Title of Manuscript: The psychological distress of the young driver: A brief report

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Word Count: 1462 words

Author note: The study reports findings presented at the *27th International Congress of Applied Psychology*, 11-16 July, 2010, Melbourne, Australia. The Abstract only is included in the Conference Proceedings.

Abstract:

Objective: To explore the role of psychological distress in the self-reported risky driving of young novice drivers.

Design: Cross-sectional online survey of 761 tertiary students aged 17-25 years with an intermediate (Provisional) driving licence who completed Kessler's Psychological Distress Scale and the Behaviour of Young Novice Drivers Scale.

Setting: Queensland, Australia, August-October 2009.

Main outcome measures: Psychological distress, risky driving.

Results: Regression analyses revealed that psychological distress uniquely explained 8.5% of the variance in young novice's risky driving, with adolescents experiencing psychological distress also reporting higher levels of risky driving. Psychological distress uniquely explained a significant 6.7% and 9.5% of variance in risky driving for males and females respectively.

Conclusions: Medical practitioners treating adolescents who have been injured through risky behaviour need to aware of the potential contribution of psychological distress, whilst mental health professionals working with adolescents experiencing psychological distress need to be aware of this additional source of potential harm. The nature of the causal relationships linking psychological distress and risky driving behaviour are not yet fully understood, indicating a need for further research so that strategies such as screening can be

investigated.

The Psychological Distress of the Young Driver: A Brief Report

In Queensland, Australia, in 2008, 13% of licensed drivers were aged 17-24 years, however they represented 22.3% of all road fatalities and were involved in 29.9% of crashes in which someone was fatally injured [1]. Risky driving behaviour contributes to crashes involving young novice drivers. Accordingly the nature and breadth of external and internal influences upon the risky driving behaviour of these young drivers is increasingly considered. This brief report investigated the psychological distress of the young driver.

The cognitive, physiological, behavioural and social maturation of young people is frequently associated with psychological distress such as depression and anxiety, and this can impact upon their driving behaviour [2]. The prevalence of depression in adolescence is approximately 24% [3], with 1 in 10 adolescents being depressed at any given time [4]. Depression and psychological distress have been associated with risky behaviours including unprotected sex [5], cigarette smoking and unsafe levels of alcohol consumption [6].

There is mixed evidence regarding the direction of the relationship between psychological distress and risky behaviour; some findings suggest distress emerges after risky behaviour [6], whilst others suggest risky behaviour occurs in response to distress [7]. Research in Victoria, Australia, compared the self-reported levels of psychological distress for young drivers grouped as ‘low’, ‘moderate’ or ‘high’ risk drivers. Anxiety, but not depression, levels between ‘low’ and ‘high’ groups were significantly different [8]. It was concluded that psychological distress was not related to risky driving. Participants rated the riskiness of five driving behaviours (e.g., speeding, not wearing seatbelts) within the last 10 journeys only, potentially masking their typical driving behaviour. New South Wales cohort research [9] similarly found no relationship between psychological distress and

subsequent crash involvement; however the two-year delay between the measures may have obscured any relationship [10]. Furthermore, road crashes are comparatively rare events and may not be a sensitive indicator of the extent to which risky behaviour has occurred.

Given the relationship between psychological distress and risky behaviour in adolescents [4-7], and that adolescents with an intermediate driver's licence are able to drive unsupervised, this study explored the role of psychological distress in the risky behaviour of young novice drivers. It was hypothesised that level of psychological distress would significantly predict young drivers' self-reported risky behaviour, over and above sociodemographic variables associated with risky behaviour in other research [5-7, 11].

Method

Participants

Drivers (n = 761; 523 females) aged 17-25 years (M = 19, SD = 1.56) with a Provisional (intermediate) driver's licence[1] (281 P1, 480 P2) completed an online survey between August and October 2009.

Design and Procedure

An anonymous cross-sectional online survey was distributed via email of the hyperlink to the Registrar of the 13 major tertiary education institutions in Queensland, Australia. Students aged 17-25 years with a Provisional driving licence were eligible to participate. Participants received entry into a prize draw for one of four $A350 fuel vouchers. Participants reported sociodemographic information (age, gender, licence type, university[2]; marital, study, employment status), and completed Kessler's Psychological Distress Scale (K10) [12], a 10-item measure of non-specific psychological distress (i.e.,

for mood or anxiety disorder) (α = .91). The K10 items align well with Criterion A of the DSM-IV (TR) diagnoses of major depressive episode [13] – higher scores correspond to greater probability the respondent meets criteria for DSM-IV (TR) or CIDI diagnosis [14]. Participants then rated their agreement with the 44-item Behaviour of Young Novice Drivers Scale (BYNDS) [15] (α = .95); higher scores indicated higher levels of risky driving behaviour.

