Risk of reconviction among offenders who commence the Blacktown Traffic Offender Program

Poppy Rourke and Craig Jones

Aim: *To examine the profile of offenders who commenced the Blacktown Traffic Offender Program (BTOP) between 1994 and 2011 and to investigate which factors predict re-offending.*

Method: *Descriptive statistics were used to examine the profile of program participants. Logistic regression models were used to determine which participant characteristics were associated with an increased risk of reconviction (for any offence and any traffic offence).*

Results: *Fifteen per cent of participants committed a new offence in the 2 years following program commencement, and 11 per cent committed a further traffic offence. Being male, aged between 16 and 20 years, Indigenous, having a prior criminal record, and having 3 or more concurrent offences were all associated with an increased risk of being convicted for any further offence. Being aged between 16 and 20 years, living in more disadvantaged areas, having a prior criminal record, and having 3 or more concurrent offences were associated with an increased likelihood of being convicted for a new traffic offence. Approximately two-thirds of offenders who present with 4 or more risk factors go on to commit any new offence and one-third commit a new traffic offence.*

Conclusion: *Results suggests that certain individual characteristics indicate an elevated risk of reconviction for any further offence, and further traffic offences in the 2 years following commencement of the BTOP. Offenders who present with multiple (4 or more) risk factors are at significantly greater risk of reconviction.*

Keywords: *re-offending, traffic offender intervention program, driving offences.*

Introduction

Each year, a large number of lives are lost due to fatal road traffic accidents. In 2011, the number of fatal crashes on NSW roads was 349, with 377 fatalities. Beyond these lives lost, thousands of long-term injuries are also sustained each year in road traffic accidents (NSW Centre for Road Safety, 2012).

Driver error is one factor contributing to road traffic accidents, and strategies to decrease error rates are used worldwide as part of road safety schemes. One such strategy is the implementation of driver education programs. Education programs can be part of licensing schemes, post-licensing schemes or professional training. In some cases, these education programs are offered to drivers who have committed traffic offences (Ker et al., 2003; Wahlberg, 2010). Such programs are provided on the basis that a driving offence is an indicator

of elevated risk of causing traffic accidents. The education program is intended to change the behaviour of the driver and reduce their risk (Wahlberg, 2010).

The most widespread driver education program operating in NSW is the Traffic Offenders Program (TOP). The scheme provides an educational course for offenders who either plead guilty to, or are found guilty of, a traffic offence. TOP is regulated under Part 8 of the *Criminal Procedure Regulation 2010*. The stated objectives of the program are to provide offenders with the information and skills necessary to develop positive attitudes to driving and to develop safer driving behaviour in such offenders. An application to participate can be made by the defendant, the defendant's legal representative, or by the court. Magistrates refer offenders to complete the program prior to sentencing. The program runs for 6 to 8 weeks and typically involves traffic offenders attending a 2-hour group

session each week for the duration of the program. The courses are typically run by non-Government organisations including the Police Citizens Youth Club (PCYC). As of 30th August 2012, the program was operating at 51 locations in NSW.

There is insufficient evidence at present to say whether TOP effectively reduces rates of re-offending. Existing research has been limited by difficulties in constructing an appropriate comparison group against which to compare rates of re-offending. Saffron, Wallington, and Chevalier (1999), for example, matched TOP participants to a randomly selected group of offenders whose court matter was finalised at approximately the same time as the TOP offenders. While TOP offenders were found to be less likely to re-offend than the control group, the possibility of selection bias could not be ruled out of that study. Only a small number of risk factors for recidivism were controlled for and there was insufficient detail in the published report to determine how effectively the TOP and comparison groups were matched on important covariates.

Evaluation of the program is made more difficult by its wide availability. Because TOP is available in most courts across the state, there is no means of establishing a suitable comparison group to determine what proportion of TOP offenders would have re-offended had they not taken part in the program. In the absence of a rigorous outcome evaluation, it is still useful for program administrators and policy makers to know how many TOP participants re-offend and for which offences. It is also useful to know which offender characteristics increase the likelihood that offenders will return to court. Those most at risk might be identified for more intensive interventions to reduce problematic driver behaviour.

The current study

The aims of the current study were therefore:

a. to examine the profile of offenders who commence a TOP program;

b. to identify what proportion of offenders are reconvicted for new offences; and

c. to identify how the likelihood of re-offending varies according to the characteristics of offenders taking part in the program.

