

Title: Comparison of the subsequent driving behaviour of drink driving offenders with a restricted (work) licence by BAC group

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Abstract

Queensland is one of only four Australian jurisdictions that permit some drink driving offenders to apply for a restricted licence (also known as 'work' licence). Provided it is a first offence, the blood or breath alcohol concentration (BAC) is less than 0.15, and the applicant meets other eligibility criteria, a restricted licence allows the applicant to drive for purposes relating to their employment. Restricted licences have been criticised as undermining the deterrent effect of drink driving laws (i.e. the certainty of licence loss), with a perception that they are easily available. Restricted licence holders are prevented from driving for recreational purposes, but are permitted to drive for work purposes in an attempt to minimise the potential financial hardship for them and their dependants that would result from loss of employment. A restricted licence offers a second chance to first offenders with a lower BAC, but little is known about impact on drink driving behaviour. Drink driving offence and crash involvement may be used as a proxy measure for subsequent behaviour. Offence and crash data were extracted from Queensland's driver licensing database (TRAILS) for drink drivers convicted during 2004 who successfully applied for a restricted licence, or who were disqualified. Subsequent drink driving offences (5 years) and crash involvement (4 years) were examined by BAC level for restricted and disqualified drivers.

Introduction

In Queensland, a restricted licence is defined as *"a licence to drive a motor vehicle, issued under [the Transport Operations (Road Use Management) Act 1995] to give effect to a court order under section 87, that authorises the holder to drive only in stated circumstances directly connected with the person's means of earning a living."*

It is also commonly referred to as a 'work' licence because it can only be granted if the applicant can satisfy the court that *"refusal will cause extreme hardship to the applicant or the applicant's family by depriving the applicant of the applicant's means of earning the applicant's livelihood."* Licence holders are only permitted to drive for work purposes, they are limited to days and times which may be specified in the court order, and have a no alcohol (i.e., zero BAC) restriction. Applicants must satisfy the court that they are a fit and proper person, having regard for the safety of other road users and the general public. Traffic history within the 5 years prior to the application is considered, and drink driving convictions, licence disqualification, cancellation or some forms of suspension will make them ineligible. Unlicensed drivers and offenders exceeding the high BAC limit (0.15 or higher) are ineligible, as are offenders who fail to supply a sample of breath or blood to confirm a roadside breath test BAC reading.

Perceived swiftness, certainty and severity of penalties and sanctions are fundamental to deterring drink driving related traffic offences (Homel, 1988). There is concern that restricted licence schemes diminish the certainty and severity of licence disqualification, therefore weakening the general deterrent effect of disqualification in the community. Offenders do not experience the full impact of disqualification so the specific deterrent effect of disqualification is also weakened (Watson et al., 2000).

Little is known about the incidence of re-offending during the restricted licence period. Smith and Maisey (1990) identified that almost 29% of drivers issued with an extraordinary¹ licence breached the conditions of their licence, mostly by driving for non-work purposes or outside of specified hours. Previous studies of restricted licence holders have found no significant difference between restricted licence and suspended (disqualified) drivers in the rate of alcohol-related crashes within the sanction period (Watson et al., 2000). Similarly, there was no significant difference in the rate of re-offending during the licence sanction period between offenders who were granted a restricted licence and those who were disqualified (Watson & Siskind, 1997). The authors concluded from their studies that restricted licences act as no better deterrent than full licence suspension in the short term.

In the seven years to 2007/08, drivers with a BAC of 0.10 or higher accounted for 80 percent of the total number of drink driving related fatal crashes in Queensland. In the six years to 2007/08, these drivers accounted for 77 percent of drink driving related crashes that resulted in hospitalisation (TMR, 2010). Furthermore, a clear relationship between a person's BAC level and crash risk has been demonstrated. Compared to a driver at zero BAC, a driver is: 1.18 times more likely to crash at 0.05 BAC; almost 5 times more likely to crash at 0.10 BAC; and more than 22 times more likely to crash at 0.15 BAC (Compton et al., 2002). On the basis of this evidence, removing the ability to apply for a restricted licence from drink drivers with an offence BAC of 0.10 to <0.15 (with a crash risk between 5 and 22 times higher than a zero BAC driver) warrants further investigation.