Statistical Analyses

Bivariate correlations were used to explore the strength of association between the K10, sociodemographics, and the BYNDS score. The sample required for hierarchical multiple regression (HMR) exceeded the minimum size of $n \geq 50 + 8m$ (m = number of independent variables) required for a preferred power of 80%, and to detect a medium effect size of .20 [16]. The online survey was created using KeySurvey Enterprise Software. Analyses were conducted using SPSS 16.0.

Results

The K10 scores ranged from 10 to 49 (M = 19.47, SD = 7.02, median = 18, mode = 17). Using criteria that adjusts the K10 thresholds according to the greater psychological distress normatively experienced by adolescents [17] 69.5% experienced no or mild psychological distress (score < 21); 22.9% experienced moderate distress (score 21-30), and 7.6% experienced severe psychological distress (score > 31). There was a weak but significant correlation between the K10 and study status (fulltime students less distressed) and gender (females more distressed), and a moderate association between the K10 and risky driving behaviour (more distressed corresponds to more risky driving) (Table 1).

Table 1

Correlations between K10, Sociodemographic and Risky Driving Variables

Variable	Correlations	
	K10 score	Risky Driving Behaviour
Age[1]	.03	-.06
Gender[2]	.12**	-.02
Marital Status[2]	-.02	.05
Employment Status[2]	-.01	-.03
University[2]	-.05	-.05
Study Status[2]	.09*	.07
Licence Type[2]	.00	.09*
Risky Driving Behaviour[1]	.29***	1.00

Note. $p < .05$, ** $p < 01$, *** $p < .001$.* The Psychological Distress variable was logarithmically transformed to rectify violations of normality.
[1] Bivariate correlations between continuous variables utilised Pearson's product moment correlation *(r)*.
[2] Bivariate correlations between continuous and dichotomous variables utilised point biserial correlations *(r_{pb})*.

Sociodemographic variables were dichotomised prior to HMR: marital status [Single $n = 451$, Relationship $n = 310$], university [Institution 1 $n = 392$, Other Institutions $n = 369$], study status [Full-time $n = 705$, Other $n = 56$], employment status [Full-time $n = 40$, Other $n = 721$]). For the HMR, sociodemographics were entered in step 1, the transformed K10 score in step 2, and interactions between centred variables of age and psychological distress (older adolescents experiencing greater psychological distress, [3]), between gender and distress (females experiencing distress earlier and at greater levels [3]), and between the type of intermediate licence (as a measure of driving experience) and distress, in step 3. The overall model was significant, $F(11, 749) = 8.73$, $p < .001$ (Table

2). At the final step, significant predictors were age (older), licence (P2), and the K10 score (more psychological distress).

Table 2

Hierarchical Multiple Regression Results for Sociodemographic Variables, Psychological Distress and Interactions Predicting Self-Reported Risky Driving Behaviour

Variables	*B*	*SE*	B	*sr²*	*R²*	*Adj R²*	*ΔR²*
Step 1[a]							
Gender	-2.70	1.55	-.06				
Age	-1.43	0.48	-.11**	.011			
Marital Status	2.04	1.47	.05				
University	-1.43	1.43	-.04				
Study Status	5.05	3.25	.07				
Employment Status	-1.13	3.78	-.01				
Licence Type	4.43	1.52	.11**	.010			
					.027	.018	.027**
Step 2[b]							
Psychological Distress	41.99	4.93	.30***	.085	.112	.100	.085***
Step 3[c]							
Age-K10 Interaction	-.02	.07	-.01				
Gender-K10 Interaction	.09	.23	.01				
Licence-K10 Interaction	.21	.21	.04				

		.114	.101	.001

Note. * $p < .05$, ** $p < 01$, *** $p < .001$. The Psychological Distress variable was logarithmically transformed to rectify violations of normality. Results presented are those at the final step of analyses. [a] F (7, 753) = 2.97, $p < .01$. [b] F (8, 752) = 11.90, $p < .001$. [c] F (11, 749) = 0.38 $p = .77$

Separate HMR analyses for gender were conducted. The model explained a significant 13.7% of variance in risky driving behaviour for males and 10.2% for females. The K10 score uniquely accounted for 6.7% and 9.5% of the variance for males and females, respectively.