Since data were not available for all TOP programs across the state, the current report focuses on the one TOP program for which data were available: Blacktown. The Blacktown Traffic Offender Program (BTOP) was established in 1992. The program is conducted on a rolling basis with large group sizes (of up to 200). Offenders do not pay to undertake the program. While BTOP may not be representative of all TOP programs, this research may provide useful insights for other programs operating across the state.
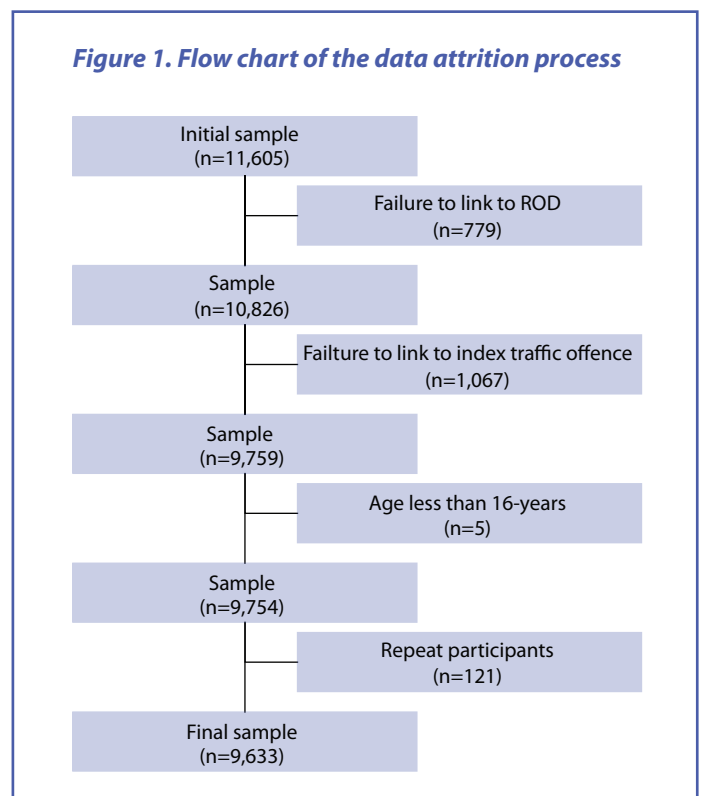
Method

Data source

The data for this study was drawn from the database of BTOP program participants provided by the Blacktown program administrators. All individuals who commenced the program between 1994 and 2011 were included in the current study, irrespective of whether they completed the program. This dataset was linked to the Bureau's Re-offending Database (ROD), which contains official court records for all individuals who have appeared in NSW courts since 1994 (Hua & Fitzgerald, 2006). Offenders from the BTOP database were linked on the basis of their name and date of birth. The ROD database was used to identify information about offences in the 5 years before program commencement, the outcome of the court appearance that resulted in the BTOP referral (referred to as the 'index' appearance) and offences in the 2 years subsequent to program commencement.

Sample

The dataset obtained from the BTOP administrators contained 11,605 cases. A number of these offenders were subsequently excluded from analysis and the points of attrition are shown in Figure 1. A number of offenders could not be linked to ROD (n=779, 6.7%). This often happens because the offender has a common name and he/she cannot be matched with certainty to a ROD record. Of the 10,826 offenders who could be linked to ROD, a further 1,067 (9.9%) were omitted from the final sample because an index court appearance could not be identified. Difficulties in identifying the index offence arise because NSW courts do not routinely record information about program referrals in the electronic court management system (JusticeLink). In the current study, the index court appearance was identified by selecting the closest finalised court appearance where one or more offences was a traffic offence 60 days either side of the 'return to court date' field recorded on the BTOP database. Five offenders were removed from the sample because they were aged less than 16 years; it was likely that their date of birth had been incorrectly recorded.

Figure 1. Flow chart of the data attrition process

Initial sample (n=11,605)

Failure to link to ROD (n=779)

Sample (n=10,826)

Failture to link to index traffic offence (n=1,067)

Sample (n=9,759)

Age less than 16-years (n=5)

Sample (n=9,754)

Repeat participants (n=121)

Final sample (n=9,633)

Finally, 121 cases were removed as they were for offenders who commenced the program for the second time (the program is intended to be completed once). The final sample contained 9,633 cases.

Pearson's chi-square tests and t-tests were carried out to compare those who were included to those who were excluded from the analysis. Most participants were excluded because there was no matching ROD record. As a result, the only information common to those included and excluded was age and sex. Women were slightly less likely to be excluded (women comprised 9.1% of the excluded group, compared with 13.9% of those included in the analysis; $\chi^2_1 = 23.2$, $p<.001$), as were older people (mean = 27.6 years for those included in the sample cf. mean = 26.5 for those excluded; $t_{11550} = 4.5$, $p<.001$).

Variables

Dependent variables

Two variables were examined to determine rates of reconviction following commencement of the BTOP program:[1]

Any new offence: Any new conviction for an offence committed in the 2 years following program commencement (yes/no); and

New traffic offence: Any new conviction for a traffic offence committed in the 2 years following program commencement (yes/no).

