

## Alcohol-related crime in city entertainment precincts: Public perception and experience of alcohol-related crime and support for strategies to reduce such crime

JENNY TINDALL<sup>1,2</sup>, DANIEL GROOMBRIDGE<sup>1,2</sup>, JOHN WIGGERS<sup>1,2,3</sup>, KAREN GILLHAM<sup>1,2</sup>, DARREN PALMER<sup>4</sup>, TARA CLINTON-MCHARG<sup>1,2</sup>, CHRISTOPHE LECATHELINAIS<sup>1,2</sup> & PETER MILLER<sup>5</sup>

<sup>1</sup>Population Health, Hunter New England Local Health District, Newcastle, Australia, <sup>2</sup>Hunter Medical Research Institute, Newcastle, Australia, <sup>3</sup>Schools of Medicine and Public Health, University of Newcastle, Newcastle, Australia, <sup>4</sup>School of Humanities and Social Sciences, Deakin University, Geelong, Australia, and <sup>5</sup>School of Psychology, Deakin University, Geelong, Australia

### Abstract

**Introduction and Aims.** Bars, pubs and taverns in cities are often concentrated in entertainment precincts that are associated with higher rates of alcohol-related crime. This study assessed public perception and experiences of such crime in two city entertainment precincts, and support for alcohol-related crime reduction strategies. **Design and Methods.** A cross-sectional household telephone survey in two Australian regions assessed: perception and experiences of crime; support for crime reduction strategies; and differences in such perceptions and support. **Results.** Six hundred ninety-four people completed the survey (32%). Most agreed that alcohol was a problem in their entertainment precinct (90%) with violence the most common alcohol-related problem reported (97%). Almost all crime reduction strategies were supported by more than 50% of participants, including visitors to the entertainment precincts, with the latter being slightly less likely to support earlier closing and restrictions on premises density. Participants in one region were more likely to support earlier closing and lock-out times. Those at-risk of acute alcohol harm were less likely to support more restrictive policies. **Discussion and Conclusions.** High levels of community concern and support for alcohol harm-reduction strategies, including restrictive strategies, provide policy makers with a basis for implementing evidence-based strategies to reduce such harms in city entertainment precincts. [Tindall J, Groombridge D, Wiggers J, Gillham K, Palmer D, Clinton-McHarg T, Lecathelinais C, Miller P. Alcohol-related crime in city entertainment precincts: Public perception and experience of alcohol-related crime and support for strategies to reduce such crime. *Drug Alcohol Rev* 2016;35:263–272]

**Key words:** Australia, alcohol, violence, harm reduction, attitude.

### Introduction

Globally, alcohol misuse accounts for 4.5% of the total burden of disease and injury [1], with injury accounting for almost 42% of alcohol-related deaths and 37% of alcohol-related disability adjusted life years [1]. Alcohol misuse has a significant economic impact [2], estimated to have cost \$210–665 billion (USD) in 2002 in the USA [3] and \$15.3 billion (AUD) in 2004/5 in Australia [4].

Relative to their contribution to the proportion of all alcohol purchased, licensed premises have been linked with higher rates of alcohol-related harm than other alcohol consumption settings [5]. The occurrence of such harm is unevenly distributed among premises [6–11] with 6–20% reported to account for 60–80% of police-attended incidents. The association of premises with such harms is greatest for those that are hotels or nightclubs [10,12–14]; are late closing (after midnight) [15–17]; have poor alcohol-serving practices [18–20];

Jenny Tindall MSc, Program Manager, Daniel Groombridge MPH, Program Manager, John Wiggers PhD, Director, Karen Gillham MSocSc, Service Director, Darren Palmer PhD, Associate Professor, Tara Clinton-McHarg PhD, Project Officer, Christophe Lecathelinais DESS de Mathématiques Appliquées, Statistician, Peter Miller PhD, Principal Research Fellow. Correspondence to Ms Jenny Tindall, Hunter New England Population Health, Locked Bag 10, Wallsend, NSW 2287, Australia. Tel: +61 02 49246649; Fax: +61 02 49 246215; E-mail: jennifer.tindall@hnehealth.nsw.gov.au

Received 28 May 2014; accepted for publication 18 June 2015.

and are located in an area with a high density of outlets [14,16,17].

