Evaluation of an Educational Policing Strategy to Reduce Alcohol-related Crime Associated With Licensed Premises

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ABSTRACT

Objectives: Licensed premises are associated with a considerable level of alcohol-related harm. This study examined the effectiveness of an educational policing strategy, implemented as routine policing practice, to reduce the number of patrons of licensed premises involved in police-recorded incidents of violence, disorder and motor vehicle crashes.

Participants: The educational policing strategy targeted on-licensed premises registered as operating in 2003. The strategy was delivered by police and was overseen by the research team.

Setting: The intervention was conducted in 21 non-metropolitan New South Wales Police Force commands.

Intervention: On the basis of routinely collected and recorded police data, premises received one of three levels of police response on three separate occasions from December 2002 to July 2003. The police responses were letters, incident reports, covert audits and feedback meetings.

Outcomes: The rate of patrons who had last consumed alcohol on licensed premises before being involved in police-recorded incidents decreased from 1.24 per premises in the 4-month baseline period to 1.11 in the 4-month follow-up period (p=0.08). There was a significant reduction, from 7.08 to 5.65 patrons (p=0.03), in such a rate for high-risk premises that received the most intensive police response. High-risk premises also recorded a significant reduction in the rate of intoxicated patrons involved in such incidents, from 5.50 to 4.40 (p=0.05).

Conclusion: The findings suggest a potential benefit of an educational policing strategy in reducing alcohol-related harm associated with licensed premises. Further implementation of this strategy concurrent with rigorous evaluation is warranted.

Key words: Alcohol intoxication; crime; law enforcement; police; harm reduction

La traduction du résumé se trouve à la fin de l’article.


The consumption of alcohol to intoxication is associated with harms such as criminal damage, assaults and motor vehicle crashes.1,2 Given the substantial public health burden, in the form of deaths, injuries and psychological suffering, exacted by such alcohol-related harm,1,2 the implementation of effective interventions to reduce these adverse impacts has been recommended.1

One alcohol consumption context that is amenable to direct intervention is that of licensed premises. Despite the existence of harm-reduction laws regulating licensed premises,3 research suggests that licensee compliance with these laws is poor.3 Possibly as a consequence, licensed premises are associated with a considerable and disproportionate amount of alcohol-related harm. For example, they have been reported to account for up to half of alcohol-related violence and offences for driving after drinking.4,5 Given the association with such levels of harm, it is suggested that further initiatives are required to enhance licensee compliance with liquor harm-reduction regulations.4

A broad range of strategies are available to increase licensee compliance with liquor laws. These include training of staff in the responsible service of alcohol and voluntary codes of conduct.4,6 However, the available evidence suggests that those strategies limiting alcohol availability through server liability laws, sanctioned trading conditions and the active enforcement of legislated service and management practices represent the most effective means of reducing harm associated with this alcohol consumption context.4,6

Policing strategies designed to increase the compliance of licensed premises with liquor licensing legislation commonly draw on the principle of deterrence.9 Examples of deterrence-based policing strategies that target licensed premises include high visibility policing10-13 and warnings of greater enforcement activity on licensed premises.14,15 Such deterrence strategies are intended to propagate a perception that breaches of the liquor legislation are more likely to be detected and that resulting penalties may jeopardize income, profits and/or reputation. This perception is more likely to be achieved when exposure to the deterrence strategy is repeated and ongoing.9

The majority of previous trials of deterrence-based policing strategies in licensed premises have been found to be effective in reducing alcohol-related harms, including driving after drinking, assaults and motor vehicle crashes.10-16 To our knowledge, however, just three such trials were conducted in the past 15 years,12,13,16 a period in which there has been considerable change in the regulation of licensed premises.4 Furthermore, the policing strategies in a num-
ber of previous trials required significant resources for their implementation, including the establishment of specialist units and supplementary staffing costs.\textsuperscript{10,12-15} The potential for such strategies to be adopted and delivered by police on a routine basis, and hence their impact on alcohol-related harm at the community level, may therefore be limited.\textsuperscript{17}

Of the more rigorously evaluated efficacy trials with suggested positive outcomes, the policing strategy described by Wiggers et al. required limited additional resources for its ongoing implementation.\textsuperscript{16} This randomized controlled trial was conducted across seven non-metropolitan police commands in New South Wales (NSW), Australia, between 1996 and 1999 and involved police provision of educational feedback to licensees with the aim of encouraging improvement in their alcohol service and management practices. Experimental group premises were classified as either high or low risk according to the number of people recorded by police in the preceding months to have consumed alcohol on the premises before becoming involved in a criminal incident. Low-risk premises received, on one occasion, a letter detailing increased police surveillance of licensed premises through routine police recording of alcohol-related intelligence. High-risk premises received, on one occasion, a letter (as described), a report of incidents associated with the premises and a covert premises audit and feedback. Overall, there was a 15\% greater reduction in alcohol-related incidents associated with premises that received the policing strategy (p<0.08).