Discussion

The hypothesis was supported with the distress of the young drivers explaining 8.5% of variance in their risky driving after controlling for sociodemographics. Research continues to reveal that a range of personal characteristics including psychological states can influence driver behaviour and thus crash involvement, and this study provides support for considering the influence of psychological distress. In addition, the K10 has been used only once previously in a sample of young drivers [9-10], and this study provides support for such an application of the instrument.

The K10 is a reliable, inexpensive screening instrument that can be easily incorporated in community surveys [12]. Moreover, the apparent relationship between K10 scores and diagnoses of depression indicates that the instrument appears to identify young drivers who are at greater risk of distress, and therefore at greater risk on the road. Identifying at-risk individuals is vital [18]. Not only could interventions be tailored to target particular groups of at-risk drivers, but also from a mental health perspective this may result in improved well-being for the adolescent young driver. The experiences of the adolescent influence the experiences of the adult, including the experience of psychological

distress [3]. It seems reasonable to extend this notion to the adolescent's experiences of risky driving behaviour which has implications for all road users. However, participants in this study may not be representative of all young novice drivers, the research findings are preliminary, and definitive recommendations cannot be made without further research.

Strengths of the study include a popular mode of administration, sufficiently large sample and the use of reliable and valid measures applied to the immediate past experience of the drivers, which is important given the potential transience of psychological distress, and to address potential recall problems. Limitations of the study include the cross-sectional nature of the research, the reliance on self-report data, an overrepresentation of female participants, and non-random sampling of novices. Notwithstanding these limitations, the range of K10 scores (using the original criteria) did not differ from those of a larger sample of Australian young novice drivers [9-10]. Given that psychosocial development, driving experience and psychological distress are all presumed to change with age, longitudinal research would assist in understanding how the relationships between these variables and risky driving evolve. This research could also consider how distress relates to normative peer influences [11] and other adolescent risky behaviours such as unprotected sex and drug use [6] and intentional asphyxiation [19].

Conclusion

The psychological distress of a sample of young drivers as measured by the K10 was found to predict their risky driving; a contribution over and above that of sociodemographics. The research has implications not only for road safety researchers but also for medical and mental health professionals. The apparent relationship between K10 scores and diagnoses of depression [20] suggests that the instrument may identify young

drivers who are at greater risk of distress, and therefore may be at greater risk on the road. Young persons presenting to medical and mental health professionals could be screened for current psychological distress, particularly if they have incurred injury through risky behaviour.

[1] In Queensland, Australia, there are two phases to the Provisional (intermediate) driver's licence stage in the graduated driver licensing program. The novice must hold a Provisional 1 (P1) permit for a minimum duration of one year, followed by a Provisional 2 (P2) permit for a minimum duration of two years.

[2] While there are 13 major tertiary institutions in Queensland, four institutions declined to participate in the research. The variable "university" was dichotomised as approximately half the participants came from Institution 1.

References

1 DTMR. Queensland Road Toll 2008. Brisbane: Queensland Government Department of Transport and Main Roads, 2009.

2 Dahl RE. Biological, Developmental, and Neurobehavioral Factors Relevant to Adolescent Driving Risks. *Am J Prev Med* 2008;35:S278-S284. doi:10.1016/j.amepre.2008.06.013

3 Avenevoli S, Knight E, Kessler RC, et al. Epidemiology of Depression in Children and Adolescents. In: Abela JRZ, Hankin BL, eds. Handbook of Depression in Children and Adolescents. New York: Guilford Press, 2008:36-32.

4 Strine TW, Mokdad AH, Balluz LS, et al. Depression and Anxiety in the United States: Findings from the 2006 Behavioral Risk Factor Surveillance System. *Psychiatr Serv* 2008;59:1383-1390. doi: 10.1176/appi.ps.59.12.1383

5 Swanholm E, Vosvick M, Chng CK. Pessimism, Trauma, Risky Sex: Covariates of Depression in College Students. *J Health Behav* 2009;33:309-318.