Independent variables

Several variables were examined to determine if, and how strongly, they relate to risk of re-offending. Each of these variables has been found to be predictive of re-offending in previous research (e.g. Smith & Jones, 2008):

Age: age of the offender at the time of program commencement. The variable was grouped into three approximately even sized groups (16-20, 21-24, 25+ years).

Gender: male or female.

Indigenous status: whether the offender identified as being of Aboriginal or Torres Strait Islander descent or both at any court appearance since 1994 (non-Indigenous, Indigenous, unknown).

SEIFA index quartile: relative socio-economic disadvantage based on the postcode in which offenders were residing at their index court appearance. This variable was split into quartiles based on the distribution of disadvantage for all offenders on ROD.[2]

ARIA index: degree of remoteness based on postcode in which offenders were residing at their index court appearance (major city, inner regional, outer regional /remote). [3]

Prior convictions: number of court appearances where one or more offences were proven in the 5 years prior to program commencement (0, 1, 2, 3+).

Prior prison: number of court appearances where one or more offences resulted in a prison sentence in the 5 years prior to program commencement (0, 1+).

Prior violent offences: number of court appearances where one or more violent offences were proven in 5 years prior to program commencement (0, 1+).

Prior theft offences: number of court appearances where one or more theft offences were proven in 5 years prior to program commencement (0, 1+).

Prior drug offences: number of court appearances where one or more drug offences were proven in 5 years prior to program commencement (0, 1+).

Prior traffic offences: number of court appearances where one or more traffic offences were proven in 5 years prior to program commencement (0, 1, 2+).

Prior breach offences: number of court appearances where one or more breach offences were proven in 5 years prior to program commencement (0, 1+).

Concurrent offences: number of proven concurrent offences at index offence date (0, 1, 2, 3+).

Analysis

Descriptive analyses were carried out to examine the characteristics of program participants (aim a) and the proportion of offenders who were reconvicted (aim b). To analyse aim c, bivariate analyses (Pearson's chi-square tests) were first carried out between the characteristics of program participants and reconviction (any and traffic offences separately). Binary logistic regression models were then estimated to identify which of these characteristics independently predicted the likelihood of re-offending. Separate models were built for the outcome variables *risk of any re-offending* (yes or no) and *risk of traffic re-offending* (yes or no) in the 2 years following program commencement. A manual backward elimination modelling strategy was employed, whereby each of the independent variables identified in the bivariate analyses was included in the models and then non-significant variables were manually and sequentially removed from the model one at a time. Only variables that were significant (at the 5% level) were included in the final models.

The Hosmer-Lemeshow goodness-of-fit test was used to identify how well the model fit the observed data (Hosmer & Lemeshow, 2000). The null hypothesis of the test is that the model does not fit. A non-significant result ($p>.05$), therefore, indicates that the model is a good fit.

The marginal effect of each risk factor on the predicted probability of re-offending was also estimated because odds ratios derived from logistic regression models can be difficult to interpret. Calculating marginal effects involves identifying a base case, which was defined as the most common category within each of the risk factors included in the final model. The probability that an offender who has that set of characteristics is then derived from the coefficients in the model. The cumulative marginal effect of each risk factor is then estimated by adding each risk factor one after the other to the base case.

Finally, Pearson's chi-square tests were carried out to compare risk of reconviction (for any offence and for traffic offences)

according to the number of risk factors with which BTOP participants presented. This was done by classifying each risk factor (for any offence and traffic offences separately) as either present or not present, counting the number present for each program participant and grouping them according to the total number of risk factors.

Results

Characteristics of program participants

Table 1 shows the characteristics of program participants, as well as the number and percentage of participants within each category who were reconvicted for new offences. As Table 1 shows, most participants were male (86.1%), aged more than 25 years (49.0%), non-Indigenous (83.3%), lived in a major city (87.8%), had no prior convictions (77.4%), had not been to prison in the 5 years before program commencement (99.5%) and had no concurrent charges at the time of their index offence (80.0%).

Table 1 also shows that males were significantly more likely than females to commit a new offence in general and a new traffic offence in particular in the 2 years following program commencement. The following groups were also more likely to re-offend (both generally and with traffic offences): younger people; Indigenous people; those residing in more disadvantaged areas; those with more prior convictions; those with prior imprisonment; those with prior violent, theft, drug, breach or traffic offences; and those with more concurrent charges. Offenders whose most serious prior conviction involved theft had the highest rates of reconviction, while offenders with no prior offences had the lowest rates of reconviction.

