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Impacts of Northern Territory banned drinker register on police recorded youth assault

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Abstract

Introduction: In September 2017 the Northern Territory Government of Australia introduced a banned drinker register (BDR) to mitigate the high levels of alcohol-related harm within the Northern Territory. The current study aimed to examine the impact of the Northern Territory BDR on youth (aged <18 years) using police recorded assault data.

Methods: Interrupted time-series models were used to assess monthly trends in assaults and alcohol-related assaults perpetration and victimisation in the regions of Greater Darwin, Alice Springs and Katherine between January 2014 and December 2019.

Results: Examining the three regions combined, after the re-introduction of the BDR a significant step decrease in police recorded youth assault perpetration ($\beta = -1.67$) and a significant step increase in police recorded youth assault victimisation ($\beta = 1.40$) was identified. However, no significant effects were identified at the individual region level.

Discussion and Conclusions: Findings suggest that restricting alcohol consumption in high-risk adults through the BDR had a limited immediate effect in police recorded youth assaults. Individual level or contextual factors may have influenced both immediate and long-term impacts of the BDR, and as such, future policy design needs to support and empower community leaders across the policy development and implementation process. A wider evaluation of the BDR currently underway may provide additional understanding behind the mechanisms that underpin alcohol-related harm in the Northern Territory.

KEYWORDS
alcohol, children, adolescents, assault, banned drinker register

Key Points

- Alcohol supply reduction policy may be a novel method to reduce youth experiences of assault.
- After the re-introduction of the banned drinker register, there was a moderate step decrease in police-recorded assault perpetration and

moderate step increase in police-recorded assault victimisation, with no long-term trends evident.
- Due to the complex nature of assault experiences in the Northern Territory, future policy design needs to support and empower community leaders across the policy development and implementation process.

1 | INTRODUCTION

Alcohol-related harms are not only damaging to the individual consumer [1], but the secondary harms are felt across the wider community. The risk of experiencing motor vehicle crashes, assault, intimate partner violence and child maltreatment are all increased as result of other's alcohol consumption [2–4]. Children and adolescents commonly experience these secondary harms as they are unable to remove themselves from potentially unsafe situations or are left unsupervised for extended periods of time [3, 4]. In an attempt to mitigate these alcohol-related harms, state or national alcohol policies are devised with the primary aim of reducing harms through reducing alcohol availability [5]. When alcohol policies are implemented, their impact on alcohol-related harms in adults [6] or underage drinking [7] is well documented, however, much less is understood about the secondary impacts of these policies on children and adolescents. Despite a well-established relationship between effective alcohol supply reduction policy implementation (e.g., trading hour restrictions) and reductions in adult assaults [6], this same association has rarely been examined in children and adolescents [8].

Witnessing or physically experiencing assault victimisation can have long-term impacts on a child, including increased risk of mental health issues, suicidality and a predisposition to future assault perpetration [9, 10]. Across Australia, the rates of child assault victimisation have remained relatively stable, with annual assault rates in the Northern Territory (NT) the highest per population level of all Australian jurisdictions, at approximately 500 youth victims per 10,000 population [11]. Further, these harms are disproportionally experienced by Aboriginal and Torres Strait Islander children and adolescents who experience increased rates of assault victimisation, domestic and family violence and alcohol-related harm [12]. There are a multitude of intergenerational factors, including the continued impact of colonisation, dispossession and institutional discrimination that are causally related to these outcomes [13]. Additionally, high levels of alcohol consumption appear to be interconnected with these outcomes. While there is an established risk between alcohol consumption and experiencing assault in adult populations, the relationship between underage assault and alcohol policy implementation has rarely been examined [8]. Laslett et al. [14] found no long-term impact on child mortality from assault after the Australian implementation of the minimum legal drinking age of 18-years in 1974, however, similar evaluations have yet to be conducted on other Australian alcohol policies.

