Outcome evaluation of the PCYC's 'Braking the Cycle' (BTC) Learner Driver Mentor Program

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Prof Ioni Lewis
Catherine Kennon
Sonali Nandavar

MAIC QUT Road Safety Research Collaboration

Acknowledgement of Traditional Owners

QUT acknowledges the Turrbal and Yugara, as the First Nations owners of the lands where QUT now stands.

We pay respect to their Elders, lores, customs and creation spirits. We recognise that these lands have always been places of teaching, research and learning. QUT acknowledges the important role Aboriginal and Torres Strait Islander people play within the QUT community.

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Executive Summary

Introduction

Research has demonstrated that graduated driver licensing (GDL) effectively reduces crash risk among young novice drivers (Scott-Parker et al., 2011). In Queensland, the current GDL system mandates that learner drivers accumulate at least 100 hours of supervised driving experience before they are eligible to undertake a practical test to obtain their Provisional 1 (P1) licence (Queensland Government, 2022). This requirement aims to provide learners with substantial practice in low-risk settings. However, to achieve such practice can pose challenges. Considering that possessing a driver's licence is often essential for securing employment, the stipulation to acquire hours can adversely impact those already facing hardships, placing them at even greater disadvantage. The 'Braking the Cycle' (BTC) program connects volunteer mentors with learner drivers who need support to accumulate the required number of supervised hours but who may lack a supervisor and/or or a registered vehicle in which to do so.

Methodology

In the current project, an outcome evaluation of the PCYC's 'Braking the Cycle' (BTC) Learner Driver Mentor program was conducted whereby the number and nature of traffic offences and road crashes of BTC participants were compared with a matched control sample. These two participants groupings were used to demonstrate whether involvement in the BTC program reduced participants' subsequent traffic histories in terms of infringements and crashes.

Results

Analysis was conducted to compare the traffic offence and crash history of BTC program participants with a control group of individuals matched by age, gender, location, and date of licensure. Results of a one-way ANOVA indicated that the number of BTC participants had incurred significantly fewer traffic offences (of any kind), when compared to their matched control counterparts. BTC participants were also involved in fewer crashes than control participants.

Limitations

There are several limitations that require consideration when interpreting the findings. Despite extensive and on-going recruitment efforts, the final number of BTC participants who completed the requisite Form 4444 (the legal document required by TMR for them to release individuals' traffic history data) and consent, was less than hoped for or anticipated. As such, it is possible that the findings may not be representative of all BTC participants. Additionally, traffic and crash data may be subject to recording error as only those crashes reported to police were analysed.

Conclusions

The results of this outcome evaluation comparing traffic histories comprising infringement and crash data demonstrated that BTC participants were involved in fewer crashes and incurred significantly fewer traffic offences of any type than a sample of matched control participants. While acknowledging the limitations of the study sample size and representativeness, and that few differences were statistically significant, the results which were significant and taking into account direction of other differences between the cohorts, the results of this evaluation support there being positive effects of the BTC program for its participants and potentially the broader community in terms of any reductions in crashes and infringements helping to contribute to safer roads for all.

Introduction and Aims

Younger and inexperienced drivers are more likely to crash than older and more experienced drivers (McKnight & McKnight, 2003). Younger drivers tend to take higher risks on the road, are lacking in perception skills compared to their older counterparts, and over-estimate their driving abilities (Watson et al., 2014). Evidence also shows that crashes in newly licensed drivers are typically higher in their first month after having obtained their provisional licence (Senserrick et al., 2021). A graduated driver licensing (GDL) program was implemented in Queensland in 2007 to address the over-representation of novice drivers in road crashes (Scott-Parker et al., 2011). The GDL structure stipulates that learner drivers must accumulate a minimum of 100 hours of supervised driving. While this measure supports learners gaining driving experience in a low-risk environment, it demands substantial resources, thereby presenting challenges for learner drivers who may experience social and/or financial hardships that mean they may struggle to meet the requisite number of hours' experience. Given the pivotal role that holding a driver licence plays in enabling access to employment and other opportunities, concerns were raised that the mandate may disproportionately impact individuals already experiencing social and economic disadvantage. In response to this concern, learner driver mentor programs (LDMPs) emerged as a popular grassroots solution.

LDMPs aim to support learner drivers by providing them with free or cost-effective access to a vehicle and a dedicated driving supervisor. In Queensland, the collaboration between Police Citizens Youth Clubs (PCYCs) and the Queensland Police Service led to the establishment of the LDMP called 'Braking the Cycle' or 'BTC'. BTC is a multi-site program with urban and regional outreach provided by community organisations, which coordinate volunteer mentors, and seek vehicle donations, for their local community. The current project represents a timely and important extension upon the work of Smyth and Sheehan (2016) who undertook an initial evaluation of the BTC program. Specifically, this report outlines the results of an outcome evaluation to update evidence regarding the effects of the BTC program in terms of participants' traffic offences and crash histories.