Larger towns and cities often have licensed premises with such risk characteristics concentrated in small geographical areas (entertainment precincts). Such precincts play an important part in the economy and the community, contributing to employment, leisure time activities, social interaction opportunities and tourism [21]. In addition to these positive contributions, research has found that entertainment precincts are also associated with an increased risk of alcohol-related harm, an association that has resulted in suggestions that specific strategies are required to address such risks [22]. The most effective strategies for reducing harms associated with licensed premises have been reported to involve: reducing trading hours; limiting the density of outlets; limiting the strength of alcohol sold; increasing alcohol prices; improving the responsible service of alcohol; limiting promotions that encourage excessive consumption; and increasing the enforcement of liquor licensing laws [16,17,23].

In order to be accountable to the public and to inform the selection of appropriate policies, governments require an understanding of strategy effectiveness, public perceptions of need, and attitudes towards possible policy responses [24]. Public support for policies regulating health-related behaviours has been found to be greatest for those policies that: intrude less on individual choice; have already been implemented; or target children or young people. People not directly affected by a policy have been found to be more likely to be supportive of policies that restrict individual choice [24].

High levels of public support have been reported for strategies to reduce such crime such as increased penalties for drink-driving (85.7%) [25], increased regulation of public alcohol consumption (81.1%) [26], preventing sales of alcohol to minors (97%) and removal of liquor licences from premises found to serve alcohol to minors or intoxicated patrons (86%) [27]. Lower levels have been reported for reducing the trading hours of licensed premises (31%) [27], restricting the number of liquor outlets (18%; 34.4%) [25,27] and increasing the price of alcohol (22.7%) [28]. The latter strategies are reported to be the most effective [16,17,23,29] indicating a lack of alignment between effective strategies and public support. Acceptability is reported to be lowest among those residents who are male, younger, consume more alcohol or are patrons of premises [27].

Given the increasing social and economic importance of the night-time economy [30], particularly in city entertainment precincts, coupled with an increasing concern for public safety in such precincts, a study was undertaken to examine:

1. Public perceptions and experiences of crime in two Australian regional city entertainment precincts.
2. Public support for strategies to reduce alcohol-related harm in entertainment precincts generally.
3. Differences between such perceptions, experiences and support based on region of residence, visitor to an entertainment precinct, proximity of residence to an entertainment precinct and alcohol consumption risk.

## Methods

### *Study design and setting*

A cross-sectional household survey was undertaken between March and May 2010 in two Australian regions located in separate states (Geelong, Victoria and Newcastle, New South Wales). In 2006, the adult populations were 167 101 and 375 877 people, respectively [31–37]. Relative to their respective states, both regions had lower median household incomes, higher rates of unemployment and public housing residents, and a higher proportion of people who only spoke English [31–37].

The major city of each region (Geelong and Newcastle) included an entertainment precinct with a concentration of licensed premises. In 2010, the Geelong entertainment precinct had 30 hotels (18 hotels per 100 000 population), 12 of which traded beyond 01:00 h (40%). In 2010, the Newcastle entertainment precinct had 19 hotels (5.1 hotels per 100 000 population), 17 of which traded beyond midnight (89%).

The entertainment precincts of both cities had a history of alcohol-related violence [30], with various harm-reduction strategies being implemented over time. In the Geelong entertainment precinct, as many as 25 voluntary-based strategies had been implemented years [38], including the Geelong Liquor Accord (1991), Safe Taxi Ranks (2005), Night-Time Radio Watch Program (2007), ID scanners (2007) and Victoria Police operations (2007 to 2009).

In the Newcastle entertainment precinct, additional licensing conditions were formally imposed on 14 high-risk licensed premises in the city entertainment precinct in 2008 [39,40]. The conditions included a reduction of trading hours to 03:30 h (from 05:00 h), a 01:30 h lock-out, and additional responsible service of alcohol provisions [39,40]. To support these changed conditions, initiatives to improve late-night public transport and police presence were implemented [30].