6 Waller MW, Hallfors DD, Halpern CT. Gender Differences in Associations Between Depressive Symptoms and Patterns of Substance Use and Risky Sexual Behavior Among a Nationally Representative Sample of U.S. Adolescents. *Arch Womens Ment Health* 2006;9:139-150. doi: 10.1007/s00737-006-0121-4

7 Suris JC, Michaud PA, Akre C, et al. Health Risk Behaviors in Adolescents with Chronic Conditions. *Pediatrics* 2008;122:e1113-e1118. doi:10.1542/peds.2008-1479

8 Vassallo S, Smart D, Sanson A, et al. Risky Driving Among Young Australian Drivers II: Co-Occurrence with Other Problem Behaviours. *Accid Anal Prev* 2008;40:376-386. doi:10.1016/j.aap.2007.07.004

9 Martiniuk ALC, Ivers RQ, Glozier N, et al. Does Psychological Distress Increase the Risk for Motor Vehicle Crashes in Young People? Findings from the DRIVE Study. *J Adolesc Health* 2010;47:1-8. doi:10.1016/j.jadohealth.2010.03.010

10 Ivers R Q, Blows, S J, Stevenson M R, et al. A cohort study of 20 822 young drivers: The DRIVE study methods and population. *Inj Prev* 2006;12:385-389. doi:10.11365/ip.2006.011825

11 Scott-Parker B, Watson B, King MJ. Understanding the influence of parents and peers upon the risky behaviour of young drivers. *Transp Res Part F Traffic Psychol Behav* 2009;12:470-482. doi:10.1016/j.trf.2009.08.003

12 Kessler RC, Andrews G, Colpe LJ, et al. Short Screening Scales to Monitor Population Prevalences and Trends in Non-Specific Psychological Distress. *Psychol Med* 2002;32:959-976. doi:10.1017/S0033291702006074

13 Cairney J, Veldhuizen S, Wade TJ, et al. Evaluation of 2 Measures of Psychological Distress as Screeners for Depression in the General Population. *Can J Psychiatry* 2007;52:111-120.

146 Andrews G, Slade, T. Interpreting Scores on the Kessler Psychological Distress Scale (K10). *Aust N Z J Public Health* 2001;25:494-497.

15 Scott-Parker B, Watson B, King MJ. The Risky Behaviour of Young Drivers: Developing a Measurement Tool. In: Proceedings of the 20th Canadian Multidisciplinary Road Safety Conference, Niagara Falls, Ontario, June 6-9, 2010.

16 Tabachnick BG, Fidell, LS. Using multivariate statistics (3rd ed.). New York: Harper Collins College Publishers, 2006.

17 Huang JP, Xia W, Sun CH, et al. Psychological Distress and its Correlates in Chinese Adolescents. *Aust N Z J Psychiatry* 2009;43:674-681. doi:10.1080/00048670902970817

18 Paxton RJ, Valois RF, Watkins KW, et al. Associations Between Depressed Mood and Clusters of Health Risk Behaviors. *Am J Health Behav* 2007;31:272-283. http://www.ajhb.org

19 Bernadet, S. Psychological approach of antisocial behaviours and associated risk-taking behaviours. *Inj Prev* 2010; 16; A264. doi: 10.1136/ip.2010.029215.937

20 Furukawa TA, Kessler, RC, Slade, T, et al. The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psych Med* 2003, 33: 357-362.

Supplemental Linked File: K10

(Please embed electronically as a web-only appendix)

Kessler's Psychological Distress Scale (K10), developed by Kessler and Mroczek (1994), is a 10-item measure of non-specific psychological distress – that is, for mood or anxiety disorder. The K10 was developed in response to the need of the US National Health Interview Survey to incorporate a brief screening tool for non-specific psychological distress that was robust to variations in sociodemographics including age, gender, and ethnicity (for a review of scale development, see Kessler et al., 2002). The individual indicates on a scale of 1 (*none of the time*) to 5 (*all of the time*) how often they felt a particular way within the previous four weeks, such as tired, sad or depressed, and worthless. The scale is short, easily administered, and scores are calculated by summing each response on the 5-point Likert scale.