Smyth and Sheehan (2016) evaluation was conducted 3 to 4 years after the BTC program commenced in 2012. That evaluation also included a range of studies based on self-report data as well as the analysis of secondary data via traffic histories through traffic infringements and crashes. This current evaluation complements and extends upon that previous evaluation, comprising an outcome evaluation of traffic histories of program participants since the program commenced. Indeed, the current evaluation includes drivers who obtained their Learner licence in May 2012 through to July 2023. As such, this evaluation has been able to consider program effects over a relatively longer period (than the initial evaluation). Since BTC's establishment in 2012, over 10 000 drivers have participated in the program, and the program is now offered across 59 locations in Queensland. Evaluations of the BTC program are crucial in determining the extent to which it is achieving the intended goals and objectives.

Background

The BTC program connects volunteer mentors with learner drivers who need support in completing their logbook hours but who may lack a supervisor and/or a registered vehicle. The program's purpose is to improve employment opportunities, build community relationships, and deliver driver education to novice drivers (PCYC Queensland). A comprehensive evaluation of the BTC program was undertaken by Smyth and Sheehan in 2016 and which comprised the analysis of a range of primary data (i.e., self-report surveys and focus groups of program participants and driving mentors) and secondary data (i.e., licensing, traffic offences, and crash histories). The purpose of this current

project is to undertake an outcome evaluation to offer up-to-date insights into the effects of the BTC program based on analysis of participants' traffic histories in terms of offences and crashes.

Aims and Hypothesis

The overarching aim of this project was to evaluate the PCYC's BTC Learner Driver Mentor program by comparing the number and nature of traffic offences and road crashes of BTC participants versus a matched control sample. It is anticipated that completion of PCYC's BTC program would positively impact driving behaviour through reductions in traffic offences and crashes of program participants, relative to a matched control sample who had not participated in a BTC program session. Additionally, where feasible to do so, the results of this current evaluation will be compared (descriptively as opposed to statistically) to those reported by Smyth and Sheehan in 2016 to reflect on any apparent differences in findings between the two evaluations.

Methodology

Study Design

TMR maintains Queensland licencing records in the Transport, Registration and Integrated Licensing System (TRAILS) database and Queensland Road Crash Database (QRCD). This project analysed secondary data from these databases, which was quantitative and qualitative in nature.

Ethical Approval and Other Required Approvals

Prior to participant recruitment commencing, ethical clearance was granted by the Queensland University of Technology (QUT) Human Research Ethics Committee (QUT Reference Number: 8135). A QUT risk assessment was also approved (QUT Reference Number 12718). A number of discussions were held between the QUT project lead and TMR to ensure adherence to all legal requirements for data requests. It was confirmed that access to individuals' traffic histories, and thus TMR release of such information to the research team, would necessitate BTC program participants not only providing written consent to participate in the research, but also their completion of a Form 4444 (F4444). Thus, the F4444 was incorporated into participation consent requirements.

Also prior to participant recruitment commencing, the QUT project lead met with members of the PCYC team to coordinate the procedure for recruitment of BTC program participants. The research team were not to know who opted to participate, thus, the PCYC undertook participant contact and recruitment. The QUT research team provided the approved study recruitment materials including the recruitment email together with the study's Participant Information Form and consent form together with the F4444.

Once recruitment was completed, the PCYC and TMR team members liaised to arrange the PCYC's delivery of the F4444s to TMR. Regarding the consent forms, the PCYC signed documentation confirming their understanding of and intended adherence to the safe and secure storage of such forms in accordance with ethical and legal requirements (i.e., storage of such documents for 15 years). As noted at the commencement of this section, the aforementioned procedures were ultimately approved by QUT Ethics as the approved project protocol.

Participants

The study included a total of 882 participants, comprising 134 in the 'experimental' condition who completed the BTC program, and 748 matched individuals in the 'control' condition. The gender and age composition of the overall sample is shown in Table 1. This table also shows that date range for learner licensure extended from 2012 through to 2023.

The BTC program has been running for 13 years and approximately 10,000 program participants received an invitation to participate in this study. Those BTC program participants who consented to their traffic offences, crashes and licensing data being accessed for this study, were included in this evaluation. These data were extracted, prepared, and ultimately provided to the research team by TMR in a deidentified manner. A total of 15 participants who provided consent were excluded as unfortunately they did not provide a correct customer reference number on their F4444.

A matched control sample was used in this study to minimise the impact of confounding variables and allow, as much as was feasible, for the analysis of observed effects to be attributed to the BTC program. The control group comprised individuals who have never undertaken a BTC program session. For sufficient statistical power for the required analytical comparisons, up to six control

cases were extracted from the TMR databases, for every one of the BTC program participants. Where possible, the control group sample was matched to the BTC program participants in terms of age, gender, date of licensure and index of Relative Socio-economic Disadvantage (IRSD) decile rank within Queensland (based on postcode). For 19 BTC program participant cases, the desired 6 matched controls cases could not be found. The decision was made to retain participants in the analyses with the number of matched control participants being as follows: six cases had five controls, three cases had four controls, one case had three controls, eight cases had two controls, and finally two cases had only one control. Six participants were excluded from the analysis given that, unfortunately, no control participants could be matched to them.

Table 1: Demographics of the study participants.