Ethics approval for the study was granted from Deakin University Human Research Ethics Committee (project code EC 41–2009).

### Sample

Members of households residing in the same local government area (LGA) as the entertainment precinct in each region, as well as those residing in adjoining LGAs were invited to participate in the study. Telephone numbers and addresses ( $n = 1250$  per region) were randomly selected from local telephone directories using simple random sampling. Mobile phone and business numbers were excluded from the initial sampling frame. Businesses were excluded from the study. The adult who was having the next birthday and could speak English was eligible to participate.

### Data collection procedures

A letter was mailed to the selected addresses inviting the eligible person to participate in a computer-assisted telephone interview regarding their knowledge of alcohol problems, perceptions of crime, awareness of and support for alcohol harm-reduction strategies, and personal alcohol use. The eligible household member was invited to participate in a 25-min survey. A maximum of 10 contact attempts were made per household.

### Measures

**Participant characteristics.** Participants were asked their date of birth (dd/mm/yyyy), sex (male, female) and whether they had visited a licensed premise in their entertainment precinct after 22:00 h in the last year (yes, no). To determine their alcohol consumption lifetime risk of harm, participants were asked how frequently they consumed alcohol (never, monthly or less, two to four times a month, two to three times a week, four to six times a week, everyday) and the number of standard drinks they typically consume (1–2, 3–4, 5–6, 7–9, 10 or more) [41]. To determine their alcohol consumption, acute-risk of harm, participants were asked how often they consumed more than six standard drinks on one occasion (never, less than monthly, monthly, weekly, daily or almost daily) [42].

The distance from the participant's residence to their entertainment precinct was calculated based on geocoding of their residential address and that of the city post office.

**Perception and experience of crime and safety in their entertainment precinct.** Based on existing surveys, participants were asked a series of questions regarding their entertainment precinct:

1. Perception of alcohol misuse as an issue (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) [43,44].

2. Estimation of the proportion of crime that was alcohol-related (%) [43,44].
3. Was alcohol consumed at licensed premises a contributor to crime (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree) [43].
4. Which of seven forms of crime/disorder was a concern (people verbally abused/insulted/intimidated, people assaulted or injured, fighting, noise/disturbance, people begging, vandalism/theft, alcohol consumption in streets/parks, none of the above and don't know) [45].

Visitors to the entertainment precincts after 22:00 h in the past 12 months were asked whether they had witnessed or been involved in a verbal argument or physical assault in the entertainment precinct in that time (yes, no).

**Support for alcohol harm-reduction strategies in city entertainment precincts.** Participants were asked about their level of support for eight evidence-based harm-reduction strategies in entertainment precincts generally [16,17,23] (strongly support, support, neutral, oppose, strongly oppose, do not know enough to say) (Table 3). Participants who indicated support for reduced trading hours and the implementation of 'lock-outs' (curfew restriction on entry to premises) were asked what time in the evening it would be reasonable to implement such strategies (24 h time) [25,46].

### Data analysis

Statistical analyses were conducted using the SAS/STAT System for Windows Release 9.2. (SAS Institute Inc.)

**Participant characteristics.** Participants were categorised as either: '18 to 30 years' and '31 years and over'. Lifetime alcohol consumption risk was categorised as either: 'lifetime risk alcohol consumers' (three or more drinks on a typical day), or 'non-lifetime risk alcohol consumer' (two or less drinks on a typical day) [47]. Short-term risk was categorised as: 'acute risk alcohol consumers' (six or more drinks on one occasion), or 'non-acute-risk alcohol consumers' (non-drinkers and never drank six or more standard drinks) [42].

Participants visiting a licensed premise in their entertainment precinct after 22:00 h, and proximity of residence to the precinct were categorised as: 'night-time visitor' or 'non-night-time visitor', and 'inner city' (within 4 km of city post office) or 'outer city' (greater than 4 km from city post office), respectively.