The policing strategy reported by Wiggers and colleagues involved three design elements intended to limit costs to police and to facilitate its adoption into routine practice.\textsuperscript{16} First, low-cost response options in the form of letters and reports to licensees were utilized as the principal mode of deterrence across all licensed premises.

Second, the policing strategy was designed to align with and systematize existing police practices, such as premises visits, walkthroughs and audits. Similarly, as the evidence suggests that the majority of alcohol-related harms associated with licensed premises may be attributed to only a small number of premises,\textsuperscript{18} the higher intensity response that included auditing and feedback was targeted to only those premises associated with the greatest level of harm. This cost-efficient approach was achieved through the application of intelligence-led policing, a method of crime reduction that uses police-collected information to identify and target high-risk sources and preconditions of crime.\textsuperscript{19} Such an approach has been shown to be effective in reducing a range of crimes, including violence and antisocial behaviour.\textsuperscript{19}

Third, the educational nature of the policing strategy reminded licensees of their legal obligations and, in a manner that required fewer resources than more punitive policing approaches, provided guidance to help them comply.\textsuperscript{20} Accordingly, the deterrence strategy was designed to be delivered to a greater number of premises, thereby maximizing its reach and effect across the population of licensed premises. In addition, the use of an educational approach established procedural fairness by providing licensees with an opportunity to rectify alcohol service practices in an environment that was initially free from the threat of sanction.\textsuperscript{20}

As an efficacy study, the trial reported by Wiggers and colleagues was conducted under the most favourable conditions in which to determine a causal association between the policing strategy and reduction of alcohol-related harms. However, the effectiveness of this policing strategy when implemented as part of routine practice by police remains unknown. In view of this, an evaluation study was undertaken to determine the potential effectiveness of the educational strategy when implemented as routine policing practice to reduce the number of patrons of licensed premises involved in police-recorded incidents of violence, disorder or motor vehicle crashes.

**PARTICIPANTS**

Licensed premises in the study were all those holding liquor on-licenses in the categories of hotelier, registered club, nightclub/motel, beer/wine bar, university and casino, and registered as operating within the study area in 2003. Other on-license premises, such as restaurants and establishments limited to a maximum number of licensed functions per year, were excluded from the study as such premises are considerably less likely to be associated with alcohol-related harm.\textsuperscript{18}

Everyone involved in police-recorded incidents of violence, disorder or motor vehicle crashes during a 4-month baseline period and the corresponding follow-up period 1 year later constituted the study sample.

**DESIGN AND SETTING**

A “pre-post” study was conducted in 21 non-metropolitan police commands in the state of NSW, Australia.

The study area (Figure 1), incorporating regional cities, towns, and rural and remote areas, had an approximate population of 1.3 million people (representing 20.1\% of the state population).\textsuperscript{21} The area was serviced by approximately 2,400 police officers.

Ethics approval for this trial was granted by the Human Research Ethics Committee, University of Newcastle, Australia.

**INTERVENTION**

The educational policing strategy was implemented from December 2002 to July 2003. During this period, three rounds of the strategy were delivered.

Licensing and crime intelligence staff in each command were trained by the research team to deliver the strategy. As this was an
Table 1. Criteria and Level of Police Response for Each Round of the Policing Strategy

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Level of Police Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round 1: December 2002 to March 2003</td>
<td></td>
</tr>
<tr>
<td>Level 1 Premises not cited by any person involved in a police-recorded incident in the 6 months May 2002-October 2002</td>
<td>Letter detailing licensee legal obligations under the NSW Liquor Laws and advising of the ongoing nature of the surveillance system</td>
</tr>
<tr>
<td>Level 2 Premises cited by at least one person involved in an incident in the preceding 6 months</td>
<td>Letter, and an incident report detailing the date, time, offence, type of involvement, sex, age and level of intoxication of each person who had last consumed alcohol on the premises prior to involvement in an incident</td>
</tr>
<tr>
<td>Level 3 Premises cited by at least one intoxicated person involved in an incident in each of 5 of the 6 months</td>
<td>Letter, incident report and a police-conducted covert audit of the premises and alcohol service practices, followed by a feedback meeting with police*</td>
</tr>
</tbody>
</table>