Characteristic	BTC Participants (*n* = 134)	Control Participants (*n* = 748)
Gender, frequency (%)		
Male	47 (35.1%)	265 (35.4%)
Female	87 (64.9%)	483 (64.6%)
Age		
Mean Years (SD)	17.8 (3.4)	17.3 (2.6)
Learner Licence		
Date Range	22 May 2012 – 31 July 2023	1 May 2012 – 28 July 2023
Mean Year (SD)	2019 (2.5)	2019 (2.5)

Inclusions and Exclusion Criteria

Inclusion criteria for the experimental condition (BTC program participants) included individuals who completed the BTC program between 2012 and 2024. Participants were also required to have consented to the use of their licensing, traffic, and crash history data for this evaluation, with consent indicated by signing the F4444 form and returning the document to the PCYC. Participants were considered to have completed the BTC program if they had completed more than 30 hours of the program.

Inclusion criteria for the control condition included individuals who have never undertaken a BTC program session but who were otherwise similar to the experimental condition (of BTC program participants) in terms of age, gender, locations, and date of licensure.

Procedure

This project required BTC participants to explicitly consent to have their secondary data included in the study. The following sections outline how that consent was gained and how the secondary data were organised.

Recruitment Methods

The recruitment of experimental condition participants took place between 2nd April 2024 and 25th October 2024. As alluded to earlier, the PCYC oversaw the direct contact and liaison with their program participants to ensure their confidentiality could be maintained (with the research team only to receive deidentified data from TMR). The PCYC conducted three mail-outs via email to eligible

participants. PCYC also placed an advertisement on their Facebook page, site co-ordinators spent four days calling eligible participants by phone. Additionally, the study was advertised at BTC graduation celebrations. Despite these various efforts, recruitment remained challenging with overall numbers of consenting participants, small. Thus, further discussions were held between the QUT Project lead and PCYC Program Coordinator, Seevali Ratnakara. Largely, the challenge appeared to be with completion of the F4444 via electronic means. While some participants were sufficiently technologically-savvy and/or had access to the technology required to print, sign, and scan the documentation, it was evident another non-electronic recruitment approach was required. The final recruitment option that was ultimately the most successful was the PCYC conducting a mail-out of the study materials (i.e., the study's Participant Information Form, consent form, and F4444, together with a stamped, self-addressed envelope). While this was associated with additional time and cost, MAIC supported the additional time and funding required by the PCYC to print and (return) post the materials. It is recommended that any future evaluations keep this aspect in mind, particularly if the F4444 remains in its current form and unable (or at least not easily able) to be signed electronically. Participants who consented to participate in the study were eligible for a ticket in a prize draw to win 1 of 50 $100 GiftPay e-vouchers. While QUT purchased the e-vouchers, PCYC was responsible for drawing the recipients and distributing the vouchers to them to maintain the confidentiality of the program participants.

Secondary Data Description

This project analysed secondary quantitative data from TMR's TRAILS and QRCD (crash data) information systems. This data was delivered to the MAIC QUT Road Safey researchers via a secure folder created by TMR using the Kiteworks system (Kiteworks private data network, 2025).

The data obtained from TRAILS included:

- Licensing data - date of licensure
- Offences to include:
    - Speeding (both camera and non-camera detected offences)
    - Alcohol
    - Dangerous driving
    - Unlicensed driving
    - Seatbelt (including mobile phone and seatbelt camera issued infringements)
    - Other driving/road-related offences including:
        - Offences' demerit points
        - Amount and Status of Fine
        - Licence sanction type and date

The data obtained from the TMR crash data included:

- Age, gender, licence, and at-fault status for all controllers of vehicles involved in the crash.
- Details of the circumstances of the crash including day, time, location, prevailing road traffic conditions, and type/s of vehicles involved.
- Crash severity (Hospitalisation, Medical Treatment, and Minor Injury).

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 29.0. (SPSS, Chicago, IL). Descriptive statistics were used to describe the participants' demographics and driving characteristics. Pearson Chi-square tests and One-way ANOVAs and were used to compare BTC

program participants and matched control participants on the nature and number of offences. Descriptive analyses were performed on the characteristics of the reported crashes.

Crashes are relatively rare events and, thus, in evaluation studies, it is often difficult to have the numbers required, from a statistical (power) perspective, to necessarily demonstrate significant outcomes such as reduction in crashes. Descriptive statistics are provided even in cases where statistical significance could not be calculated. These insights are potentially helpful to the extent that future initiatives may be able to ensure focus is placed on specific on-road behaviours and issues.

Results

Statistical analyses were performed to determine the nature and involvement of BTC program participants in traffic crashes and offences incurred. Analysis involved comparisons with a matched group of control of drivers who had never undertaken a driving session with the BTC program.

All data were provided by TMR to the QUT research team in de-identified form for statistical analysis. The data extraction performed by TMR returned a total number of 134 BTC participants and 748 matched control records. To provide an indicator of program effects, analysis focussed on traffic offences and crashes incurred after P1 licensure, except when analysing the offence of driving unaccompanied (given this requirement relates to while on a learner licence).

Traffic Offences

Traffic offence data were provided from the TMR's TRAILS database. Data obtained included the date of licensure, number and type of traffic offence (including speeding, alcohol, dangerous driving, unlicensed driving, seatbelt and other offences), related demerit points, amount and status of fine, and licence sanction type and date. Excluded from the analyses were traffic offences that were unrelated to driving a car (e.g. parking offences), as were administrative and vehicle compliance related offences (e.g. e-toll non-payment). Speeding offences were categorised to include both camera and non-camera detection. While Smyth and Sheehan did not include the offence of Failure to display P and L plates appropriately, as this was not an offence in 2016, it has subsequently been made an offence and thus was included as an offence type considered in the current evaluation (Queensland Government, 2022, 2024).