**Perception and experience of crime and safety in their entertainment precinct.** Perception of alcohol in their entertainment precinct, and perceived contribution of

alcohol consumption on licensed premises to crime were categorised as either 'agree' (strongly agree, agree), 'neither agree nor disagree' or 'disagree' (disagree, strongly disagree). Estimates of the proportion of crime believed to be alcohol-related were categorised as either '0 to 69%' (0–<70) or '70 or more %' (70+) [48]. Responses regarding the types of problems caused by intoxicated people were categorised as: 'violence' (verbal abuse, physical abuse, fighting) and 'non-violence-related problems' (noise/disturbance, begging, vandalism/theft, alcohol consumption in streets/parks).

*Support for alcohol harm-reduction strategies in city entertainment precincts.* Support for strategies was categorised as either 'supported' (strongly support, support), 'neutral' (neutral, do not know enough to say) or 'not supported' (oppose, strongly oppose). Responses to appropriate lock-out and closing times were categorised as 'before 12am' (12am or before 12am); 'between 12 and 1am' (12.01 to 1.00am); 'between 1 and 2am' (1.01 to 2.00am); 'between 2 and 3am' (2.01 to 3.00am); or 'after 3am' (3.01 and after).

*Association between participant characteristics and perceptions and experiences of crime, and support for harm-reduction strategies in entertainment precincts.* Chi-squared analyses determined the association between participant characteristics and reported perceptions. Significance (*P*-values) was set at 0.01 [49,50]. All such analyses were standardised for age and gender [31,32].

## Results

### Participants

Of the 2500 telephone numbers called, 352 were non-contactable (e.g. household occupied) and 165 were of unknown eligibility (e.g. unknown if household occupied). Of the 1983 who were contacted, 363 were deemed as ineligible. Of the remaining contacted eligible respondents (1620), 694 completed the survey, 3 partially completed the survey, 868 refused to participate and 55 were not interviewed (e.g. respondent sick). This represented a response rate of 32% using the American Association for Public Opinion Research (AAPOR) Response Rate 1 (random digit dialling telephone surveys) (Geelong region: *n* = 318, 31%; Newcastle region: *n* = 376, 34%) [51].

Fifty-two percent of participants were women and 79% were aged 31 years and over, with no differences in such proportions between the region samples and their respective regional population estimates (Table 1). Of the total participants, 54.2% resided in the Newcastle region, 64.4% were non-night-time visitors and 86.9% resided in outer-city areas. Thirty-five percent of

**Table 1.** Sex, age and risk of lifetime harm from alcohol consumption by region of residence, night-time visitor to the entertainment precinct, proximity of residence to entertainment precinct and risk of acute harm from alcohol consumption (*P* < 0.01) [30,31]

Characteristic	Region of residence					Night-time visitor to entertainment precinct		Proximity of residence to entertainment precinct		Alcohol consumption acute risk		
	Total ( <i>n</i> = 694) %	Geelong sample ( <i>n</i> = 318) %	ABS Geelong region ( <i>n</i> = 167 101) %	Newcastle sample ( <i>n</i> = 376) %	ABS Newcastle region ( <i>n</i> = 375 877) %	Yes ( <i>n</i> = 247) %	No ( <i>n</i> = 447) %	Inner city ( <i>n</i> = 91) %	Outer city ( <i>n</i> = 603) %	Non-risky ( <i>n</i> = 398) %	Risky ( <i>n</i> = 295) %	<i>P</i>
Sex												
Male	47.9	47.6	47.8	48.0	48.0	48.2	47.7	43.3	48.7	34.1	65.2	< 0.001
Female	52.1	52.4	52.2	52.0	51.7	51.8	52.0	56.7	51.3	—	—	—
Age												
18–30 years	20.8	20.4	18.9	21.0	19.6	41.0	7.1	28.4	19.3	9.0	34.3	< 0.001
31 years and over	79.2	79.6	81.1	79.0	80.4	59.0	92.9	71.6	80.7	—	65.7	—
Alcohol consumption lifetime risk												
Risky	34.9	31.2	—	36.5	—	53.7	24.7	39.6	34.0	13.0	64.3	< 0.001
Non-risky	65.1	68.8	—	63.5	—	46.3	75.3	60.4	66.0	87.0	35.7	—

ABS, Australian Bureau of Statistics. Bold indicates significant result.



respondents reported consuming alcohol at levels that increased their lifetime risk of harm [52]. Night-time visitors to the entertainment precincts were more likely to consume alcohol at such levels, than non-night-time visitors ( $P < 0.001$ ).