Limited research indicates that policies that specifically target underage alcohol access may be related to a reduction in harm, however, it is unclear whether policies targeting more general alcohol access are effective in reducing harm in this age group [15, 16]. As alcohol consumption by those primarily responsible for child wellbeing has been linked to many secondary harms [3, 4] restricting alcohol consumption to this group may result in a distal impact on these secondary harms. Harm to a child is usually the accumulation of a range of factors that result in parental or carers either intentionally or unintentionally harming the child. By reducing life stressors or additional risk factors, such as caregiver access to alcohol, policy targeted at adults may decrease the likelihood of those underage individuals experiencing harm. Although this distal effect does not appear to be evident in the limited literature examining underage assaults, the literature that has examined this relationship has primarily assessed changes in underage assaults through weekend hospital admission data [15, 16]. Although the use of hospital data captures a proportion of assaults that may be missing from police data [17], it does not allow an accurate distinction between perpetrators and victims of assault. Studying the distinct trends in assault victimisation is important to understand whether interventions can mitigate the harms children experience, reduce health care system burden, as well as examine wider community behaviour change. However, there is also a need to understand underage perpetration trends and whether they are susceptible to change, as these offences may be associated with a wider cycle of violence [18].

The re-implementation of the Banned Drinker Register (BDR) in the NT offers a unique opportunity to assess the secondary impact of alcohol policy on child and adolescent assault victimisation and perpetration. The NT has the highest rate of alcohol consumption and alcohol-related deaths in Australia, and in response, has implemented a wide variety of both community and Territory wide alcohol policies [19, 20]. The NT government passed the *Alcohol Harm Reduction Act* [21] with the aim of addressing the high level of alcohol-related harm across the

NT. This Act led to the re-introduction of the BDR in September 2017, which was previously implemented in 2011 and subsequently removed in 2012 by the succeeding government [22].

The BDR is a Territory wide register that prohibits adults who are listed on it from possessing or consuming any alcohol as well as from purchasing take-away alcohol in the NT. Adults with harmful levels of drinking, identified by themselves, health professionals, friends, family or the judicial processes are listed on the register for a period of 3, 6 or 12 months [22]. The register is linked to mandatory ID scanners that are placed within every take-away bottle-shop across the NT, with the purpose of preventing individuals on the register from purchasing and consuming alcohol. This policy was the precursor to additional NT legislation that led to setting a minimum unit price for alcohol of $1.30 per standard drink in October 2018 [23]. Additionally, in the regions of Alice Springs, Katherine and Tennant Creek, the legislation changed the previous point-of-sale interventions to Police Auxiliary Liquor Inspectors, which stations specialised police officers in and around bottle shops to ensure customers, or those they are buying for, are allowed to possess and consume alcohol and issue alcohol-related infringement notices if needed.

The current study aims to utilise this natural experiment to assess whether the re-implementation of the BDR impacted rates of assault perpetration and victimisation in NT youth. We hypothesise that after the re-introduction of the BDR there will be a (1) reduction in police recorded assault perpetration and a reduction in police recorded assault victimisation for those under the age of 18 years. Additionally, we hypothesise there will also be a (2) reduction in police recorded alcohol-related assault perpetration and victimisation for those under the age of 18 years.

2 | METHOD

2.1 | Data

The current study utilises NT police assault perpetration and victimisation data from the regions of Greater Darwin (inclusive of Palmerston and Litchfield), Alice Springs and Katherine. The NT has historically implemented a variety of local legislative policies across the Territory (i.e., Police Auxiliary Liquor Inspectors not in Darwin) [20] and so these regions have been chosen to avoid legislative confounds in other areas, while still capturing a large proportion of the NT population. The selected regions equate to approximately 75% of the NT youth population [24]. To mitigate the impact of the previously implemented BDR (2011–2012), and to avoid the potential confounds of the COVID-19 pandemic, the current study utilised data between January 2014 and December 2019. Ethics approval was obtained from Menzies Human Research Ethics Committee, Central Australian Human Research Ethics Committee and Deakin University Human Research Ethics Committee.

In 2019, the age of criminal responsibility in the NT was 10 years of age and as such, assault perpetration data included offences perpetrated by individuals between 10 and 17 years of age. For the assault victimisation dataset, all reported offences with victims under the age of 18 years at the time of incident were analysed. Alcohol involvement is determined by the attending police officer/s at the time of the offence, and is defined as whether the perpetrator, offender, or both parties are under the influence of alcohol at the time of the incident. For assault perpetration data, alcohol involvement or non-involvement was recorded for 100% of incidents, however, alcohol involvement or non-involvement was only recorded in 68% of all assault victimisation incidents.