The number of BTC participants and the number of matched controls who had incurred a traffic offence were compared using Pearson's Chi-square tests of independence. To add more context to the statistical analysis, Phi (φ) was used to estimate the effect size. According to Cohen (1988), a Phi value below 0.10 indicates a small effect size, between 0.10 and 0.30 indicates a moderate effect size, and above 0.50 indicates a large effect size.

The total number of offences incurred by the BTC participant group was 73 (range 1–6), and 727 (range 1–17) for the matched control group. As shown in Table 2, following their P1 licensure, 39 BTC participants had incurred at least one offence (of any type), and 268 controls had incurred offences. Using an alpha level of .05, this difference was not statistically significant, [$\chi 2$ (1) = 2.27, p = .132, φ = .05]. Even though fewer BTC participants had incurred offences across all categories compared with the control group, the only category that reached statistical significance was driving unaccompanied [$\chi 2$ (1) = 5.01, p = .025, φ = .08] where BTC program participants were proportionally less likely than the control participants to have received an infringement for this offence – indeed, as Table 2 shows, no BTC participants at all received this infringement.

Table 2: Number and percentage of BTC participants and controls who incurred at least one offence between 2012 and 2025.

Offence	BTC participants (*n* = 134)	Controls (*n* = 748)	Statistical Significance
Any offence	39 (29.1%)	268 (35.8%)	$\chi 2$ (1) = 2.27, *p* = .132, φ = .05
Speeding	28 (20.9%)	216 (28.9%)	$\chi 2$ (1) = 3.23, *p* = .057, φ = .06
Driving unaccompanied	0 (0.0%)	26 (3.48%)	$\chi 2$ (1) = 5.01, *p* = .025, φ = .08*
Driving unlicensed	3 (2.2%)	32 (4.3%)	$\chi 2$ (1) = 1.24, *p* = .265, φ = .04
Driving unregistered	3 (2.2%)	25 (3.3%)	$\chi 2$ (1) = 0.45, *p* = .502, φ = .02
Drink driving	0 (0.0%)	8 (1.1%)	$\chi 2$ (1) = 1.45, *p* = .229, φ = .04
Mobile phone use	6 (4.5%)	23 (3.1%)	$\chi 2$ (1) = 0.70, *p* = .402 φ = .03
Failure to stop/give way	2 (1.5%)	2 (0.3%)	$\chi 2$ (1) = 0.10, *p* = .755, φ = .01
Seatbelt/helmet non use	4 (3%)	35 (4.7%)	$\chi 2$ (1) = 0.65, *p* = .419, φ = .03
Aggressive driving	1 (0.7%)	10 (1.3%)	$\chi 2$ (1) = 0.32, *p* = .570, φ = .02
Dangerous driving	5 (3.7%)	30 (4%)	$\chi 2$ (1) = 0.2, *p* = .879, φ = .01
Drug driving	0 (0.0%)	9 (1.2%)	$\chi 2$ (1) = 1.63, *p* = .202, φ = .04
Driving uninsured	2 (1.5%)	15 (2%)	$\chi 2$ (1) = 0.16, *p* = .691, φ = .01
Failure to display plates	2 (1.5%)	37 (4.9%)	$\chi 2$ (1) = 3.21, *p* = .073, φ = .06
Smoking in vehicle *w* minors	0 (0.0%)	1 (0.1%)	$\chi 2$ (1) = 0.18, *p* = .672, φ = .01
COVID related	0 (0.0%)	2 (0.4%)	$\chi 2$ (1) = 0.36, *p* = .549, φ = .02

Each group's average (mean) number of traffic offences, including type of offence, were also compared using analysis of variance (ANOVA). Eta squared ($\eta 2$) was also calculated to provide a measure of the size of effect. As shown in Table 3, the average number of offences (of any kind) incurred by BTC participants after P1 licensure was lower (M = 1.87, SD = 1.26) than the average number incurred by the control group (M = 2.71, SD = 2.56). Using an alpha level of .05, this difference was statistically significant. When analysed by offence type, none of the offences reached significance. It should be noted that the effect sizes associated with these results were small.

Table 3: Average number and standard deviation of offences of BTC participants and controls (with at least one offence) incurred between 2012 and 2025.