In 2010, the Department of Transport and Main Roads released *Drink Driving in Queensland – a discussion paper*, presenting a wide range of potential drink driving countermeasures and seeking community views. Over 1,000 responses were received to the online survey. Among the potential countermeasures supported or strongly supported was a reduction in the threshold for restricted licences to a BAC of less than 0.10, down from the current BAC limit of less than 0.15.

To determine whether offence BAC predicts subsequent driving behaviour, the purpose of this paper was to group drink driving offenders by BAC level, and examine their drink driving offence and crash involvement following issue of a restricted licence, both during and following the term of the sanction, for a total period of 5 years. Based on the assumption that drink driving offenders with a higher BAC represent a greater risk, it was predicted that:

¹ A work licence issued in Western Australia is known as an 'extraordinary licence'.

- H1: restricted licence holders with an offence BAC of 0.10 or higher (who would be affected by the potential countermeasure) will have higher levels of repeat offending than restricted licence holders with an offence BAC less than 0.10; and
- H2: restricted licence holders with an offence BAC of 0.10 or higher will have more crashes, particularly alcohol-related crashes, than restricted licence holders with an offence BAC less than 0.10.

We were also interested in compliance with the no-alcohol condition of the restricted licence. Thus this study also addressed the research question:

RQ1: What proportion of restricted licence holders in each BAC group re-offend during the term of the restricted licence?

Finally, we were interested in potential differences in subsequent driving behaviour between offenders who were issued a restricted licence as opposed to serving a period of disqualification, following an offence with a similar BAC. However, prior offence history is acknowledged as a strong predictor of future driving behaviour (Peck, 1993), and offenders granted a restricted licence are, by virtue of being eligible for that licence, predicted to be less likely to re-offend in the future than other disqualified offenders. Many offenders with a BAC less than 0.15 are ineligible because of their prior offence history². While not truly comparable for statistical analysis, the disqualified driver groups are included in this study to illustrate where restricted licence drivers fit in relation to other offenders with an equivalent offence BAC. As there are pre-existing differences between these groups, particularly prior offence history, that are likely to bias the results, and it was beyond the scope of this study to control for offence history, results of statistical tests are not reported. Rather, descriptive statistics for the disqualified drivers groups were included in this paper for the reader's information.

Offenders with an offence BAC of 0.05 to less than 0.10 will be referred to in this paper as 'general BAC' offenders; those with a BAC of 0.10 to less than 0.15 – i.e., those who would be affected by the countermeasure – will be referred to as 'middle BAC' offenders; and offenders with a BAC of 0.15 or higher will be referred to as 'high BAC' offenders. At the time of the study, these terms were not all reflected in legislation, however, a middle alcohol limit (0.100g of alcohol in 210L of breath) and middle alcohol limit offence commenced in Queensland on 1 July 2011. 'Licence sanction' is used to refer to either restricted licence issue or driver licence disqualification.

Method

Individuals issued with a section 87 restricted licence during 2004 were identified in Queensland's licensing and registration system (the TRAILS database) by the licence condition code 'X1'. An extract was made from TRAILS for those individuals to obtain demographic, offence and sanction details³, and subsequent drink driving offence

² An unknown number do not apply because they do not need to drive for work purposes.

³ Including: de-identified customer reference number; gender; age at time of offence; offence code and BAC; restricted licence issue date or disqualification date; and time period sanction applied.

details. The extracted data file was cleansed to remove: individuals with recorded BAC level less than 0.05 as drivers with a no-alcohol restriction are no longer eligible for a restricted licence; where BAC was recorded as zero or as a range and the individuals could not be assigned to a BAC group; and administrative duplicates⁴. All records remaining were for licensed drink drivers convicted and issued with a restricted licence during 2004 with a BAC between 0.05 and less than 0.15 ($N = 2,740$).