Round 2: February 2003
- Level 1 Premises not cited by any person involved in an incident in the preceding 2 months (December 2002-January 2003)
- Level 2 Premises cited by at least one person involved in an incident in the preceding 2 months
- Level 3 Not operationalized in Round 2

Round 3: April to July 2003
- Level 1 Premises not cited by any person involved in an incident in the preceding 4 months (December 2002-March 2003)
- Level 2 Premises cited by at least one person involved in an incident in the preceding 4 months
- Level 3 Premises that received a Level 3 response in Round 1 and those cited by at least 12 intoxicated persons involved in an incident in the 4 preceding months (with at least one intoxicated person citing the premises in each of these 4 months)

* Officers were instructed to proceed with standard liquor licensing enforcement while conducting the covert audit. Accordingly, any serious breaches of the Liquor Act detected during the audit were to be considered for legal sanction.
errors were fitted. Similarly, because of a lack of fit for each of these models, negative binomial models were fitted. Generalized estimating equations (GEE) were used to account for the correlation of paired premises (baseline and follow-up) and to provide population averaged estimates. The standard errors in the regression models were adjusted (baseline and follow-up) and to provide population averaged estimates. The standard errors in the regression models were adjusted to take account of the over-dispersion of the data. Results are reported as rate ratios with 95% confidence intervals.

Additional Poisson regression analyses were undertaken to determine whether the average rates per premises of patron involvement in incidents differed between baseline and follow-up for those premises that received at least one Level 2 response (but not a Level 3 response), and premises that received at least one Level 3 response. Similarly, because of a lack of fit for each of these models, negative binomial models with GEE and adjusted standard errors were fitted.

**Table 2. Number and Percentage (%) of People Involved in Police-recorded Incidents**

<table>
<thead>
<tr>
<th>Level of Police Response</th>
<th>Letters</th>
<th>Incident Reports</th>
<th>Covert Audits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All premises (N=1413)</td>
<td>1413 (100%)</td>
<td>951 (100%)</td>
<td>116 (96%)</td>
</tr>
<tr>
<td>Level 1 (n=462)</td>
<td>462 (100%)</td>
<td>830 (100%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Level 2 (n=830)</td>
<td>830 (100%)</td>
<td>121 (100%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Level 3 (n=121)</td>
<td>121 (100%)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Table 3. Number of Licensed Premises Eligible (and Percentage Receiving) Designated Police Response During the Three Rounds of the Policing Strategy**

<table>
<thead>
<tr>
<th>Level of Police Response</th>
<th>Letters</th>
<th>Incident Reports</th>
<th>Covert Audits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All premises (N=1413)</td>
<td>1413 (100%)</td>
<td>834 (100%)</td>
<td>84 (63%)</td>
</tr>
<tr>
<td>Level 1 (n=579)</td>
<td>579 (100%)</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Level 2 (n=701)</td>
<td>701 (100%)</td>
<td>701 (100%)</td>
<td>n/a</td>
</tr>
<tr>
<td>Level 3 (n=133)</td>
<td>133 (100%)</td>
<td>133 (100%)</td>
<td>84 (63%)</td>
</tr>
</tbody>
</table>

**DATA EXCLUSION**

Cited licensed premises that could not be verified against the list of registered licensed premises were removed from the data. Duplicate records of individuals for any one offence category within an event were removed.

**ANALYSES**

To determine the delivery of policing strategies, the number and proportion of police responses that were delivered during the study period were calculated.

The rate per premises of all people recorded to have been involved in one of the three offence categories following their consumption of alcohol at licensed premises was calculated for the baseline and follow-up periods. Such rates were also calculated for people who were recorded as being intoxicated.

Poisson regression analysis was undertaken to determine whether the average rates per premises of patrons who had consumed alcohol prior to being involved in an incident, and such rates for intoxicated patrons, were different at follow-up than at baseline. As over-dispersion resulted in a lack of fit for each of the models, negative binomial models were fitted. Generalized estimating equations (GEE) were used to account for the correlation of paired premises (baseline and follow-up) and to provide population averaged estimates. The standard errors in the regression models were adjusted to take account of the over-dispersion of the data. Results are reported as rate ratios with 95% confidence intervals.

Additional Poisson regression analyses were undertaken to determine whether the above rates per premises of patron involvement in incidents differed between baseline and follow-up for those premises that received at least one Level 2 response (but not a Level 3 response), and premises that received at least one Level 3 response. Similarly, because of a lack of fit for each of these models, negative binomial models with GEE and adjusted standard errors were fitted.

Modeling was not undertaken for those premises that received only a Level 1 response because of the limited variability in the data.