Offence	BTC participants (n = 134)	Controls (n = 748)	Statistical Significance
Any offence	1.87 (1.26)	2.71 (2.56)	F (1, 880) = 5.75, p = .017, η = .006*
Speeding	1.54 (0.84)	2.07 (1.68)	F (1, 242) = 2.74, p = .099, η = .011
Driving unaccompanied	0.00 (0.00)	1.54 (1.20)	
Driving unlicensed	1.00 (0.00)	1.22 (0.55)	F (1, 33) = 0.46, p = .504, η = .014
Driving unregistered	1.00 (0.00)	1.32 (0.69)	F (1, 26) = 0.62 p = .437, η = .023
Drink driving	0.00 (0.00)	1.00 (0.00)	
Mobile phone use	1.00 (0.00)	1.13 (0.344)	F (1, 27) = 0.84, p = .368, η = .030
Failure to stop	1.00 (0.00)	1.04 (0.20)	F (1, 20) = 0.40, p = .535, η = .020
Seatbelt/helmet non use	1.00 (0.00)	1.30 (0.66)	F (1, 37) = 0.11, p = .747, η = .003
Aggressive driving	1.00 (0.00)	1.10 (0.32)	F (1, 9) = 0.9, p = .770, η = .010
Dangerous driving	1.20 (0.45)	1.37 (0.77)	F (1, 33) = 0.22, p = .641, η = .007
Drug driving	0.00 (0.00)	1.00 (0.00)	
Driving uninsured	1.00 (0.00)	1.27 (0.80)	F (1, 15) = 0.21, p = .653, η = .014
Failure to display plates	1.00 (0.00)	1.03 (0.16)	F (1, 37) = 0.53, p = .820, η = .001
Smoking in vehicle *w* minors	0.00 (0.00)	1.00 (0.00)	
COVID related	0.00 (0.00)	1.00 (0.00)	

When the percentages of infringements were compared with the previous evaluation results from Smyth and Sheehan's (2016) study, the results indicate that overall, as shown in Table 4, the percentage of any offence infringements increased between 2016 to the 2024 data.

However, in the current evaluation, relative to the Smyth and Sheehan results, fewer BTC participants in this study committed the offences of driving unaccompanied, driving while unlicensed, driving under the influence of alcohol or drugs, and failing to stop or give way. Compared to participants in the 2016 evaluation, those in the current control group also had a lower percentage of offences related to failing to stop or give way as well as distracted driving.

Table 4. Comparing the number of BTC participants and controls who incurred at least one offence in the 2016 and 2025 evalutations. Bold font denotes a decrease between evaluation periods.

Offence	2016 Evaluation		2025 Evaluation	
	BTC participants (*n* = 945)	Controls (*n* = 5307)	BTC participants (*n* = 134)	Controls (*n* = 748)
Any offence	211 (22.33%)	1354 (25.51%)	39 (29.1%)	268 (35.8%)
Speeding	154 (16.3%)	1034 (19.48%)	28 (20.9%)	216 (28.9%)
Driving unaccompanied	25 (2.65%)	167 (3.15%)	**0 (0.0%)**	26 (3.48%)
Driving unlicensed	24 (2.54%)	145 (2.73%)	**3 (2.2%)**	32 (4.3%)
Driving unregistered	19 (2.01%)	149 (2.81%)	3 (2.2%)	25 (3.3%)
Drink driving	6 (0.63%)	56 (1.06%)	**0 (0.0%)**	8 (1.1%)
Mobile phone use	8 (0.85%)	55 (1.04%)	6 (4.5%)	23 (3.1%)
Failure to stop/give way	22 (2.33%)	144 (2.71%)	**2 (1.5%)**	**2 (0.3%)**
Seatbelt/helmet non use	11 (1.16%)	68 (1.28%)	4 (3.0%)	35 (4.7%)
Distracted driving	4 (0.42%)	35 (0.66%)	**0 (0.0%)**	**0 (0.0%)**
Aggressive driving	3 (0.32%)	15 (0.28%)	1 (0.7%)	10 (1.3%)
Dangerous driving	3 (0.32%)	21 (0.40%)	5 (3.7%)	30 (4.0%)
Drug driving	1 (0.11%)	10 (0.19%)	**0 (0.0%)**	9 (1.2%)
Uninsured	-	-	2 (1.5%)	15 (2.0%)
Not displaying plates	-	-	2 (1.5%)	37 (4.9%)
Smoking in vehicle w minors	-	-	0 (0.0%)	1 (0.1%)
COVID	-	-	0 (0.0%)	2 (0.4%)

Also comparing with the results from Smyth and Sheehan (2016), in this study, fewer BTC participants on average committed offences such as driving unaccompanied, driving while unlicensed, driving while unregistered, failing to stop or giveaway, failure to correctly wear a seatbelt or helmet and driving distracted (Table 6). On average, fewer BTC participants were also found to be driving under the influence of alcohol or drugs, with no BTC participants in the current study recording offences in relation to drink or drug driving. Compared to the 2016 results, control participants in the current study were also found to commit less offences, on average, in the categories of driving unlicenced, unregistered, failing to stop or give way, driving distracted and under the influence of alcohol. However, in terms of changes in the undesired direction, for both BTC

and control participants, compared to the previous evaluation, the overall trend was an increased percentage of infringements being issued for speeding.

When the speeding infringements in the current evaluation were more closely examined, it was found that most speeding offences were issued when participants lost one demerit point from their licence, and, thus, an indication that they were driving less than 11 k/h over the speed limit. A breakdown of speeding infringements by demerit points is provided in Table 5. Demerit points were chosen as the metric to examine as they are an indicator of the severity of the speeding offence, with fewer points denoting a lesser offence (Queensland Government, 2024). Notably, a larger percentage of BTC participants received a deduction of three points when compared to control participants.

Table 5: Frequency of demerit points lost from speeding fines of BTC and control participants in the current study.