2.2 | Statistical analysis plan

Monthly counts of perpetration and victimisation were converted to a per 10,000 youth population rate [24] and modelled using interrupted time series analysis with the '*itsa*' command [25] in Stata 17 [26]. Trends in all assaults, and alcohol involved assaults were assessed across all the included regions (Greater Darwin Region, Alice Springs and Katherine) combined and separately. Interrupted time series analysis assesses preintervention trends (Time), postintervention trends irrespective of the preintervention trends, any immediate changes in trends postintervention relative to preintervention trends (Step), and postintervention trends relative to preintervention trends (Slope) and is well suited for evaluating population level interventions [27]. Autocorrelation was assessed via residual plots and the Breusch–Godfrey test for autocorrelation, and if violated, was adjusted for using a Prais–Winsten regression approach. Examination of Akaike information criterion was used to determine appropriate lag for each model. The BDR intervention variable is tested both in terms of a 'step' function (0 prior to the BDR, 1 after) and a 'slope' function (0 prior to the BDR and increasing/decreasing steadily afterwards). To account for the increasing number of individuals registered on the BDR over time, an additional model was run, utilising an intervention point after the number of active BDR recipients had plateaued (0 = January 2014–February 2018; 1 = March 2018–December 2019). Across both models, Police Auxiliary

TABLE 1 Interrupted time series models of Northern Territory assault perpetration.

Region	September 2017 intervention			March 2018 intervention		
	β coefficient (standard error)	95% CI	*p*-value	β coefficient (standard error)	95% CI	*p*-value
All regions						
Time (slope)	0.02 (0.01)	0.01, 0.05	0.104	0.01 (0.01)	−0.01, 0.04	0.246
BDR (step)	**−1.67 (0.59)**	**−2.86, −0.49**	**0.007****	**−1.73 (0.61)**	**−2.95, −0.51**	**0.006****
Time × BDR (slope)	0.08 (0.06)	−0.03, 0.19	0.174	**0.17 (0.08)**	**0.01, 0.33**	**0.033***
Post intervention trend	0.10 (0.05)	0.01, 0.20	0.058	**0.19 (0.08)**	**0.03, 0.34**	**0.018***
MUP	−0.80 (0.83)	−2.46, 0.85	0.336	−1.23 (0.98)	−3.20, 0.74	0.215
Constant	−0.41 (0.51)	3.70, 5.62	0.950	−0.69 (0.52)	4.10, 5.81	0.450
Greater Darwin						
Time (slope)	0.01 (0.01)	−0.01, 0.03	0.192	0.01 (0.01)	−0.01, 0.03	0.204
BDR (step)	−0.43 (0.35)	−1.13, 0.28	0.231	−0.62 (0.42)	−1.46, 0.21	0.142
Time × BDR (slope)	0.02 (0.04)	−0.05, 0.09	0.590	0.06 (0.04)	−0.03, 0.14	0.184
Post intervention trend	0.03 (0.03)	−0.04, 0.1	0.386	0.07 (0.04)	−0.02, 0.15	0.122
MUP	−0.10 (0.61)	−1.33, 1.13	0.866	−0.27 (0.65)	−1.57, 1.03	0.680
Constant	0.06 (0.34)	1.13, 2.06	0.950	−0.03 (0.39)	1.16, 2.17	0.690
Alice Springs[a]						
Time (slope)	0.01 (0.01)	−0.02, 0.01	0.759	0.00 (0.01)	−0.01, 0.01	0.958
BDR (step)	−0.15 (0.27)	−0.69, 0.38	0.565	−0.32 (0.25)	−0.82, 0.19	0.211
Time × BDR (slope)	0.04 (0.02)	−0.01, 0.08	0.104	**0.07 (0.03)**	**0.02, 0.13**	**0.014***
Post intervention trend	0.03 (0.02)	−0.01, 0.08	0.099	**0.07 (0.03)**	**0.02, 0.13**	**0.011***
MUP and PALIs	−0.51 (0.37)	−1.25, 0.23	0.173	−0.77 (0.39)	−1.55, 0	0.050
Constant	−0.30 (0.48)	0.57, 2.45	0.360	−0.33 (0.47)	0.61, 2.42	0.260

Note: Assessment of residual plots and Breusch-Godfrey test indicated no autocorrelation across all models. All models control for monthly seasonality.
Abbreviations: BDR, banned drinker register; CI, confidence interval; MUP, minimum unit price; PALI, Police Auxiliary Liquor Inspector.
Bold denotes statistical significance at $*p < 0.05$; $**p < 0.01$.
[a]Alice Springs controlled for impact of PALIs and MUP.