A second data file was extracted consisting of licensed drivers who were convicted for drink driving and disqualified during 2004. The data file was cleansed as before, in addition removing individuals with multiple convictions on the same day as the 'index' offence was unknown so individuals could not be assigned to a BAC group⁵. Consequently, the resulting population of disqualified drivers ($N = 15,941$) is a conservative sample of licensed drivers who were disqualified for a drink driving offence during 2004. Drink drivers who were unlicensed at the time of the offence were not extracted because demographic information was incomplete. Furthermore, comparisons between drivers who had been licensed prior to the offence (and resulting restricted licence or disqualification) were thought to be of greater interest because both types of drivers had been driving 'within the licensing system' prior to their offence.

Both data extracts included subsequent drink driving offences (including offence date and BAC) in the 5 years following the date of restricted licence issue or disqualification, with the number of offences recorded in 'year 1', 'year 2', etc. These data were used to determine 'repeat offenders', meaning a drink driving offence committed within 5 years following restricted licence issue or disqualification during 2004⁶. Offender records were used to extract crash involvement information from the Transport and Main Roads RoadCrash database during the 4 years subsequent to licence issue or disqualification. Crash data was not available for the fifth year as it had not been finalised at the time of data extraction.

Statistical tests were undertaken using SPSS to identify differences between the restricted licence groups. The Chi square test for independence was used to determine differences in the proportions of re-offenders and crash-involved drivers, and the Mann Whitney U test was used to determine whether there were differences in the number of subsequent offences and crashes between groups. As is often the case in road safety research, the data sets were skewed, meaning that subsequent offences and crashes were not normally distributed (most individuals did not re-offend or crash, or did so only once). Consequently, medians (and inter-quartile ranges, IQR) are reported as descriptive statistics. However, as these statistics were often zero and therefore not informative when interpreting significant differences between groups, means, standard deviations (SD) and ranges are also reported. The cut-off for statistical significance was $p < .05$ for all tests.

Results

⁴ In total, $n = 393$ restricted licence holders were excluded.

⁵ In total, $n = 2,354$ disqualified drivers were excluded.

⁶ Some disqualified drivers were already 'repeat offenders', having one or more drink driving offences prior to 2004, however, these drivers were not identifiable in the data extract.

Table 1 outlines the demographic characteristics of each group.

Table 1: Licensed drivers who were convicted of drink driving in 2004 in Queensland with an offence BAC of 0.05 or higher

Licence Sanction	BAC Group	n	Gender (% male)	Age	
				Mean	SD
Restricted	General (0.05 - < 0.10)	1,687	79.5%	37.08	11.48
	Middle (0.10 - < 0.15)	1,053	84.0%	36.53	11.24
Disqualified	General (0.05 - < 0.10)	7,282	77.2%	31.27	11.96
	Middle (0.10 - < 0.15)	4,517	81.1%	30.40	11.30
	High (0.15+)	4,142	81.8%	34.18	11.22

There were significant differences in the gender composition of the offender groups ($\chi^2(4, N = 18,681) = 56.67, p < .001, \Phi = .06$), with significantly more males in the middle and high BAC groups than the general BAC groups. There was also a gender difference by licence sanction, with significantly more males in the restricted licence groups (81.2%) than the disqualified groups (79.5%), $\chi^2(1, N = 18,681) = 4.24, p = .040, \Phi = .02$. This may reflect a greater reliance on vehicle use in male-dominated employment areas, for example, in trades or where driving is the principal task, so the restricted licence requirement of hardship is more likely to be met.

There was no significant difference in the age distributions of the two restricted licence groups ($U = 865,494.50, Z = -1.13, p = .259$), however the average age of the two restricted licence groups ($M = 36.87, SD = 11.39$) was significantly older than the average age of the disqualified groups ($M = 31.78, SD = 11.68$), $U = 15,729,318.50, Z = -23.44, p < .001$. Again, this may reflect the eligibility criteria for the restricted licence, as older drivers may be more likely to have families (and are therefore more likely to meet the potential family hardship requirement). In addition, there is an age effect for involvement in risky driving behaviours, including drink driving, and traffic offences, which tend to decline over time (Begg & Langley, 2001). Older individuals are therefore more likely to have a clear (5 year) traffic history and be eligible for a restricted licence.