Table 2 shows the principal penalties for the offences that resulted in the BTOP referral, and the percentages convicted for new offences and new traffic offences within 2 years of program commencement. The most common penalty given was a fine (53.2%), followed by a bond without conviction (31.3%), bond/probation (9.5%), community service order (3.9%) and custodial sentence (2.1%). Of particular interest are the results relating to the rates of reconviction among BTOP participants. It was found that 15.2 per cent of program

Table 1. Characteristics of BTOP participants, and percentages convicted for new offences and new traffic offences committed within 2 years of program commencement (n=9,633)

Variable	N (%)	New offence N (%)	New traffic offence N (%)
Sex		**	**
Female	1,337 (13.9)	127 (9.5)	101 (7.6)
Male	8,296 (86.1)	1,338 (16.1)	912 (11.0)
Age (years)		**	**
16-20	2,543 (26.4)	490 (19.3)	317 (12.5)
21-24	2,367 (24.6)	380 (16.1)	269 (11.4)
25+	4,723 (49.0)	595 (12.6)	427 (9.0)
Indigenous status		**	**
Non-Indigenous	8,024 (83.3)	1,355 (16.9)	945 (11.8)
Indigenous	234 (2.4)	78 (33.3)	41 (17.5)
Unknown	1,375 (14.3)	32 (2.3)	27 (2.0)
ARIA (degree of remoteness) [a]			
Major city	8,460 (87.8)	1,282 (15.2)	891 (10.5)
Inner-regional	1,026 (10.7)	162 (15.8)	111 (10.8)
Outer regional / remote	110 (1.1)	22 (20.0)	9 (8.2)
SEIFA quartiles [a]		**	**
Q1 (most disadvantaged)	1,516 (15.7)	282 (18.6)	199 (13.1)
Q2	3,416 (35.5)	533 (15.6)	380 (11.1)
Q3	2,708 (28.1)	415 (15.3)	276 (10.2)
Q4	1,956 (20.3)	233 (11.9)	156 (8.0)
Prior convictions		**	**
0	7,452 (77.4)	846 (11.4)	612 (8.2)
1	1,425 (14.8)	335 (23.5)	225 (15.8)
2	483 (5.0)	151 (31.3)	104 (21.5)
3+	273 (2.8)	133 (48.7)	72 (26.4)
Prior prison sentences		**	**
0	9,581 (99.5)	1,433 (15.0)	997 (10.4)
1+	52 (0.5)	32 (61.5)	16 (30.8)
Prior violent offences		**	**
0	9,228 (95.8)	1,315 (14.3)	928 (10.1)
1+	405 (4.2)	150 (37.0)	85 (21.0)
Prior theft offences		**	**
0	9,275 (96.3)	1,319 (14.2)	917 (9.9)
1+	358 (3.7)	146 (40.8)	96 (26.8)
Prior drug offences		**	**
0	9,368 (97.2)	1,366 (14.6)	956 (10.2)
1+	265 (2.8)	99 (37.4)	57 (21.5)
Prior breach offences		**	**
0	9,502 (98.6)	1,403 (14.8)	981 (10.3)
1+	131 (1.4)	62 (47.3)	32 (24.4)
Prior traffic offences		**	**
0	8,187 (85.0)	1,080 (13.2)	751 (9.2)
1	1,128 (11.7)	275 (24.4)	187 (16.6)
2+	318 (3.3)	110 (34.6)	75 (23.6)
Most serious prior offence		**	**
No priors	7,452 (77.4)	846 (11.4)	612 (8.2)
Violence	334 (3.5)	116 (34.7)	66 (19.8)
Theft	122 (1.3)	44 (36.1)	33 (27.0)
Traffic	1,215 (12.6)	209 (17.2)	200 16.5)
Justice	104 (1.1)	30 (28.8)	19 (18.3)
Drug	160 (1.7)	56 (35.0)	34 (21.2)
Other	246 (2.6)	83 (33.7)	49 (19.9)
Number concurrent charges		**	**
0	7,710 (80.0)	946 (12.3)	671 (8.7)
1	1,200 (12.5)	289 (24.1)	189 (15.8)
2	456 (4.7)	137 (30.0)	91 (20.0)
3+	267 (2.8)	93 (34.8)	62 (23.2)

Note. *p< .05, **p< .001 indicate significant differences across groups
[a] Percentages do not sum to 100 as some cases had missing data for these variables

Table 2. Penalty for offence resulting in BTOP referral and re-offending in the 2 years after program commencement