During the past month, about how often did you feel:	None of the time	Little of the time	Some of the time	Most of the time	All of the time
1. tired out for no good reason?	1	2	3	4	5
2. nervous?	1	2	3	4	5
3. so nervous that nothing could calm you down?	1	2	3	4	5
4. hopeless?	1	2	3	4	5
5. restless or fidgety?	1	2	3	4	5

6. so restless you could not sit still?	1	2	3	4	5
7. sad or depressed?	1	2	3	4	5
8. so depressed that nothing could cheer you up?	1	2	3	4	5
9. that everything was an effort?	1	2	3	4	5
10. worthless?	1	2	3	4	5

K10 scores have been found to correspond to diagnoses of anxiety and depression, such that higher scores on the K10 indicates greater likelihood of a DSM-IV mood disorder diagnosis (Andrews & Slade, 2001)

Supplemental Linked File: BYNDS

(Please embed the hyperlink electronically as a web-only appendix:

http://eprints.qut.edu.au/40403/

The following information is contained in this link)

The contribution of risky behaviour to the increased crash and fatality rates of young novice drivers is recognised in the road safety literature around the world. Exploring such risky driver behaviour has led to the development of tools like the Driver Behaviour Questionnaire (DBQ) to examine driving violations, errors, and lapses. Whilst the DBQ has been utilised in young novice driver research, some items within this tool seem specifically designed for the older, more experienced driver, whilst others appear to asses both behaviour and related motives. Therefore there is a need for a risky behaviour measurement tool that can be utilised with young drivers with a provisional (intermediate) driving licence.

Sixty-three items exploring young driver risky behaviour developed from the road safety literature were incorporated into an online survey. These items assessed driver, passenger, journey, car and crash-related issues. A sample of 476 drivers aged 17-25 years (M = 19, SD = 1.59 years) with a provisional driving licence and matched for age, gender, and education were drawn from a state-wide sample of 761 young drivers who completed the survey. Factor analysis based upon a principal components extraction was followed by an oblique rotation to investigate the underlying dimensions to young novice driver risky behaviour. A five factor solution comprising 44 items was identified, accounting for 55% of the variance in young driver risky behaviour. Factor 1 accounted for 32.5% of the

variance and appeared to measure driving violations that were transient (TR) in nature - risky behaviours that followed risky decisions that occurred during the journey (e.g., speeding). Factor 2 accounted for 10.0% of variance and appeared to measure driving violations that were fixed (FI) in nature; the risky decisions being undertaken before the journey (e.g., drink driving). Factor 3 accounted for 5.4% of variance and appeared to measure misjudgement (MS) (e.g., misjudged speed of oncoming vehicle). Factor 4 accounted for 4.3% of variance and appeared to measure risky driving exposure (EX) (e.g., driving at night with friends as passengers). Factor 5 accounted for 2.8% of variance and appeared to measure driver emotions or mood (DM) (e.g., anger).

Five subscales and one composite scale were created by summing the responses to the respective items. The composite Behaviour of Young Novice Drivers Scale (BYNDS) had a very high internal consistency measure (Cronbach's alpha) of .947. Self-reported data relating to police-detected driving offences, their crash involvement, and their intentions to break road rules within the next year were also collected. While the composite scale was only weakly correlated with self-reported crashes ($r = .16$, $p < .001$), it was moderately correlated with offences ($r = .26$, $p < .001$), and highly correlated with their intentions to break the road rules ($r = .57$, $p < .001$). The BYNDS and the codes are provided below.

The Behaviour of Young Novice Drivers Scale (BYNDS) Scott-Parker, B., Watson, B., & King, M. J. (2010). The risky behaviour of young drivers: Developing a measurement tool. *Proceedings of the 24th Canadian Multidisciplinary Road Safety Conference, Niagara Falls, Canada, June 6-9, 2010*.						
Whilst you have been driving on your Provisional driver's licence, how often have you done the following behaviours?	Never	Occasion-ally	Some-Times	Usually	Nearly all the time	CODE
You drove over the speed limit in areas where it was unlikely there was a radar	1	2	3	4	5	TR