Liquor Inspectors (October 2018 in Alice Springs and January 2019 in Katherine) and minimum unit price (October 2018) were included as step function covariates (0 = pre-intervention and 1 = post-intervention) where applicable. All models controlled for seasonal trends through inclusion of categorical month as a covariate (see Tables S1 and S2). Trends over the full study period were controlled for using a time variable. Finally significant coefficients were divided over pre-BDR averages to quantify the magnitude of step or slope changes. The broader analytic approach was outlined in the wider protocol paper [22].

3 | RESULTS

There were excessive monthly zero counts for both outcomes in Katherine and for all alcohol-related assault data series, therefore, robust statistical analysis was unable to be completed within the region of Katherine or when examining alcohol-related assault outcomes.

3.1 | Assault perpetration data

For model 1, when assessing all regions there was a significant step decrease in assault perpetration following the re-implementation of the BDR ($\beta = -1.67$). No significant time or slope effects were found. No significant time, step or slope effects were found when examining the individual regions of Greater Darwin and Alice Springs (see Table 1 and Figure 1). For model 2, when assessing all regions there was a significant step decrease in assault perpetration ($\beta = -1.73$), and significant positive slope ($\beta = 0.17$) and post-intervention trend ($\beta = 0.19$). When examining Alice Springs region there was also a significant slope ($\beta = 0.07$) and post-intervention trend ($\beta = 0.07$).