Variable	N (%)
Penalty for principal offence	
Custodial sentence	204 (2.1)
Community service order	375 (3.9)
Bond/probation	914 (9.5)
Fine	5,126 (53.2)
Bond without conviction	3,014 (31.3)
Reconviction for any new offence?	
Yes	1,465 (15.2)
No	8,168 (84.8)
Reconviction for new traffic offence?	
Yes	1,013 (10.5)
No	8,620 (89.5)
Most serious new offence [a]	
No new offence	8,168 (84.8)
Violence	180 (1.9)
Theft	49 (0.5)
Traffic	900 (9.3)
Justice	105 (1.1)
Drug	79 (0.8)
Other	152 (1.6)

[a] Most serious prior and subsequent offences were based on lowest level Australian and New Zealand Standard Offence Classification (ANZSOC) codes (Australian Bureau of Statistics, 2011).

entrants committed a new offence (any), and 10.5 per cent committed a new traffic offence in the 2 years following program commencement.

Independent predictors of any re-offending

Table 3 shows the results of the logistic regression model predicting whether the program participants committed any new offence in the 2 years following program commencement. The overall model was a good fit (Hosmer-Lemeshow $\chi^2 = 6.5$, $p=.59$). The analysis indicates that, after adjusting for all of the other variables in the model, the following characteristics were independently associated with an increased risk of reconviction: being male, being in the 16-20 year age group, being Indigenous, having one or more prison sentences, having one or more prior convictions for violence, having one or more prior convictions for theft, having one or more prior convictions for drug offences, having one or more prior convictions for breaching court orders, having more convictions for traffic offences in the 5 years prior to the index offence; and having more concurrent offences at the index court appearance.

Figure 2 shows the marginal effect of each of these risk factors on the likelihood of reconviction for any offence committed within 2 years of program commencement. The 'base case' or average participant was male; aged 25 years or older; non-Indigenous; had no prison sentences in the 5 years prior to program commencement; had no violent, theft, drug, traffic or breach convictions in the prior 5 years; and had no concurrent offences. The estimated probability of any reconviction for the

Table 3. Logistic regression model predicting any new offence in the 2 years following program commencement

Variable	Odds ratio	95% C.I.	Significant?
Sex			
Female	1.00		
Male	1.45	(1.19,1.77)	**
Age (years)			
25+	1.00		
21-24	1.30	(1.13,1.51)	**
16-20	1.79	(1.56,2.06)	**
Indigenous status			
Non-Indigenous	1.00		
Indigenous	1.70	(1.26,2.31)	**
Unknown	0.14	(0.10,0.21)	**
Prior prison sentences			
0	1.00		
1+	2.31	(1.23,4.33)	*
Prior violent offences			
0	1.00		
1+	1.88	(1.47,2.39)	**
Prior theft offences			
0	1.00		
1+	1.82	(1.44,2.36)	**
Prior drug offences			
0	1.00		
1+	1.88	(1.42,2.50)	**
Prior breach offences			
0	1.00		
1+	1.93	(1.28,2.90)	*
Prior traffic offences			
0	1.00		
1	1.55	(1.32,1.82)	**
2+	1.85	(1.42,2.42)	**
Concurrent offences			
0	1.00		
1	1.87	(1.60,2.19)	**
2	2.17	(1.73,2.72)	**
3+	2.41	(1.82,3.20)	**

Note. *$p< .05$, **$p< .001$. C.I. = Confidence Interval

base case was 10 per cent. As Figure 2 shows, if an offender had all of these base case characteristics but was aged between 16 and 20 years, the predicted probability of re-offending increased to 17 per cent. An offender with the base case characteristics, but who was aged 16-20 years and was also Indigenous had a 26 per cent chance of re-offending. The model estimates that an offender with all of the risk factors observed in Table 2 would be nearly certain (98%) to be reconvicted for a new offence committed within 2 years of program commencement.

While Figure 2 shows that the cumulative probability of re-offending increases as risk factors are added to the base case,

Figure 2. Cumulative marginal effect of each additional risk factor on probability of any re-offending in the two years following program commencement
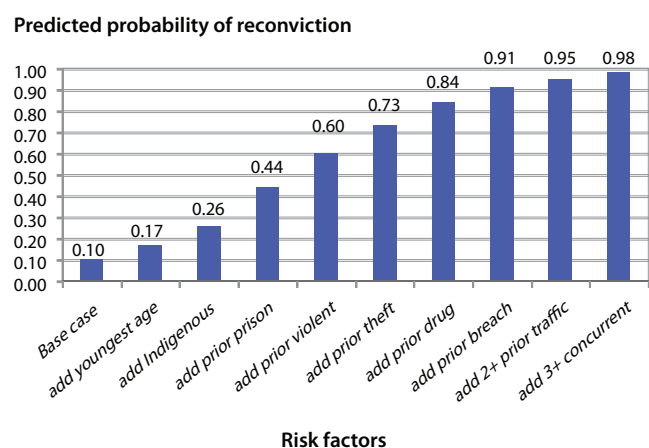
Predicted probability of reconviction