Testing of Hypothesis 1

Table 2 shows the proportion of drivers in the restricted licence groups who had a drink driving offence in the 5 years following the issue of the restricted licence. Consistent with Hypothesis 1, the middle BAC group had significantly more drivers classified as re-offenders than the general BAC group, $\chi^2(1, N = 2,740) = 11.76, p = .001, \Phi = .07$. The middle BAC group also had significantly more repeat offences per individual than the general BAC group, $U = 840,816.00, Z = -3.63, p < .001$.

Table 2: Restricted licence holders by BAC group, repeat offenders and number of repeat drink driving offences in the 5 years following application of licence sanction

BAC Group	Repeat Offenders <i>n</i> (%)	Repeat Drink Driving Offences per Offender		
		Mean (<i>SD</i>)	Median (<i>IQR</i>)	Range
General (0.05 - < 0.10)	250 (14.8%)	0.18 (0.48)	0 (0)	0 – 5
Middle (0.10 - < 0.15)	209 (19.8%)	0.28 (0.64)	0 (0)	0 – 4

Table 3 shows the proportions of drivers in the disqualified groups who had a drink driving offence in the 5 years following the disqualification. The proportions of these groups classified as re-offenders, and the average number of subsequent drink driving offences per driver, are larger than those for the restricted groups reported in Table 2.

Table 3: Disqualified drivers by BAC group, repeat offenders and number of repeat drink driving offences in the 5 years following application of licence sanction

BAC Group	Repeat Offenders <i>n</i> (%)	Repeat Drink Driving Offences per Offender		
		Mean (<i>SD</i>)	Median (<i>IQR</i>)	Range
General (0.05 - < 0.10)	1,876 (25.8%)	0.36 (0.73)	0 (1)	0 – 7
Middle (0.10 - < 0.15)	1,352 (29.9%)	0.42 (0.77)	0 (1)	0 – 8
High (0.15+)	1,214 (29.3%)	0.41 (0.77)	0 (1)	0 – 8

Although not statistically compared, Figure 1 shows the proportion of all five groups classified as re-offenders, where it appears that re-offending is higher for disqualified (DQ) groups than restricted licence (RL) groups, and with increasing BAC levels.

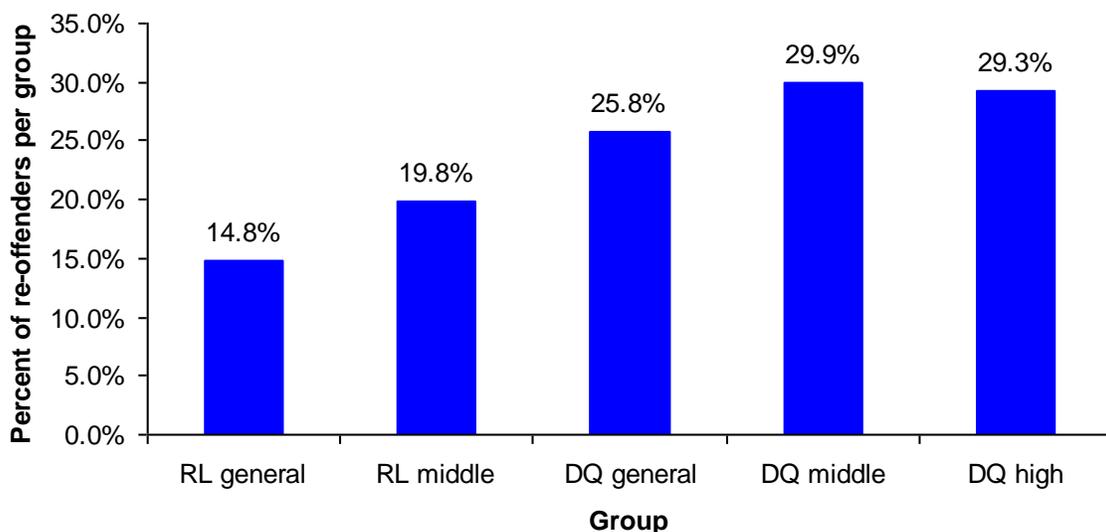


Figure 1: Drink driving re-offenders within 5 years after licence sanction applied