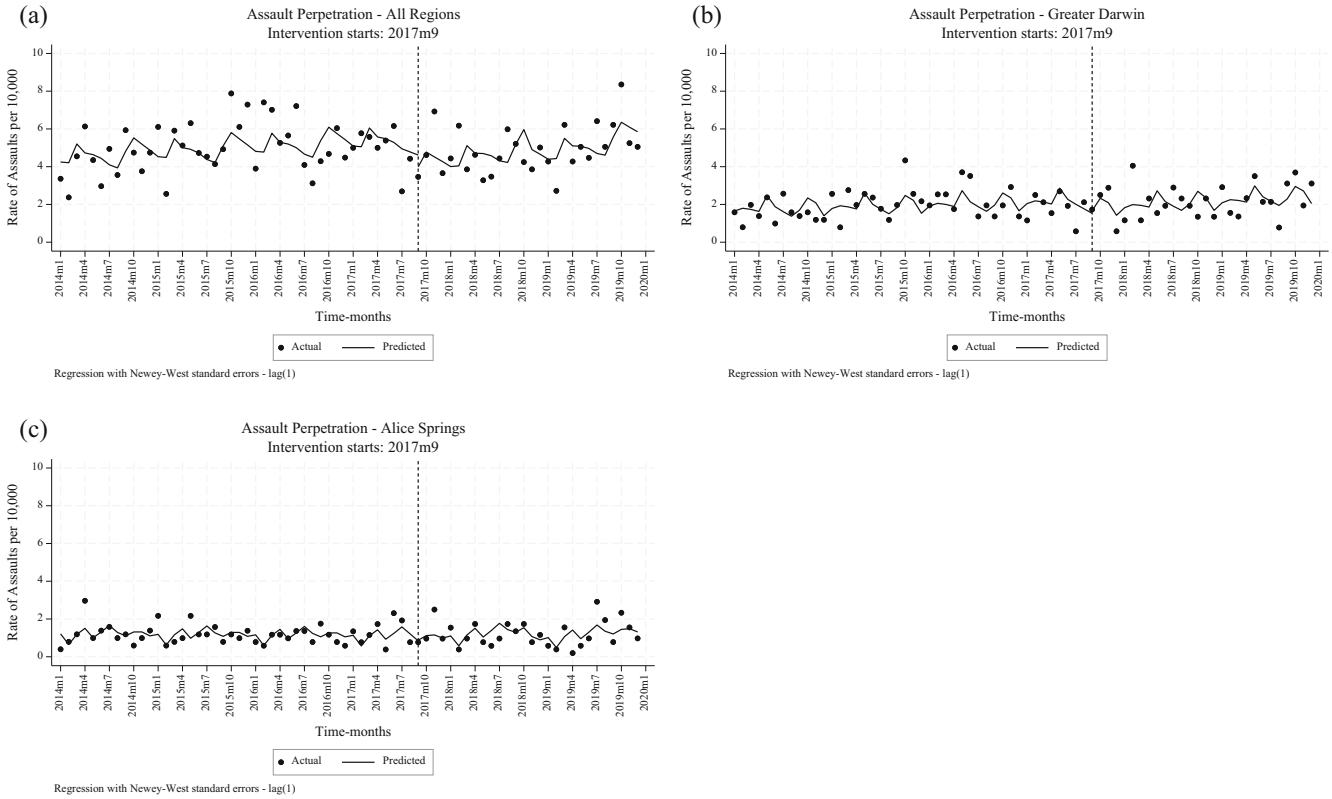

FIGURE 1 Monthly rates of youth assault perpetration in (a) all regions; (b) Greater Darwin region; (c) Alice Springs.

3.2 | Assault victimisation data

For model 1, when assessing all regions there was a significant step increase ($\beta = 1.40$) and significant negative post intervention trend ($\beta = -0.08$) in assault victimisation following the re-implementation of the BDR. No significant time, step, or slope effects were identified in either Greater Darwin, Alice Springs or model 2 (see Table 2 and Figure 2).

4 | DISCUSSION

The current study aimed to assess whether the re-implementation of the BDR impacted the number of assault and alcohol-related assault perpetrations and victimisations in Northern Territory youth. The hypothesis that there would be a reduction in police recorded assault perpetration and a reduction in police recorded assault victimisation was partially supported. The hypothesis that there would be a reduction in police recorded alcohol-related assault perpetration and victimisation was unable to be tested due to excessive zero monthly counts.

When examining the impact of the re-introduction of the BDR on all underage assault perpetration, the current study found a significant step decrease across combined regions, equating to a reduction of approximately 33% assault perpetrations in the month following the re-introduction of the BDR (approximately 1.5 case per 10,000). However, as the magnitude of the effect in relation to the overall counts of assaults is small, and the effect was not identified at the individual region level, this suggests that this targeted intervention did not have the overall effect of altering youth perpetrating behaviour. It should be noted that the final report for the Royal Commission into child and adolescent detention was tabled to the NT Government on 17 November 2017, 2 months following the reintroduction of the BDR. This report made 226 recommendations surrounding child detention and protection practices in the NT. Among many of the in-principle agreements, such as increased funding to youth diversion programs, the NT Chief Minister initially responded to the report highlighting 'a greater emphasis on diversion at the point of police contact' [28]. While it is unclear the extent to which this translated to policing practice, it is possible that this increased attention on policing and youth offending may have influenced policing behaviour and as such, may have influenced rates of police recorded youth assaults. As the current data only includes those who have been charged with an assault, it is possible that the overall significant step decrease

TABLE 2 Interrupted time series models of Northern Territory assault victimisation.