Risk factors

Base case 0.10; add youngest age 0.17; add Indigenous 0.26; add prior prison 0.44; add prior violent 0.60; add prior theft 0.73; add prior drug 0.84; add prior breach 0.91; add 2+ prior traffic 0.95; add 3+ concurrent 0.98

Table 4. Percentage convicted for new offences committed within 2 years of program commencement, by number of identified risk factors

Number of risk factors	No new offence N (%)	New offence N (%)
0	5,347 (89.4)	633 (10.6)
1	2,432 (81.1)	568 (18.9)
2	309 (66.2)	158 (33.8)
3	62 (48.4)	66 (51.6)
4+	18 (31.0)	40 (69.0)

it should be noted that no-one in the sample actually had all of the risk factors identified in the model. Table 4 shows how risk of re-offending increases as the cumulative number of risk factors increases. This analysis is based upon the actual number of risk factors among individuals in the sample. As Table 4 shows, only 10.6 per cent of offenders who presented with no risk factors had a new offence within 2 years. This increased to 18.9 per cent for offenders who presented with one risk factor, to 33.8 per cent for offenders with two risk factors and up to 69 per cent for offenders who presented with four or more risk factors. These risk factors do not, of course, add equal weight to recidivism risk. However, Table 4 shows that there is a relatively small group of offenders who present with multiple risk factors for recidivism and who are at high risk of returning to court on new charges. These offenders might benefit from more intensive rehabilitative approaches.

Independent predictors of traffic re-offending

Table 5 shows the results of the logistic regression model predicting whether program participants committed a new traffic offence in the 2 years following program commencement. The overall model was a good fit (Hosmer-Lemeshow $\chi^2 = 9.98$, $p=.27$). The results indicate that, after adjusting for other variables in the model, the following characteristics were associated with an increased risk of committing a new traffic

Table 5. Logistic regression model predicting reconviction for traffic offences in the 2 years following program commencement

Variable	Odds ratio	95% C.I.	Significant?
Age (years)			
25+	1.00		
21-24	1.27	(1.07,1.50)	*
16-20	1.51	(1.29,1.77)	**
Indigenous status			
Non-Indigenous	1.00		
Indigenous	1.11	(0.77,1.59)	
Unknown	0.18	(0.12,0.27)	**
SEIFA quartile			
Q1 (most disadvantaged)	1.40	(1.11,1.75)	*
Q2	1.30	(1.06,1.59)	*
Q3	1.18	(0.96,1.45)	
Q4	1.00		
Prior violent offences			
0	1.00		
1+	1.51	(1.16,1.97)	*
Prior theft offences			
0	1.00		
1+	1.79	(1.37,2.33)	**
Prior drug offences			
0	1.00		
1+	1.44	(1.05,1.98)	*
Prior traffic offences			
0	1.00		
1	1.51	(1.26,1.81)	**
2+	1.81	(1.35,2.42)	**
Concurrent offences			
0	1.00		
1	1.65	(1.38,1.98)	**
2	1.92	(1.49,2.47)	**
3+	2.13	(1.57,2.91)	**

Note. $*p < .05$, $**p < .001$. C.I. = Confidence Interval

offence: being aged between 16 and 20 years; residing in more disadvantaged areas; having one or more convictions for violence, one or more convictions for theft, one or more convictions for drug offences, more convictions for traffic offences in the 5 years prior to the index offence; and having more concurrent offences. Indigenous status was significantly related to risk of reconviction for traffic offences, but only insofar as having unknown Indigenous status was associated with lower odds of reconviction.

Figure 3 shows the marginal effect of each of these risk factors on the likelihood of committing a new traffic offence within 2 years of program commencement. A 'base case', or average program participant, was male; aged 25 years or older; non-Indigenous; resided in the second most disadvantaged group of postcodes based on SEIFA; had no convictions for violent, theft, drugs or traffic offences in the 5 years prior to program commencement; and had no concurrent offences.

The estimated probability of being reconvicted for a traffic offence for the base case was 6 per cent. As Figure 3 shows, if someone had all of these base case characteristics but was aged 16-20 years, the predicted probability of a new traffic offence increased to 9 per cent. Someone with the base case characteristics but who was aged 16-20 years and was also Indigenous had a 10 per cent chance of re-offending. The model estimates that someone with all of the risk factors observed in Table 4 would have a 70 per cent chance of being reconvicted for traffic offences within 2 years of program commencement.