**OUTCOMES**

The sample of 1,413 licensed premises consisted of 839 hotels (59.4%), 550 registered clubs (38.9%), 10 nightclubs or nightclub/motels (0.7%), 8 beer/wine bars (0.6%) and 6 university premises (0.4%).

The number and percentage of people who last consumed alcohol on licensed premises prior to being involved in police-recorded incidents of violence, disorder or motor vehicle crashes, and the number and percentage who were intoxicated are displayed in Table 2.

The number of licensed premises that were eligible for each level of response during the three rounds of the educational policing strategy and the number of actual responses that were delivered are shown in Table 3. Across the three rounds, 331 premises (23.4%) were eligible to receive only Level 1 responses, 949 (67.2%) to receive at least one Level 2 response, and 133 (9.4%) premises to receive at least one Level 3 response. All (100.0%) of Level 1 and Level 2 responses were delivered, and 78.7% of Level 3 responses were delivered.

As informal discussions and presentations by licensing officers to industry groups were deemed to be incidental components of routine policing practice, such interactions were not separately recorded as part of the intervention.

The rate per premises of all people who had consumed alcohol on licensed premises prior to involvement in an incident decreased from baseline to follow-up (p=0.08) (Table 4). There was no difference in such rates between baseline and follow-up for premises that received at least one Level 2 response (p=0.90). However, the rate of people who had consumed alcohol on premises that received at least one Level 3 response significantly decreased (p=0.03).
The decrease in the rate per premises of all intoxicated patrons who had consumed alcohol on licensed premises prior to involvement in an incident was not significant (p=0.11) (Table 4). No difference in such rates was found between baseline and follow-up for premises that received at least one Level 2 response (p=0.84). However, the rate for premises that received at least one Level 3 police response significantly decreased (p=0.05).

**DISCUSSION**

The study found a non-significant reduction in the rate at which patrons of all licensed premises were involved in incidents of violence, disorder and motor vehicle crashes following the implementation of the educational policing strategy. Significant reductions were found, however, in the rate at which patrons of high-risk premises were involved in such incidents. Given the absence of a control or comparison group, the attribution of these reductions to the strategy remains qualified. Nonetheless, the results of this study, coupled with those of previous studies, support the potential public health benefits of the educational policing strategy to reduce patron involvement in police-recorded incidents. These findings suggest a need for further implementation and assessment of the effectiveness of the strategy.

The magnitude of the observed reductions in rates of patron involvement in incidents in this study (10% across all premises and 20% among high-risk premises) was comparable to the reductions in harm reported in other deterrence-based studies targeting licensed premises. However, the intervention implemented in this study departed from similar studies as it used systematically recorded criminal intelligence to achieve a deterrence effect. Accordingly, the findings represent a promising and potentially cost-effective additional deterrence-based approach to the policing of licensed premises that may reduce the health burden of excessive alcohol consumption in the community.

The reduction in the rate of patrons of high-risk premises being involved in police-recorded incidents represents, if attributable to the policing strategy and extrapolated to a full year, 532 fewer patrons (399 fewer intoxicated patrons) being involved in violence, disorder and motor vehicle crashes. Nonetheless, in order for the benefits of such an approach to be realized, known barriers to its adoption, such as police attitudes and a lack of organizational capacity, will need to be addressed. The acceptable but less than optimal strategy delivery in this study (79% of audits and feedback delivered) demonstrates the need for such barriers to be addressed through the delivery of additional strategies to change practice, such as training and amendments to the organization’s structure.

An important strength of this study is the evaluation of the intervention conducted under “real world” conditions, one of just two deterrence-based interventions in the literature to our knowledge. Effectiveness trials provide valuable information regarding the feasibility and consistency of intervention delivery. Further, this study has extended the research into interventions with licensed premises in non-metropolitan areas, an under-researched area in the field. Accordingly, the findings add valuable evidence regarding the implementation of alcohol harm-reduction strategies in these areas.

Nonetheless, a number of trial limitations warrant mention. First, there is the possibility that the findings were the result of a regression to the mean effect. While no accepted adjustment for such an effect exists for the data and analyses described in this study, the use of trend rather than threshold criteria for the allocation of premises to the level of police response is considered to have minimized the likelihood of such an effect.

Second, although the use of a non-controlled pre-post study design limits the ability to attribute the study findings directly to the policing strategy, the design was considered appropriate in the context of the specific questions being posed and the study’s aim to evaluate a major policy implementation initiative. In the context of this latter characteristic, the opportunity to collect “last place of alcohol consumption” data in a control or comparison area elsewhere was not available. While the opportunity exists for evaluation of the initiative using proxy data, such as nighttime assaults or motor vehicle crashes, such an approach is itself limited through an inability to link these incidents with specific premises.