Points lost	BTC participant (*n* = 28)	Control (*n* = 216)
One	21 (48.8%)	239 (53.5%)
Three	17 (39.5%)	158 (35.3%)
Four	2 (4.7%)	26 (5.8%)
Six	0 (0.0%)	10 (2.2%)
Eight	0 (0.0%)	4 (0.9%)
Unknown	3 (7.0%)	10 (2.2%)

Table 6: Comparing the average number of offences of BTC participants and controls (with at least one offence) in the 2016 and 2025 evaluations. Bold font denotes a decrease between evaluation periods.

Offence	2016 Evaluation		2025 Evaluation	
	BTC (*n* = 945)	Controls (*n* = 5307)	BTC (*n* = 134)	Controls (*n* = 748)
Any offence	1.81 (1.81)	2.03 (1.89)	1.87 (1.26)	2.71 (2.56)
Speeding	1.31 (0.61)	1.54 (1.01)	1.54 (0.84)	2.07 (1.68)
Driving unaccompanied	1.4 (0.86)	1.36 (0.67)	**0.00 (0.00)**	1.54 (1.20)
Driving unlicensed	1.25 (0.67)	1.67 (1.55)	**1.00 (0.00)**	**1.22 (0.55)**
Driving unregistered	1.53 (1.38)	1.43 (0.92)	**1.00 (0.00)**	**1.32 (0.69)**
Drink driving	1.17 (0.41)	1.16 (0.53)	**0.00 (0.00)**	**1.00 (0.00)**
Mobile phone use	1.00 (0.00)	1.03 (0.19)	1.00 (0.00)	1.13 (0.34)
Failure to stop/give way	1.09 (0.29)	1.04 (0.20)	**1.00 (0.00)**	1.04 (0.20)
Seatbelt/helmet non use	1.09 (0.30)	1.09 (0.33)	**1.00 (0.00)**	1.30 (0.66)
Distracted driving	1.00 (0.00)	1.06 (0.23)	**0.00 (0.00)**	**0.00 (0.00)**
Aggressive driving	1.00 (0.00)	1.00 (0.00)	1.00 (0.00)	1.10 (0.32)
Dangerous driving	1.00 (0.00)	1.14 (0.48)	1.20 (0.45)	1.37 (0.77)
Drug driving	1.00 (0.00)	1.00 (0.00)	**0.00 (0.00)**	1.00 (0.00)
Driving uninsured	-	-	1.00 (0.00)	1.27 (0.80)
Failure to display plates	-	-	1.00 (0.00)	1.03 (0.16)
Smoking in vehicle *w* minors	-	-	0.00 (0.00)	1.00 (0.00)
COVID related	-	-	0.00 (0.00)	1.00 (0.00)

Traffic Crashes

TMR provided crash data extracted from the Queensland Road Crash Database for all BTC program participants who consented to participate and matched controls. In Queensland, drivers are required to report all crashes to the police that “is a crash reported to the Queensland Police Service (QPS) which resulted from the movement of at least one road vehicle on a public road or road related area and resulted in a person being killed or injured” (Department of Transport and Main Roads, 2018, p. 1). These crashes are recorded in the Queensland Crash Database since 1986.

Included in the information provided for each crash was:

- the age, gender, licence and at-fault status for all controllers of motorised vehicles (including cars, car derivatives, trucks, buses, motorcycles and tractors) involved in the crash; and
- details of the circumstances of the crash including the day, time, location, prevailing road traffic conditions, and type of vehicles involved.

Crashes are categorised according to severity. In Queensland, a crash is classified as a 'fatal' if it results in the death of a person within 30 days from injuries sustained in the crash. A hospitalised crash is one that results in the most severely injured person being taken to hospital as reported by police. A medical treatment crash is when the most severely injured person receives medical treatment but is not taken to hospital and a minor injury crash is when the most severely injured person is injured but not treated (Department of Transport and Main Roads, 2014, 2018).

In total, the crash data extraction for BTC program participants and the matched controls revealed 41 crashes, of which three BTC program participants incurred four crashes (one program participant had two crashes). The majority of these four crashes were multivehicle and occurred under clear conditions. All these crashes occurred when the intended action was to go straight ahead and while most crashes required hospitalisation, none were fatal. Regarding the remaining 37 crashes, 16 were incurred by the control group and 21 were not able to be associated with a CRN (but given CRNs were required of all BTC program participants for TMR to perform the data extraction, these were considered non-BTC program participants). Of the total 41 crashes, 24 crashes involved a car/wagon and 12 involved a utility/panel van. One fatal crash occurred. Crash characteristics are provided in Table 7. Please note that participants with unidentified CRNs have been categorised into the control group in Table 7.

Compared with the matched control participants, BTC participants had no fatal crashes, fewer crashes required medical treatment, although they had more crashes which had required hospitalisation. Fewer crashes occurred in clear weather or raining conditions or during the day compared with the control participants. BTC participants had fewer multi-vehicle crashes, and none involved hitting a pedestrian. No BTC participants had crashes involving a rear-end, overturned, sideswipe, fall from a vehicle or hit a parked car. Results indicated that, while not significantly different, a smaller percentage of BTC participants (relative to the control group participants) were deemed to have been at fault in the analysed crashes.