Region	September 2017 intervention			March 2018 intervention		
	β coefficient (standard error)	95% CI	*p*-value	*β* coefficient (standard error)	95% CI	*p*-value
All regions						
Time (slope)	−0.02 (0.02)	−0.05, 0.01	0.263	0.01 (0.01)	−0.03, 0.03	0.957
BDR (step)	**1.40 (0.61)**	**0.18, 2.63**	**0.026***	0.09 (0.48)	−0.87, 1.05	0.855
Time × BDR (slope)	−0.06 (0.04)	−0.14, 0.02	0.129	−0.04 (0.05)	−0.15, 0.06	0.418
Post intervention trend	**−0.08 (0.04)**	**−0.16, −0.01**	**0.042***	−0.04 (0.05)	−0.15, 0.06	0.401
MUP	0.84 (0.59)	−0.35, 2.02	0.163	0.58 (0.65)	−0.73, 1.89	0.382
Constant	−0.42 (0.55)	4.95, 6.96	0.080	−0.31 (0.58)	4.61, 6.70	0.120
Greater Darwin						
Time (slope)	−0.02 (0.01)	−0.04, 0.01	0.190	−0.01 (0.01)	−0.03, 0.01	0.374
BDR (step)	0.74 (0.44)	−0.15, 1.63	0.103	0.37 (0.33)	−0.29, 1.03	0.270
Time × BDR (slope)	−0.02 (0.03)	−0.09, 0.05	0.554	−0.02 (0.05)	−0.12, 0.07	0.612
Post intervention trend	−0.04 (0.03)	−0.10, 0.03	0.279	−0.03 (0.05)	−0.13, 0.06	0.489
MUP	0.60 (0.47)	−0.34, 1.55	0.208	0.52 (0.57)	−0.62, 1.66	0.366
Constant	−0.36 (0.53)	2.76, 4.14	0.120	−0.27 (0.52)	2.63, 3.97	0.110
Alice Springs[a]						
Time (slope)	0.01 (0.01)	−0.01, 0.02	0.711	0.01 (0.01)	0.01, 0.02	0.182
BDR (step)	0.23 (0.37)	−0.50, 0.97	0.532	−0.44 (0.29)	−1.02, 0.15	0.138
Time × BDR (slope)	−0.04 (0.03)	−0.11, 0.02	0.216	−0.01 (0.04)	−0.09, 0.08	0.909
Post intervention trend	−0.04 (0.03)	−0.1, 0.03	0.254	0.01 (0.04)	−0.09, 0.09	0.967
MUP and PALIs	0.20 (0.45)	−0.7, 1.09	0.663	−0.09 (0.54)	−1.17, 0.99	0.866
Constant	−0.30 (0.28)	1.54, 2.50	0.760	−0.32 (0.29)	1.51, 2.47	0.910

Note: Assessment of residual plots and Breusch-Godfrey test indicated no autocorrelation across all models. All models control for monthly seasonality.
Abbreviations: BDR, banned drinker register; CI, confidence interval; MUP, minimum unit price; PALI, Police Auxiliary Liquor Inspector.
Bold denotes statistical signifcance at $*p < 0.05$.
[a]Alice Springs controlled for impact of PALIs and MUP.

was related to fewer official assault charges due to police discretion, rather than changes in youth behaviour.

The relationship between childhood experiences and future offending is influenced by a myriad of personal and environmental factors [29, 30], and as such it is possible that the BDR had limited effect in the individual regions as it did not directly target community specific factors in this at-risk population. While the BDR may have indirectly influenced carer supervision or antisocial behaviour through reducing alcohol consumption, youth perpetrating behaviour is also influenced by enduring factors such as experiences of discrimination, socio-economic status, education and past maltreatment [13, 18, 31]. As such, those underage individuals who may have already been at a higher risk of offending may not have been immediately affected by the BDR, as the underlying risk factors were not immediately impacted.

When examining the impact of the re-introduction of the BDR on all underage assault victimisation, the current study found a significant step increase across all combined regions, equating to an approximate 24% increase (approximately 1.4 cases per 10,000) in police recorded assault victimisation in the month following the re-introduction of the BDR. This increase was followed by a significant post-intervention trend decline (1.4% month to month decline), suggesting the change in victimisation was temporary. However, these trends were not identified at the individual region level, again suggesting community dependent factors may have accounted for the overall effect. Similar to youth perpetration, the factors behind youth victimisation are complex, with caregiver alcohol consumption being just a single factor in a multi-faceted issue [32]. While addressing alcohol consumption may, in theory, reduce the risk of experiencing harm, either directly through reduced consumption, or

