health might influence dangerous or illegal driving behaviours. A small number of studies have begun to address this gap, although these studies largely focused on young novice drivers (McDonald, Sommers, & Fargo, 2014; Scott-Parker, Watson, King, & Hyde, 2011). Hence, this research aimed to explore the influence of psychological distress and alcohol consumption patterns on risky driving behaviours, as defined by four facets of the DBQ: *errors*, *lapses*, *violations* and *aggressive violations*, using a range of drivers with varied driving experience.

## Method

Data presented are part of the Enhanced Crash Investigation Study (ECIS), which focused on the causes and consequences of serious injury crashes in Victoria. Refer to Fitzharris et al. (2015; 2016) and Stephens et al. (2016) for project and study methods. The data reported in this paper relates to the ECIS control arm. Participants were drivers who safely passed through a known crash location, had their speed covertly recorded, and later completed a questionnaire, which included information related to their driving, mental health and alcohol consumption patterns.

## Results

### Demographics

Of the 1,365 drivers ( $m=48.32$  years,  $SD=15.66$  years), 694 were male ( $m=49.76$  years,  $SD=16.16$  years; 50.8%) and 671 were female ( $m=46.83$  years,  $SD=14.99$  years; 49.2%). Licence status was as follows: 92 (6.74%) held a restricted car licence, 944 (69.16%) held an unrestricted (full) car licence, 94 (6.89%) held an unrestricted (full) car licence plus motorcycle licence, 161 (11.79%) held a commercial vehicle licence, and 74 (5.42%) held a commercial vehicle plus motorcycle licence.

### ***Psychological Distress and Alcohol Consumption***

Psychological distress was measured using the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002). The mean K10 score was 14.30 ( $SD=4.73$ ), with 88.72% falling within the normal range and 11.28% indicating elevated levels of psychological distress: 95 (7%) reported low levels, 30 (2.20%) reported moderate levels, and 29 (2.12%) indicated severe levels of distress.

Alcohol consumption patterns were measured using the Alcohol Use Disorders Identification Tool (AUDIT) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The mean AUDIT score reported was 3.92 ( $SD=3.80$ ). Most participants (1183, 86.67%) were classified as low-risk, while 154 (11.28%), 20 (1.47%) and 8 (0.59%) indicated risky / hazardous, harmful and high-risk levels of drinking, respectively.

### ***Risky Driving Behaviour***

Risky driving behaviour was examined using four facets of the 28-item DBQ (Stephens & Fitzharris, 2016). The mean total scores for errors, lapses, violations and aggressive violations were 13.68 ( $SD=2.96$ ), 9.41 ( $SD=2.66$ ), 12.17 ( $SD=3.68$ ) and 4.61 ( $SD=1.71$ ), respectively.

### ***Regression Modelling***

Four stepwise regression models were built to examine how gender, age, licence class, psychological distress and alcohol consumption predicted different risky driving behaviours. Psychological distress was predictive of all four risky driving behaviour facets, whilst alcohol consumption level was associated with only violations and aggressive violations (Table 1).

***Table 1. Regression models predicting DBQ facet total scores for errors, lapses, violations and aggressive violations***

Predictors	<i>b</i>	95% CI	Adjusted R <sup>2</sup>	ΔR <sup>2</sup>
<b><i>Model 1: DBQ - Errors</i></b>				
<b>Block 1</b>				
Gender				
<i>Male</i>	Reference			
<i>Female</i>	-0.12	-0.43, 0.20		
Age	-0.04***	-0.05, -0.03	0.03	0.04***
<b>Block 2</b>				
Licence class				
<i>Restricted</i>	Reference			
<i>Unrestricted (full) car</i>	-0.76*	-1.42, -0.10		
<i>Unrestricted (full) car and motorbike</i>	-0.91*	-1.77, -0.05		
<i>Commercial vehicle licence</i>	-0.50	-1.30, 0.30		
<i>Commercial vehicle and motorbike</i>	-1.19	-2.12, -0.26	0.04	0.01
<b>Block 3</b>				
K10 total score	0.14***	0.11, 0.17		
AUDIT total score	0.02	-0.02, 0.06	0.09	0.05***

/ Table 1 (continued)

<b>Model 2: DBQ - Lapses</b>				
<b>Block 1</b>				
Gender				
<i>Male</i>	Reference			
<i>Female</i>	0.79***	0.52, 1.07		
Age	-0.03***	-0.04, -0.02	0.05	0.06***
<b>Block 2</b>				
Licence class				
<i>Restricted</i>	Reference			
<i>Unrestricted (full) car</i>	-0.10	-0.70, 0.49		
<i>Unrestricted (full) car and motorbike</i>	0.04	-0.73, 0.80		
<i>Commercial vehicle licence</i>	-0.03	-0.74, 0.68		
<i>Commercial vehicle and motorbike</i>	-0.47	-1.30, 0.36	0.05	0.00
<b>Block 3</b>				
K10 total score	0.12***	0.09, 0.15		
AUDIT total score	0.03	-0.01, 0.07	0.10	0.05***
<b>Model 3: DBQ - Violations</b>				
<b>Block 1</b>				
Gender				
<i>Male</i>	Reference			
<i>Female</i>	-1.02***	-1.39, -0.65		
Age	-0.08***	-0.09, -0.07	0.12	0.12***
<b>Block 2</b>				
Licence class				
<i>Restricted</i>	Reference			
<i>Unrestricted (full) car</i>	0.07	-0.72, 0.86		
<i>Unrestricted (full) car and motorbike</i>	0.64	-0.38, 1.66		
<i>Commercial vehicle licence</i>	0.04	-0.91, 0.99		
<i>Commercial vehicle and motorbike</i>	-0.62	-1.73, 0.49	0.12	0.01
<b>Block 3</b>				
K10 total scores	0.11***	0.07, 0.15		
AUDIT total score	0.19***	0.14, 0.24	0.18	0.06***
<b>Model 4: Aggressive Violations</b>				
<b>Block 1</b>				
Gender				
<i>Male</i>	Reference			
<i>Female</i>	-0.36***	-0.53, -0.18		
Age	-0.02***	-0.03, -0.02	0.05	0.50***
<b>Block 2</b>				
Licence class				
<i>Restricted</i>	Reference			
<i>Unrestricted (full) car</i>	0.65***	0.27, 1.03		
<i>Unrestricted (full) car and motorbike</i>	0.47	-0.02, 0.96		
<i>Commercial vehicle licence</i>	0.61**	0.15, 1.06		
<i>Commercial vehicle and motorbike</i>	0.13	-0.41, 0.66	0.06	0.01**
<b>Block 3</b>				
K10 total score	0.06***	0.05, 0.08		
AUDIT total score	0.04**	0.01, 0.06	0.10	0.04***

DV = DBQ facet total scores: Model 1 - Errors; Model 2 – Lapses; Model 3 – Violations; Model 4 - Aggressive Violations.

IV = Gender; Age; Licence Class; K10 total score (Kessler Psychological Distress Scale); AUDIT total score (Alcohol Use Disorders Identification Tool);

Significance level: \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$

## Conclusions

Findings from this study demonstrate the significant influence that mental health has on risky driving behaviour, irrespective of age, gender or driving experience. Implications will be discussed.

## References

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