As seen in Table 8, when compared with the results from the previous evaluation by Smyth and Sheehan (2016), a smaller percentage of BTC participants in this current study had minor injuries as a result of a crash. There were also fewer crashes in rain, in daylight and under darkness (lighted) (where none of these factors were recorded in the crashes reported for the current study's BTC participants). A smaller percentage of BTC participants in this study had crashes on a weekday, hit pedestrians (where none were recorded) or were involved in multi-vehicle crashes than in the 2016 evaluation. Additionally, BTC participants in this current study had a smaller percentage of angled or rear-end crashes and a smaller percentage were at fault for the crash, compared to the sample from the previous evaluation.

Table 7: Characteristics of BTC participant crashes and control group crashes between 2018 and 2023.

Characteristic	BTC participant crashes (n = 4)	Control group crashes. (n = 37)
Severity		
Fatal	-	1 (2.7%)
Hospitalisation	3 (75%)	14 (37.8%)
Medical treatment	-	16 (43.2%)
Minor injury	1 (25%)	6 (16.2%)
Atmospheric condition		
Clear	3 (75%)	32 (86.5%)
Rain	-	3 (5.4%)
Fog	1 (25%)	2 (8.1)
Lighting condition		
Daylight	2 (50%)	22 (59.5%)
Dawn / dusk	-	-
Darkness – lighted	-	12 (32.4%)
Darkness – not lighted	2 (50%)	3 (8.1%)
Day of week		
Weekday	2 (50%)	29 (79.4%)
Weekend	2 (50%)	8 (21.6%)
Crash type		
Single-vehicle	1 (25%)	4 (10.8%)
Multi-vehicle	3 (75%)	31 (83.8%)
Hit pedestrian	-	2 (5.4%)
Crash Nature		
Angle	1 (25%)	7 (18.9%)
Rear-end	-	20 (54.1%)
Head-on	1 (25%)	3 (8.1%)
Sideswipe	1 (25%)	1 (2.7%)
Hit object	1 (25%)	2 (5.4%)
Hit parked vehicle	-	2 (5.4%)
Hit pedestrian	-	2 (5.4%)
Intended action		
Cross carriageway	-	1 (2.7%)
Go straight ahead	4 (100%)	24 (64.9%)
Make right turn	-	2 (5.4%)
Enter roadway	-	2 (5.4%)
Stay stopped	-	5 (13.5%)
Unknown	-	2 (5.4%)
At-fault		
Not at fault	2 (50%)	17 (45.9%)
At fault	2 (50%)	20 (54.1%)

Table 8: Comparing the characteristics of BTC participant crashes and control group crashes in the 2016 and 2025 evaluations. Bold font denotes a decrease between evaluation periods.

Characteristic	2016 Evaluation		2025 Evaluation	
	BTC participants (*n* = 7)	Controls (*n* = 37)	BTC participants (*n* = 4)	Controls (*n* = 37)
Severity				
Fatal	0.00 (0%)	0.00 (0%)	0.00 (0%)	1 (2.7%)
Hospitalisation	5 (71.4%)	27 (73%)	3 (75%)	**14 (37.8%)**
Medical Treatment	0.00 (0%)	5 (13.5%)	(0%)	16 (43.2%)
Minor Injury	2 (28.6%)	5 (13.5%)	**1 (25%)**	6 (16.2%)
Atmospheric condition				
Clear	5 (71.4%)	29 (78.4%)	3 (75%)	32 (86.5%)
Rain	1 (14.3%)	8 (21.6%)	**(0%)**	**3 (5.4%)**
Fog	1 (14.3%)	(0%)	1 (25%)	2 (8.1)
Lighting condition				
Daylight	5 (71.4%)	25 (67.6%)	**2 (50%)**	**22 (59.5%)**
Dawn/dusk	(0%)	2 (5.4%)	0 (0%)	**0 (0%)**
Darkness - lighted	2 (28.6%)	7 (18.9%)	**0 (0%)**	12 (32.4%)
Darkness - not lighted	(0%)	3 (8.1%)	2 (50%)	3 (8.1%)
Day of week				
Weekday	4 (57.1%)	27 (73%)	**2 (50%)**	29 (79.4%)
Weekend	3 (42.9%)	10 (27%)	2 (50%)	**8 (21.6%)**
Crash type				
Single-vehicle	(0%)	12 (32.4%)	1 (25%)	**4 (10.8%)**
Multi-Vehicle	6 (85.7%)	25 (67.6%)	**3 (75%)**	31 (83.8%)
Hit pedestrian	1 (14.3%)	(0%)	**(0%)**	2 (5.4%)
Crash nature				
Angle	4 (57.1%)	11 (29.7%)	**1 (25%)**	**7 (18.9%)**
Rear-end	2 (28.6%)	10 (27%)	**0 (0%)**	20 (54.1%)
Head-on	0.00 (0%)	2 (5.4%)	1 (25%)	3 (8.1%)
Sideswipe	0.00 (0%)	2 (5.4%)	1 (25%)	**1 (2.7%)**
Overturned	0.00 (0%)	1 (2.7%)	0 (0%)	**0.00 (0%)**
Fall from Vehicle	0.00 (0%)	1 (2.7%)	0 (0%)	**0.00 (0%)**
Hit object	0.00 (0%)	8 (21.6%)	1 (25%)	**2 (5.4%)**
Hit parked vehicle	0.00 (0%)	2 (5.4%)	0 (0%)	2 (5.4%)
Hit pedestrian	1 (14.3%)	0 (0%)	**0 (0%)**	2 (5.4%)
At-fault				
Not at fault	3 (42.9%)	12 (32.4%)	2 (50%)	17 (45.9%)
At fault	4 (57.1%)	25 (67.6%)	**2 (50%)**	**20 (54.1%)**

Conclusions

This research provided a follow-up evaluation of the Braking the Cycle (BTC) learner driver mentor program, building on the earlier study conducted by Smyth and Sheehan (2016) nine years ago. This current evaluation invited participation from BTC program participants from the program's inception in 2012 and thus the data examined were based on a relatively longer period than the initial evaluation was able to do (having been conducted only a few years following the BTC's commencement).