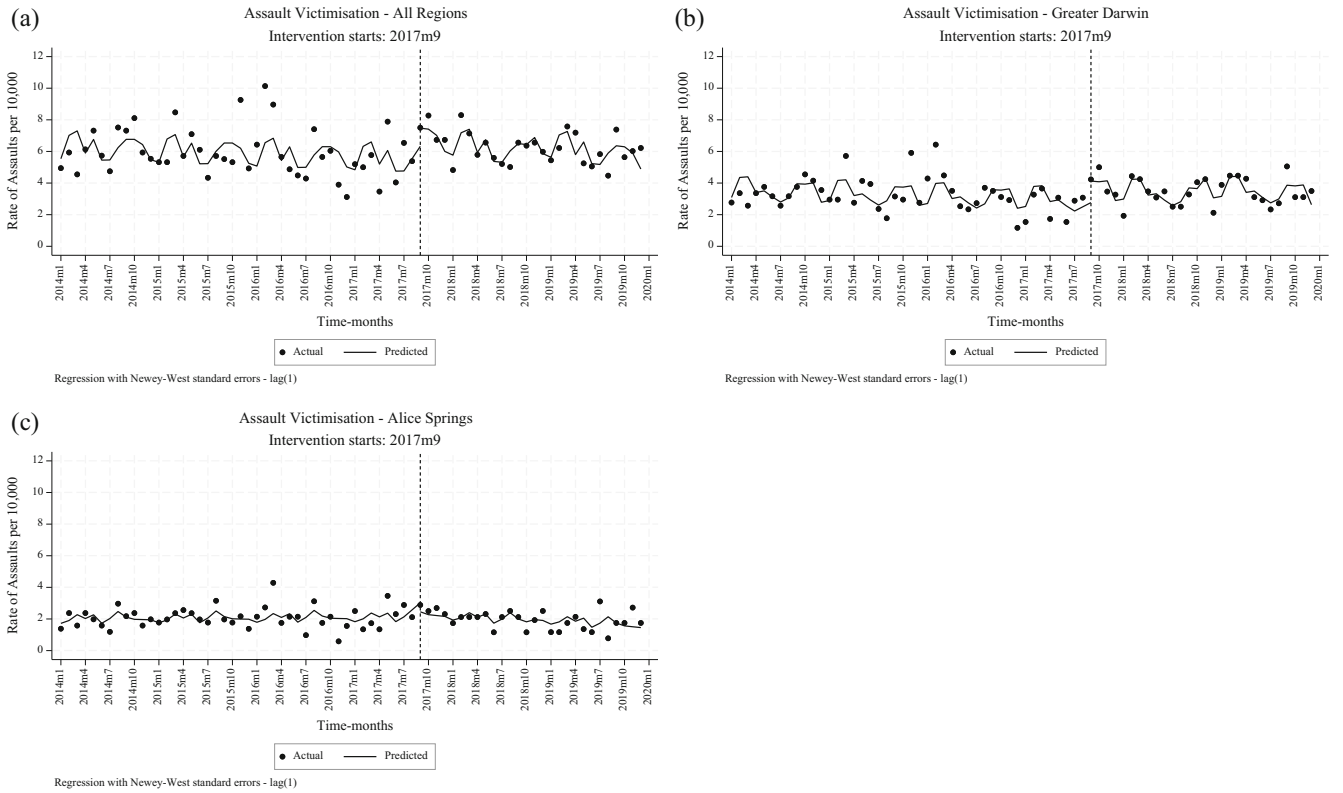

FIGURE 2 Monthly rates of youth assault victimisation (a) all regions; (b) Greater Darwin region; (c) Alice Springs.

indirectly through reduced stress factors, it appears that restricting alcohol access in high-risk adults, did not have immediate distal population effects in police recorded youth assault victimisation. As the BDR directly targets a small proportion of the NT population, it is possible that its re-introduction may have had individual level effects that were unable to be captured using population level data. It is possible that those children or adolescents who had previously experienced harm from those on the BDR may have been impacted differently compared to those who experienced assault from other unrelated avenues, such as a possible decrease in victimisation from reduction in alcohol supply in the home, or a possible increase in victimisation from increased frustration resulting from the BDR. Utilising linked data, future research should assess whether individual changes were in youth victimisation were evident by those placed on the BDR.