Third, the observed reductions in patron involvement rates in police-recorded incidents could simply reflect temporal trends in recorded crime rates. However, the likelihood of the results being attributable to such a cause is considered to be low, as the results of population surveys and agency data suggest that the prevalence of involvement in such incidents during the period remained stable across the state. Furthermore, while changes in the policing of licensed premises in the study area, other than those associated with the study, remains a plausible explanation for the observed findings, no such initiatives were consistently implemented across the 21 police commands involved in this study. In addition, differential reporting of incidents to police remains a possible factor influencing the study findings. The degree of such differential reporting is unknown.

Fourth, “last place of alcohol consumption” data have been collected for a number of decades and provide the benefit of a direct measure of the association between an incident of alcohol-related harm and specific licensed premises. However, the validity of such self-report data is unknown. Furthermore, differential recording of crime, such as differences that might arise with the greater informality of policing in rural areas, has the potential to influence
the study findings. The extent to which the recording of crime differed among areas during the study period is unknown. Notwithstanding these limitations, the consistently high rates of correct recording of these data suggest that recording errors were unlikely to have influenced the study findings. Future evaluation of this and other policing strategies using “last place of alcohol consumption” data as an outcome measure would be strengthened through the use of additional recognized measures of alcohol-related harm that are less subject to policing activity and recording.28

Fifth, the duration of the baseline and follow-up data collection periods was limited and may not have provided a sample with sufficient power to detect statistical differences in the outcome measures. Similarly, the timing of the measurement periods coincided with the seasonal low for police-recorded incidents of violence and disorder,28 which may have also limited the sample of persons involved in incidents following their consumption of alcohol on licensed premises. Both the duration and timing of the measurement periods were constrained by the policy implementation context of the study, a reflection of the limitations inherent in the rigorous evaluation of major public health initiatives.26

Finally, given the profound burden on communities posed by excessive alcohol consumption,1 it has been suggested that a need exists for the implementation of new interventions even in the absence of statistical certainty regarding their effectiveness.4 The implementation of the policing strategy described in this study in such circumstances is further supported by community endorsement of interventions to reduce harm associated with licensed premises20 and the national alcohol policy that recommends an intelligence-led approach to reduce harms associated with licensed premises.1 Nonetheless, for interventions with limited evidence of effectiveness and no evidence that they contribute to harm, further examination is required of their effectiveness, acceptability, cost, consistency and sustainability of effect concurrent with their implementation.

CONCLUSION

The findings in this study suggest that a routinely delivered educational policing strategy may be associated with a reduction in involvement of patrons of licensed premises in police-recorded alcohol-related incidents. Given these findings, the study design employed and the contextual factors described above, further implementation and concurrent rigorous evaluation of the effect appears warranted to confirm the potential to reduce alcohol-related harms associated with licensed premises.

REFERENCES


RÉSUMÉ

Objectifs : Les débits de boissons sont associés à un niveau considérable de méfaits liés à l’alcool. Nous avons examiné l’efficacité d’un stratégie policière éducative, appliquée dans le cadre de contrôles policiers de routine, pour réduire le nombre de clients des débits de boissons impliqués dans des incidents de violence, de désordre et d’accidents d’automobile enregistrés par la police.
Participants : La stratégie policière éducative ciblait les débits de boissons autorisés en activité en 2003. Elle a été exécutée par la police et supervisée par l'équipe de recherche.

Lieu : L'intervention a été menée dans 21 postes de police situés à l'extérieur des régions urbaines en Nouvelle-Galles du Sud.


Résultats : Le taux de clients ayant consommé de l'alcool dans un débit de boissons juste avant d'être impliqués dans un incident enregistré par la police a diminué, passant de 1,24 par débit au cours de la période de référence de quatre mois à 1,11 durant la période de suivi de quatre mois (p=0,08). Il y a eu une baisse significative, de 7,08 à 5,65 clients (p=0,03), dans ce taux pour les débits à risque élevé qui avaient fait l'objet de la mesure policière la plus intensive. Les débits à risque élevé ont aussi connu une baisse significative de leur taux de clients en état d'ébriété impliqués dans de tels incidents, soit de 5,50 à 4,40 (p=0,05).

Conclusion : Ces résultats montrent qu'une stratégie policière éducative pourrait avoir l'avantage de réduire les méfaits liés à l'alcool associés aux débits de boissons. Une mise en œuvre plus poussée de la stratégie, conjointement avec une évaluation rigoureuse, se justifie.

Mots clés : intoxication alcoolique; crime; application de la loi; police; réduction des méfaits