Testing of Research Question 1

Repeat drink driving offences by restricted licence holders were more closely examined by offence date to investigate compliance with restricted licence conditions. Table 4 shows that while only a small proportion of each group were detected for a drink driving offence during the restricted licence period, the percentage of offenders detected in the middle BAC group was significantly higher (almost double) than that of the general BAC group, $\chi^2(1, N = 2,740) = 6.16, p = .013, \Phi = .05$. However, average licence sanction periods also differed between groups ($U = 92,194.00, Z = -39.71, p < .001$), so exposure may account for the observed difference. Table 4 indicates that general BAC offenders held a restricted licence for a shorter period, but had a significantly higher offence rate per month during restricted licensure than middle BAC offenders, $U = 876,352.50, Z = -2.42, p = .015$.

Table 4: Repeat offences during restricted licence period

BAC Group	Repeat offender during sanction <i>n</i> (%)	Mean sanction period months (SD)	Mean offence rate per month (SD)
General (0.05 - < 0.10)	25 (1.5%)	3.31 (1.78)	0.0048 (0.0477)
Middle (0.10 - < 0.15)	30 (2.8%)	8.67 (2.81)	0.0037 (0.0231)

Testing of Hypothesis 2

In the 4 years after the sanction date, Table 5 shows that a small proportion of drivers in each group were controlling a vehicle involved in a crash recorded in the RoadCrash database. Contrary to Hypothesis 2, there was a statistically similar number of crash-involved drivers in the restricted licence groups, $\chi^2(1, N = 2,740) = 1.80, p = .180, \Phi = -.03$. While power was low for this analysis, the slight difference between these groups was trending in the opposite direction to that predicted.

Table 5: Crash involvement in 4 years after licence sanction applied

Licence Sanction	BAC Group	Crash-involved <i>n</i> (%)	Crashes per Offender		
			Mean (SD)	Median (IQR)	Range
Restricted	General (0.05 - < 0.10)	118 (7.0%)	0.07 (0.27)	0 (0)	0 – 2
	Middle (0.10 - < 0.15)	60 (5.7%)	0.06 (0.25)	0 (0)	0 – 2
Disqualified	General (0.05 - < 0.10)	525 (7.2%)	0.08 (0.28)	0 (0)	0 – 3
	Middle (0.10 - < 0.15)	338 (7.5%)	0.08 (0.28)	0 (0)	0 – 2
	High (0.15+)	254 (6.1%)	0.06 (0.26)	0 (0)	0 – 2

Although not compared statistically due to pre-existing differences between the groups, the crash involvement of restricted licence holders appears similar to that of disqualified

drivers. All groups had slightly higher proportions of crash-involved drivers than that observed for all Queensland licensed drivers, as 5.02% of licensed drivers were involved in crashes in the 4-year period 2005 – 2008 (TMR data not shown).

When only alcohol-related crashes were examined, it was found that alcohol was a contributing circumstance in 22 of the crashes by restricted licence holders, and in 291 of the crashes by disqualified drivers (see Table 6).

Table 6: Alcohol-related crash involvement in 4 years after licence sanction applied

Licence Sanction	BAC Group	Alcohol-related crash-involved <i>n</i> (% of group)	% of crash involved offenders within BAC group
Restricted	General (0.05 - < 0.10)	13 (0.8%)	11.0%
	Middle (0.10 - < 0.15)	9 (0.9%)	15.0%
Disqualified	General (0.05 - < 0.10)	101 (1.4%)	19.2%
	Middle (0.10 - < 0.15)	96 (2.1%)	28.4%
	High (0.15+)	94 (2.3%)	37.0%