While alcohol consumption is a contributing factor to assault perpetration and assault victimisation, based on the current datasets it appears the re-introduction of the BDR had a limited short-term impact on population level youth experiences of police recorded assault. While alcohol involvement was missing in 32% of assault victimisations cases, as no substantial trends were evident across all assault victimisations, it is unlikely that the re-introduction of the BDR impacted alcohol-related assaulted victimisation in children and adolescents. Future policy that aims to mitigate alcohol-related harm needs take a holistic approach to mitigate long-term harm, by ensuring multiple risk factors are simultaneously addressed. Within the NT, approximately 30% of the population identify as Aboriginal and or Torres Strait Islander [24], but are typically overrepresented in assault data [12], and as such, future policy should endeavour to incorporate Aboriginal cultural ideas and ideals to ensure it addresses the needs of all Territorians. The Aboriginal and Torres Strait Islander idea of health and wellbeing is not just focused on individual health, but also community health, kinship relationships; considering cultural, spiritual and ecological wellbeing as integral components of health [33]. As such, policies should ensure Aboriginal and Torres Strait Islanders are a part of the policy development, implementation, evaluation, as well as decision-making processes more generally. As NT regions and communities are culturally and geographically unique, all with their own priorities, future policy needs to recognise this unique perspective and respectfully engage with community leaders, integrating their diverse strengths and ideas throughout the decision-making and design process. Historical child protection policies implemented without this genuine community engagement, such as the assimilation policies

leading to the Stolen Generation, or the 2007 Northern Territory Emergency response, been heavily criticised due contributing to ongoing physical, emotional and psychological harm of those across the NT [13, 34, 35].The core principles of the recent Northern Territory Aboriginal Justice Agreement [36] reiterates this, asserting the importance for Aboriginal and Torres Strait Islanders leaders being a key part policy development, implementation and evaluation as well as decision-making processes more generally. The Agreement highlights how the continued impact of colonisation and ongoing systematic discrimination are related to instances of family violence [36]. Recognising the ongoing impact of this generational trauma, and empowering, supporting, and building respectful relationships with Aboriginal leadership who have a deep understanding of local issues and priorities may help reduce offending [36]. This local approach has resulted in moderate success at reducing alcohol-related harm at the regional or community level [20]. As such, to ensure alcohol policies have their intended effect, governments should continue to work with and support individual communities and leaders to co-design and implement appropriate and effective policies to adequately address alcohol-related harm within the NT.

4.1 | Limitations

The current study only examined changes in offences across three major population areas. Although this method was chosen to avoid additional legislative confounds in smaller or remote communities, these smaller communities have high levels of reported child abuse and assault [11]. Omitting areas with high-risk populations may mean trends presented in the current paper are not applicable to the whole of the NT. Additionally, due to the limited number of incidents each month, the current study examined the impacts of policy on all types of physical assault. While this measure provides an overview of community level behaviour, reporting rates of common assault may be influenced by police discretion or focus [37], as opposed to serious assault which are less susceptible to changes in policing practices [38]. As such any trends within the data may not be entirely reflective of actual assault rates, as they could be influenced by changes in police practice. Future research should attempt to examine assault trends using additional data sources that are less impacted by such practice, for example, emergency department or ambulance attendance data can capture unreported or less serious assaults that may be missed by police [39]. Finally, the use of police data may have underestimated actual rates of assault within the NT due to underreporting of child-related assault. Aboriginal and Torres Strait Islander people within the Territory still experience the effects of the forced removals as a part of the Stolen Generation policy and prolonged history of abuse and oppression of authorities [34]. The impact of these previous policies is still salient, with Aboriginal and Torres Strait Islander children experiencing disproportionately high rates of home removals through the child welfare system [40]. This, coupled with historic abuse, racism and systematic administrative barriers has cultivated a hesitancy for individuals to report child victimisation to police or child protection for fears of child removals or death in custody for the perpetrator [41]. As such the current assault rates should be interpreted as impacts on police recorded youth assault offences, not all youth assault offences.

5 | CONCLUSION

Overall, the re-implementation of the BDR in the Northern Territory appeared to have minimal population level impact on police recorded underage assault perpetration and victimisation within the studied areas. To ensure long-term harm reduction in the NT, future policies need to ensure Aboriginal leadership across the diverse NT communities are appropriately supported and engaged across all parts of the decision-making process. The current study is situated within a wider evaluation of the BDR [22], and through examination of additional data sources, and qualitative methods this research may help better understand the mechanisms behind the harm and assess whether there were reductions in harm at the individual level or across other domains.

AUTHOR CONTRIBUTIONS

Each author certifies that their contribution to this work meets the standards of the International Committee of Medical Journal Editors.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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