The psychological distress of the young driver: a brief report

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ABSTRACT
The objective of the research was to explore the role of psychological distress in the self-reported risky driving of young novice drivers. A cross-sectional online survey incorporating Kessler’s Psychological Distress Scale and the Behaviour of Young Novice Drivers Scale was conducted by 761 tertiary students aged 17–25 years with an intermediate (Provisional) driving licence in Queensland, Australia, between August and October 2009. Regression analyses revealed that psychological distress uniquely explained 8.5% of the variance in young novice drivers’ 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. Medical practitioners treating adolescents who have been injured through risky behaviour need to be aware of the potential contribution of psychological distress, while 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.

In Queensland, Australia, in 2008, 15% 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 on 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 often associated with psychological distress such as depression and anxiety, and this can affect their driving behaviour.2 The prevalence of depression in adolescence is approximately 24%,3 with one 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 about the direction of the relationship between psychological distress and risky behaviour; some findings suggest that distress emerges after risky behaviour,6 while others suggest that 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-risk, moderate-risk 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 (eg, speeding, not wearing seat belts) within the last 10 journeys only, potentially masking their typical driving behaviour. New South Wales cohort research9 similarly found no relationship between psychological distress and subsequent crash involvement; however, the 2-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 can drive unsupervised, this study explored the role of psychological distress in the risky behaviour of young novice drivers. It was hypothesised that the 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

METHOD
Participants
Drivers (n=761; 525 female) aged 17–25 years (mean=19, SD=1.56) with a provisional (intermediate) driver’s licence (258 P1, 480 P2) completed an online survey between August and October 2009.

Design and procedure
An anonymous cross-sectional online survey was distributed by email of the hyperlink to the registrar of the 15 major tertiary education institutions in Queensland, Australia. Students aged 17–25 years with a provisional driving licence were eligible to participate. Participants were entered into a prize draw for one of four $A550 fuel vouchers. Participants reported sociodemographic information (age, gender, licence type, university5; marital, study, employment status), and completed Kessler’s Psychological Distress Scale (K10).12

1In Queensland, Australia, there are two phases to the provisional (intermediate) driver’s licence stage in the graduated driver licensing programme. The novice must hold a provisional 1 (P1) permit for a minimum of 1 year, followed by a provisional 2 (P2) permit for a minimum of 2 years.

2Although 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.
a 10-item measure of non-specific psychological distress (ie, for mood or anxiety disorder) ($\alpha$=0.91). 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 that the respondent meets criteria for DSM-IV (TR) or CIDI diagnosis$^{14}$ (please see online supplementary file 1). Participants then rated their agreement with the 44-item Behaviour of Young Novice Drivers Scale$^{15}$ ($\alpha$=0.95); higher scores indicated higher levels of risky driving behaviour (please see supplementary file 2).

Statistical analyses
Bivariate correlations were used to explore the strength of association between the K10, sociodemographics and the Behaviour of Young Novice Drivers Scale score. The sample required for hierarchical multiple regression (HMR) exceeded the minimum size of $n\geq50+8m$ (m = number of independent variables) required for a preferred power of 80%, and to detect a medium effect size of 0.20.$^{16}$ 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 (mean=19.47, SD=7.02, median=18, mode=17). When criteria that adjust the K10 thresholds according to the greater psychological distress normatively experienced by adolescents were used,$^{17}$ 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 (full-time 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).

Sociodemographic variables were dichotomised before 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, $p<0.001$ (table 2). At the final step, significant predictors were age (older), licence (P2) and the K10 score (more psychological distress).

Separate HMR analyses for gender were conducted. The model explained a significant 15.7% 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.

Table 1  Correlations between K10, sociodemographic and risky driving variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>K10 score</th>
<th>Risky driving behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age $\dagger$</td>
<td>0.03</td>
<td>-0.06</td>
</tr>
<tr>
<td>Gender $\dagger$</td>
<td>0.12$^{**}$</td>
<td>-0.02</td>
</tr>
<tr>
<td>Marital status $\dagger$</td>
<td>-0.02</td>
<td>0.05</td>
</tr>
<tr>
<td>Employment status $\dagger$</td>
<td>-0.01</td>
<td>-0.03</td>
</tr>
<tr>
<td>University $\dagger$</td>
<td>-0.05</td>
<td>-0.05</td>
</tr>
<tr>
<td>Study status $\dagger$</td>
<td>0.09$^{*}$</td>
<td>0.07</td>
</tr>
<tr>
<td>Licence type $\dagger$</td>
<td>0.00</td>
<td>0.09$^{*}$</td>
</tr>
<tr>
<td>Risky driving behaviour $\dagger$</td>
<td>0.29$^{***}$</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*p<0.05; **p<0.01; ***p<0.001. The Psychological Distress variable was logarithmically transformed to rectify violations of normality.

$\dagger$ Bivariate correlations between continuous variables used Pearson’s product moment correlation ($r$).

$\ddagger$ Bivariate correlations between continuous and dichotomous variables used point biserial correlations ($r_{pb}$).

K10, Kessler’s Psychological Distress Scale.

DISCUSSION
The hypothesis that the level of psychological distress would significantly predict young drivers’ self-reported risky behaviour 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 show 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,$^{7}$ 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 can identify young drivers who are at greater risk of distress, and therefore at greater risk on the road. Identifying at-risk individuals is vital.$^{16}$ Interventions could be targeted to target particular groups of at-risk drivers, and 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

Table 2  Hierarchical multiple regression results for sociodemographic variables, psychological distress and interactions predicting self-reported risky driving behaviour

<table>
<thead>
<tr>
<th>Step 1 $\dagger$</th>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>$B$</th>
<th>$R^2$</th>
<th>Adj $R^2$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender $\dagger$</td>
<td>-2.70</td>
<td>1.55</td>
<td>-0.06</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Age $\dagger$</td>
<td>-1.43</td>
<td>0.48</td>
<td>-0.11$^{**}$</td>
<td>0.011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status $\dagger$</td>
<td>2.04</td>
<td>1.47</td>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University $\dagger$</td>
<td>-1.43</td>
<td>1.43</td>
<td>-0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study status $\dagger$</td>
<td>5.05</td>
<td>3.25</td>
<td>0.07</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Employment status $\dagger$</td>
<td>-1.13</td>
<td>3.78</td>
<td>-0.01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licence type $\dagger$</td>
<td>4.15</td>
<td>1.52</td>
<td>0.11$^{**}$</td>
<td>0.010</td>
<td>0.027</td>
<td>0.018</td>
<td>0.027$^{**}$</td>
</tr>
</tbody>
</table>

$p<0.05; **p<0.01; ***p<0.001. The Psychological Distress variable was logarithmically transformed to rectify violations of normality. Results presented are those at the final step of analyses.

$\dagger$ $F$ (7, 753) =2.97, $p<0.01.

$\ddagger$ $F$ (18, 752) =11.90, $p<0.001.

$\ddagger$ $F$ (11, 749) =8.73, $p<0.001.

K10, Kessler’s Psychological Distress Scale.


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The psychological distress of young novice drivers in Queensland, Australia was related to their risky driving behaviour, placing them at greater risk of injury.

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 for road safety researchers and also for medical and mental health professionals. The apparent relationship between K10 scores and diagnoses of depression 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 people presenting to medical and mental health professionals could be screened for current psychological distress, particularly if they have incurred injury through risky behaviour.

REFERENCES

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