Contrary to predictions, there was no significant difference in alcohol-related crash involvement between the restricted licence groups, $\chi^2(1, N = 2,740) = 2.35, p = .310, \Phi = .03$. Given that this analysis involved only a subset of the crash analysis reported above, statistical power was very low, however, there was a trend towards the middle BAC group being involved in more drink driving crashes. Although not statistically compared, the results also show more disqualified drivers being involved in drink driving crashes than restricted licence holders, particularly in the higher BAC groups. For both sanction types, the crash involvement was much higher than the 0.21% of Queensland licensed drivers who had a drink driving crash in 2005 – 2008 (TMR data not shown). Table 6 also expresses the number of drivers in each group involved in alcohol-related crashes as a proportion of the crash-involved drivers. This shows that as index offence BAC increases, so too does the proportion of the group's crash-involved drivers that were involved in alcohol-related crashes. It also shows that the proportions are higher for the disqualified groups than the restricted licence groups.

Discussion

The purpose of this paper was to examine the subsequent driving behaviour of drink driving offenders offered a 'second chance' in the form of a restricted 'work' licence. We found that 80 to 85 percent of restricted licence holders were not detected drink driving in the 5 years after they were given their 'second chance', and only a small proportion of drivers were detected for a drink driving offence while holding a restricted licence. In this study, however, the motivation provided by the restricted licence to stop drink driving cannot be separated from the influence of the factors that led to the individual being

eligible for the restricted licence, such as a clear prior offence history and age.

Among the drink drivers in this study who obtained a restricted licence in 2004 following an offence with a BAC of 0.10 or higher, one in 5 re-offended in the 5 years following, compared to one in every 6.7 restricted licence holders with a BAC less than 0.10. That is, middle BAC offenders with a restricted licence were more likely to re-offend. The middle BAC group also had more re-offenders during the restricted licence period, although the result was influenced by exposure, as this group tended to serve longer restricted licence periods than the general BAC group. Once the rates of offences during the sanction period per month were compared, there was a significant difference in the opposite direction to that predicted. There were statistically similar numbers of crashes between the two restricted licence groups. Although power for this analysis was low due to the small number of crash-involved drivers, the non-significant trend was not in the predicted direction. Disqualified drivers generally reflected the trend towards increased re-offending with increasing BAC, although at a higher level than the restricted licence groups, with one re-offender for every 3.3 to 3.9 disqualified drivers.

As BAC level increased, there was an increase in the percentage of repeat offenders and offences, and this was apparent for both sanction types in the longer term and for restricted licence holders in the shorter term. It suggests that restricted licence holders will not respond equally to the restricted licence, and offence BAC may provide grounds for limiting availability. While the data in this study is relatively descriptive and has not been subjected to the same in-depth analysis and controlling for confounding factors such as age or prior offending as in earlier studies (e.g., Watson & Siskind (1997); Watson et al., (2000)), the results suggest that restricted licence holders with a higher BAC at the time of their drink driving offence are more likely to re-offend.

However, there are study limitations that must be borne in mind when interpreting these results. Official data (such as drink driving offences and crashes recorded in Queensland's RoadCrash database) are likely to underestimate drink driving behaviour and crash-involvement. The scope of this study was also limited to subsequent drink driving offences, and did not explore offences relating to compliance with other restricted licence conditions, such as only driving during approved times on approved days. The next step in this area would be to replicate analyses with controls for pre-existing differences between the groups, such as offending history, and to broaden the scope of inquiry to offences other than drink driving. Direct research with restricted licence holders could also investigate their perceptions of the restricted licence, and self-reported compliance with restricted licence conditions.

Conclusion

A restricted licence offers a 'second chance' to drink drivers who, based on their current offence and prior traffic history, are believed to be at a lower risk of re-offending. The descriptive data in this study supports this view, as drivers issued with a restricted licence had fewer repeat offenders in their group, and re-offended fewer times, than drivers with an equivalent BAC who were disqualified. Middle BAC offenders were more

likely to re-offend during the restricted licence period than general BAC offenders, at a level similar to disqualified drivers with an equivalent BAC. While the data shows differences in the way restricted licence holders respond according to their offence BAC, 80 – 85 percent of the offenders in this study were not detected offending again, a level that is appreciably higher than for disqualified drivers.

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