In the current study, the analysis of BTC program participants' traffic history data revealed that significantly fewer BTC participants had incurred traffic offences of any type, compared with a matched control group. Specifically, comparison of each group's average number of offences showed that BTC program participants incurred significantly fewer offences overall than matched controls. In several cases statistical analysis could not be conducted on the specific offence types as the number of BTC participants found to be committing that offence was zero. Given there was insufficient data for analysis in some cases, this may be considered an encouraging outcome as it indicates no BTC participants in the current evaluation were found to be committing offences such as driving unaccompanied, drink or drug driving, smoking with minors in the vehicle or breaking COVID related restrictions.

An examination of crash data revealed that BTC participants had fewer crashes overall when compared to matched controls. BTC participants were also found to be at fault in these crashes only 50% of the time compared to over 54% of matched controls. The results of the crash data analysis demonstrate that BTC participants are less likely to be involved in a crash than their matched control counterparts.

Encouragingly, the current BTC participants demonstrated notable improvements in several key areas compared to the results reported by Smyth and Sheehan (2016). While not statistically significant, reductions were observed in unaccompanied and unlicensed driving, failure to stop, seatbelt and helmet non-use and instances of drink, drug, and distracted driving. Notably, a decreased percentage of BTC participants were found to be at fault in crashes compared to the previous evaluation report. However, the results indicate that speeding offences have increased across both BTC and control participants in the current evaluation (relative to the 2016 findings), particularly for infringements for speeds less than 11 km/h (1 demerit point). Mobile phone use has increased within the BTC participants of the current study; this may reflect improved detection capabilities, such as the introduction of camera-based monitoring, rather than a genuine rise in the behaviour (Australian Government, 2023). Given that seatbelt non-use amongst BTC participants has decreased since the 2016 evaluation, while detection methods have improved, potentially this reduction could be considered encouraging. In future evaluations it will be valuable to monitor trends in the newly included categories, such as appropriate plate display and smoking with minors in the vehicle.

With respect to crashes, the BTC participants within the current study recorded a higher percentage of crashes requiring hospitalisation compared to those BTC participants in Smyth and Sheehan's (2016) study. Perhaps important to note though is that only one of these crashes was deemed to be the fault of the BTC participant in the current study, which occurred at night when the driver collided with an object. This highlights the ongoing challenges associated with driving in low-light conditions, where reduced visual information can significantly impair hazard perception and reaction time (Wood et al., 2024). These findings suggest a need for increased emphasis on preparing drivers for night-

time driving, potentially through targeted education or training interventions aimed at improving safety in low-visibility environments.

The findings of this evaluation are particularly compelling given the socio-economic disadvantage often experienced by many BTC program participants, including limited educational opportunities and a lack of positive role models. Previous research has linked such disadvantage to a higher prevalence of antisocial and high-risk driving behaviours (Atombo et al., 2017; Machado-León et al., 2016), which underscores the significance of the BTC program's positive impact. That participants with such backgrounds demonstrated fewer traffic infringements and crashes highlights the program's effectiveness in promoting safer road behaviours among a higher-risk cohort.

There are, however, inherent limitations in this study that need to be acknowledged. While every effort was made to recruit a large number of BTC participants, many did not respond to the request to participate. Difficulties reaching participants over time (extending over 13 years since the BTC program's inception) likely contributed as well as some technical difficulties encountered when participants attempted to give consent using an electronic version of TMR's F4444 proforma.

Due to the relatively small sample size, it is possible that the findings may not be representative of all BTC participants. Additionally, in this study a relatively smaller percentage of males than females participated. Given that evidence shows that males are at heightened risk of engaging in risky behaviour and being involved in road trauma, it is important that future studies look to recruit more males and, in particular, aim to recruit similar numbers of males and females to examine program effects and traffic histories across genders. Finally, the traffic offences and crash data may be subject to recording error and limitations, which may impact results. It should also be noted that the traffic crashes used in analysis in this study only include those reported to police. While this is likely to include all injury crashes that result in a third-party injury claim (as a police report is required), it is possible that the overall crash involvement is under-estimated.

In conclusion, the study limitations notwithstanding, the results of this evaluation study provide evidence of there being positive effects of the BTC Learner Driver Mentor program. This is evidenced by the significant reductions, on average, of BTC program participants relative to matched controls in traffic offences of any type. BTC participants were also less likely to be involved in a crash relative to a matched control sample of drivers who had not participated in the BTC program. And, when involved in a crash, BTC participants were less likely than control participants to be deemed at fault.

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