or speed camera						
You went 10-20 km/hr over the speed limit (e.g., 72 km/hr in a 60 km/hr, 112 km/hr in a 100 km/hr)	1	2	3	4	5	TR
You deliberately sped when overtaking	1	2	3	4	5	TR
You sped at night on roads that were not well lit	1	2	3	4	5	TR
You went up to 10 km/hr over the speed limit (e.g. 65 km/hr in a 60 km/hr, 105 km/hr in a 100 km/hr)	1	2	3	4	5	TR
You went more than 20 km/hr over the speed limit (e.g. 60 km/hr in a 40 km/hr, 100 km/hr in an 80 km/hr)	1	2	3	4	5	TR
You raced out of an intersection when the light went green	1	2	3	4	5	TR
You travelled in the right lane on multi-lane highways	1	2	3	4	5	TR
You sped up when the lights went yellow	1	2	3	4	5	TR
You went too fast around a corner	1	2	3	4	5	TR
You did an illegal u-turn	1	2	3	4	5	TR
You overtook a car on the left	1	2	3	4	5	TR
You spoke on a mobile that you held in your hands	1	2	3	4	5	TR
Your passengers didn't wear seatbelts	1	2	3	4	5	FI
You drove after taking an illicit drug such as marijuana or ecstasy	1	2	3	4	5	FI
You carried more passengers than could legally fit in your car	1	2	3	4	5	FI
You didn't always wear your seatbelt	1	2	3	4	5	FI
You drove without a valid licence because you hadn't applied for one yet or it had been suspended	1	2	3	4	5	FI
You didn't wear a seatbelt if it was only for a short trip	1	2	3	4	5	FI
If there was no red light camera, you drove through intersections on a red light	1	2	3	4	5	FI
You carried more passengers than there were seatbelts for in your car	1	2	3	4	5	FI
You drove when you thought you may have been over the legal alcohol limit	1	2	3	4	5	FI
You drove a high-powered vehicle	1	2	3	4	5	FI
You misjudged the speed when you were exiting a main road	1	2	3	4	5	MS
You misjudged the speed of an oncoming vehicle	1	2	3	4	5	MS
You misjudged the gap when you were turning right	1	2	3	4	5	MS
You misjudged the stopping distance you needed	1	2	3	4	5	MS

You turned right into the path of another vehicle	1	2	3	4	5	MS
You misjudged the gap when you were overtaking another vehicle	1	2	3	4	5	MS
You missed your exit or turn	1	2	3	4	5	MS
You entered the road in front of another vehicle	1	2	3	4	5	MS
You didn't always indicate when you were changing lanes	1	2	3	4	5	MS
You drove on the weekend	1	2	3	4	5	EX
You drove in the rain	1	2	3	4	5	EX
You drove at peak times in the morning and afternoon	1	2	3	4	5	EX
You drove at night	1	2	3	4	5	EX
You drove at dusk or dawn	1	2	3	4	5	EX
You carried your friends as passengers at night	1	2	3	4	5	EX
You drove when you knew you were tired	1	2	3	4	5	EX
Your car was full of your friends as passengers	1	2	3	4	5	EX
You went for a drive with your mates giving directions to where they wanted to go	1	2	3	4	5	EX
Your driving was affected by negative emotions like anger or frustration	1	2	3	4	5	DM
You allowed your driving style to be influenced by what mood you were in	1	2	3	4	5	DM
You drove faster if you were in a bad mood	1	2	3	4	5	DM

Subscales:

TR – Transient rule violations
FI – Fixed rule violations
MS – Misjudgement
EX – Risky driving exposure
DM – Driver mood

Author Contribution Statement: The paper reports research undertaken by Mrs Bridie Scott-Parker as part of her PhD program of research. She completed the literature review, designed the questionnaire, arranged for its administration, analysed the results and discussed the findings. Professor Barry Watson, and Doctors Mark King and Melissa Hyde comprise Mrs Scott-Parker's PhD supervisory team, and they have been involved in providing advice and guidance on all aspects of the project and the writing of the paper. The order of authorship reflects the degree of their contribution.

Participant Consent: Participants were deemed to consent-to-participate if they completed the survey. The survey was accompanied by a Participant Information Sheet, and information regarding the study purpose, risks and benefits anticipated from participation were repeated at Item 1 in the online survey.

Ethics approval: This study was conducted with the approval of Queensland University of Technology, Brisbane, Queensland, Australia.

What is already known on this subject?

- Some novice drivers engage in risky driving behaviour, and this increases their risk of death or injury from a car crash.
- Some adolescents experience psychological distress.
- There is a complex relationship between psychological distress and risky behaviour.

What this study adds:

- The relationship between novice risky driving behaviour and psychological distress has not been clearly identified nor quantified.
- The psychological distress of young novice drivers in Queensland, Australia, was related to their risky driving behaviour, placing them at greater risk of injury.