Again, while Figure 3 shows that the cumulative probability of committing another traffic offence increases as risk factors are added, in reality no-one in the sample had all eight risk factors identified in the model. Table 6 shows how the risk of re-offending increased as the cumulative number of risk factors increased. Only 7.5 per cent of offenders who presented with no risk factors were convicted for new traffic offences committed within 2 years of the index appearance. This increased to 11.8 per cent for offenders who presented with one risk factor, to 19.3 per cent for offenders with two risk factors, and up to 31.5 per cent for offenders presenting with four or more risk factors. Table 6 shows that a small group of offenders present with multiple risk factors for recidivism.
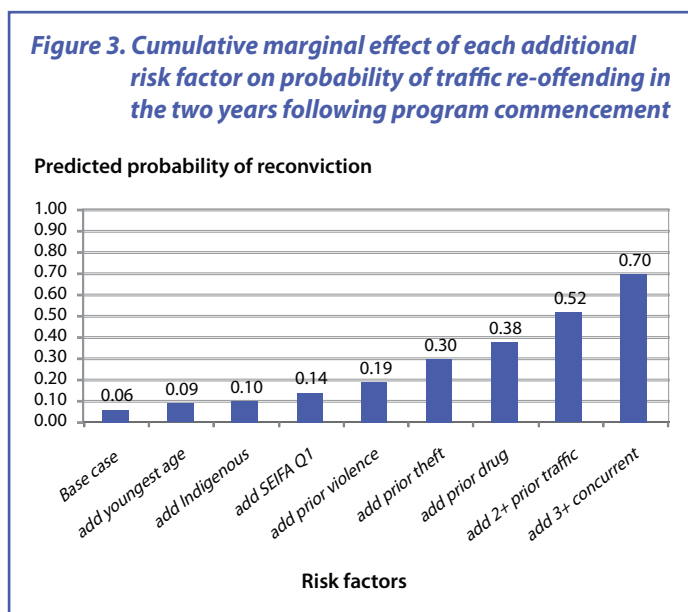
Figure 3. Cumulative marginal effect of each additional risk factor on probability of traffic re-offending in the two years following program commencement

Predicted probability of reconviction

Table 6. Percentage convicted for new offences committed within 2 years of program commencement, by number of identified risk factors

Number of risk factors	No new traffic offence N (%)	New traffic offence N (%)
0	4,709 (92.5)	383 (7.5)
1	3,082 (88.2)	414 (11.8)
2	640 (80.7)	153 (19.3)
3	152 (76.8)	46 (23.2)
4+	37 (68.5)	17 (31.5)

Discussion

The aims of the current research were to describe offenders who commenced the BTOP between 1994 and 2011, and to examine the factors that are associated with an increased risk of re-offending. Overall, 15.2 per cent of BTOP program entrants committed an offence, and 10.5 per cent committed a traffic offence in the 2 years following program commencement. This is lower than the 19.6 per cent re-offence rate found by Saffron et al. (1999). However, as these samples cannot be directly compared, these results should not be interpreted to mean that the rate of reconviction following program commencement has dropped significantly.

The results indicate that certain offender characteristics are associated with an increased risk of committing any new offence. These included: being male; being aged between 16 and 20 years; being Indigenous; having one or more prison sentences, one or more convictions for violence, one or more convictions for theft, one or more convictions for drug offences, one or more convictions for breach offences, more traffic convictions in the 5 years prior to the index offence; and having more concurrent offences. These findings are generally consistent with previous research which showed that being male, younger, and having a prior offending history were associated with a higher chance of re-offending following participation in the TOP (Saffron et al., 1999).

Similarly, characteristics associated with an increased risk of committing a new traffic offence in the 2 years following program commencement were: being between 16 and 20 years old; residing in more disadvantaged areas; having one or more convictions for violence, one or more convictions for theft, one or more convictions for drug offences, more traffic convictions in the 5 years prior to the index offence; and having more concurrent offences. It should be noted that such factors do not necessarily play a causative role in the likelihood of re-offending, and may reflect other processes that relate to both that factor and the likelihood of reconviction.

A limitation of this research is that a number of BTOP participants were excluded from the analysis, primarily because their data could not be linked to the ROD database or to an index court appearance. Men and younger people were over-represented among those with no matching court records. Since young age and male gender are both associated with an increased risk of re-offending, the current study may slightly under-estimate rates of re-offending. However, these differences in age and sex were not large and the sample can be construed as being reasonably representative of participants in the BTOP. It is unclear whether these offenders are representative of those taking part in TOPs more generally and this clearly signals the need for more comprehensive information on the flow of offenders through TOP services.

In the absence of this information and the inability to form a comparison or 'no program' group (where these offenders are not systemically different from those who do commence the program), it is not possible to make any assessment of whether BTOP is effective in reducing re-offending. Even if comprehensive information was available, it would be

difficult to ensure that those in the 'no program' group were not systematically different from those who commenced the program. Ideally, a randomised control trial of the program should be undertaken, with a number of individuals who apply to complete a TOP program being randomly allocated to a 'no program' or 'minimal intervention' control group. Wahlberg (2010) has noted that a control group has rarely been utilised in research on the efficacy of driver education programs. This is most likely because, if it is believed that the program is beneficial, it would be unethical to exclude people from a program that is assumed to be effective. However, it could also be argued that it is unethical to provide a program when there is little evidence of its effectiveness and which could, in the worst case scenario, increase the risk of re-offending. The conditions required to evaluate program effectiveness need to be carefully considered prior to the widespread expansion of any program.

Despite these limitations, the findings outlined in the current research are useful. Perhaps most importantly, they show that a small group of offenders are at a very high risk of returning to court and they might benefit from more intensive intervention. It is anticipated that the current findings will provide criminal justice decision-makers with some of the tools required to make an assessment of who is most at risk and to target their interventions accordingly.

Acknowledgements

Notes

1. Some program participants may have passed away or moved interstate in the 5 year period following program commencement (meaning they would not have an opportunity to reoffend, or would not be detected in the NSW Re-offending Database). It is not possible to estimate what effect this would have on recidivism estimates.

2. Socio Economic Index for Areas (SEIFA) is produced by the Australian Bureau of Statistics as an index of relative socio-economic disadvantage. A lower number is indicative of greater disadvantage (Australian Bureau of Statistics, 2006). For the purpose of the current analysis, SEIFA values were categorised into quartiles based on the level of disadvantage for everyone on ROD. In other words, quartile 1 (Q1) represents the most disadvantaged 25 per cent of postcodes on ROD, quartile 2 (Q2) represents the second most disadvantaged quarter of postcodes etc. BTOP offenders were more likely to reside in Q2 and Q3 postcodes and less likely to reside in Q1 or Q4 postcodes.

3. The Aria/Remoteness Index of Australia (ARIA) classification was developed through the Commonwealth Department of Health and Ageing and is published by the Australian Bureau of Statistics (ABS, 2001). For the purpose of this research, the categories were major city; inner regional; and outer and remote (which was the ARIA outer regional and remote categories combined due to lower numbers in each group).

References

Australian Bureau of Statistics. (2001). *Australian Standard Geographical Classification (ASGC)* (Cat. No. 1216.0). Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/ mf/1216.0

Australian Bureau of Statistics. (2006). *Information paper: An introduction to Socio-Economic Indexes for Areas (SEIFA)*. Retrieved from http://www.ausstats.abs.gov.au/ausstats/ subscriber.nsf/0/D729075E079F9FDECA2574170011B088/$Fi le/20390_2006.pdf

Australian Bureau of Statistics. (2011). *Australian and New Zealand Standard Offence Classification (ANZSOC)*. Retrieved from http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/ 5CE97E870F7A29EDCA2578A200143125/$File/12340_2011.pdf

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression (2nd edition)*. NJ: John Wiley & Sons.

Hua, J., & Fitzgerald, J. (2006). *Matching court records to measure re-offending*. (Crime and Justice Bulletin No. 95). Retrieved from the NSW Bureau of Crime Statistics and Research website: http://www.bocsar.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/ vwFiles/cjb95.pdf/$file/cjb95.pdf

Ker, K., Roberts, I. G., Collier. T., Beyer, F. R., Bunn, F., & Frost, C. (2003). Post-licence driver education for the prevention of road traffic crashes. *Cochrane Database of Systematic Reviews*, Issue 3. Art. No.: CD003734. DOI: 10.1002/14651858.CD003734.

New South Wales Centre for Road Safety. (2012). *Road toll update for New South Wales*. Retrieved from http://www.rta.nsw.gov.au/ roadsafety/downloads/dynamic/daily-road-statistics.pdf

Saffron, D., Wallington, N., & Chevalier, A. (1999). NSW Traffic Offenders Programs: Evaluation. In *Proceedings of Road Safety Research Policing and Education Conference*, vol. 1, Australian Transport Safety Bureau, Canberra, pp. 509-516.

Smith, N. E., & Jones, C. (2008). *Monitoring trends in re-offending among adult and juvenile offenders given non-custodial sanctions*. (Crime and Justice Bulletin No. 110). Retrieved from NSW Bureau of Crime Statistics and Research website: http://www. bocsar.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/vwFiles/cjb110. pdf/$file/cjb110.pdf.

Wahlberg, A. E. (2010). Re-education of young driving offenders: Effects on self-reports of driver behaviour. *Journal of Safety Research, 41*, 331-338.