#### *Perception and experience of alcohol-related crime in the entertainment precinct*

Almost 90% of participants agreed that alcohol misuse was an issue in their entertainment precinct, with 77% agreeing that consumption of alcohol at licensed premises in the entertainment precinct was a significant contributor to crime (Table 2). Forty-six percent of participants estimated that over 70% of crime in the entertainment precinct was alcohol-related. In addition, 98% indicated that violence was a problem caused by intoxicated people and 89% indicated that non-violence related problems were problems caused by intoxicated people (e.g. vandalism). Of night-time visitors, just over half had either been involved in or witnessed an argument/incident in which someone was physically or verbally assaulted (52%).

There were no significant differences in reported perceptions and experiences of crime by participant region of residence or proximity of residence to an entertainment precinct. Compared with night-time visitors, non-night-time visitors to an entertainment precinct were significantly more likely to estimate that more than 70% of crime was alcohol-related ( $P = 0.003$ ). Compared with acute risk alcohol consumers, non-acute risk alcohol consumers were significantly more likely to agree that alcohol consumption in licensed premises contributed to crime ( $P = 0.007$ ). Such participants were also significantly less likely to witness or be involved in a verbal or physical assault ( $P = 0.01$ ).

#### *Support for alcohol harm-reduction strategies*

With one exception (increasing licensee responsibility for patrons 27%), all of the proposed strategies for reducing crime in entertainment precincts were supported by more than half of the participants (Table 3). The strategies with the highest level of support were: increasing visible licensing inspections (96%), higher penalties for breaches by premises (87%), police asking intoxicated victims/perpetrators about their last drinking location (77%) and mandatory lock-outs (77%). Almost all participants who supported restricting trading hours indicated that premises should close by 03:00 h (91%). Seventy-nine percent who supported lock-outs indicated that they should be imposed by 01:00 h.

Compared with Geelong residents, Newcastle residents were significantly more likely to indicate that

**Table 2.** Age-/sex-standardized proportion of participants who agreed with statements regarding alcohol-related crime in the entertainment precinct by region of residence, night-time visitor to the entertainment precinct, proximity of residence to the entertainment precinct, and risk of acute harm from alcohol consumption ( $P < 0.01$ )

Statement	Region of residence			Night-time visitor to entertainment precinct			Proximity of residence to entertainment precinct			Alcohol consumption acute risk		
	Total ( <i>n</i> = 694) %	Geelong ( <i>n</i> = 318) %	Newcastle ( <i>n</i> = 376) %	Yes ( <i>n</i> = 247) %	No ( <i>n</i> = 447) %	<i>P</i>	Inner-city ( <i>n</i> = 91) %	Outer-city ( <i>n</i> = 603) %	<i>P</i>	Non-risky acute ( <i>n</i> = 398) %	Risky acute ( <i>n</i> = 295) %	<i>P</i>
Is alcohol misuse a problem in the entertainment precinct	89.6	89.9	89.7	86.4	91.4	0.64	89.6	89.7	0.79	91.8	86.7	0.31
70% or more of crime in precinct is alcohol-related	45.5	44.9	45.8	39.1	49.1	<b>0.003</b>	46.6	45.4	0.99	48.0	42.3	0.25
Alcohol consumption in licensed premises a contributor to crime	76.6	74.7	77.4	69.3	80.5	0.22	67.0	78.3	0.08	83.3	67.5	<b>0.007</b>
Violence caused by intoxicated persons in the precinct is a problem (e.g. verbal abuse, assault)	97.9	97.4	98.2	99.2	97.2	0.20	96.4	98.2	0.18	97.0	99.1	0.18
Non-violence problems caused by intoxicated persons in the precinct in a problem (e.g. noise, vandalism, drinking in parks)	89.2	85.2	90.9	89.1	89.2	0.45	89.6	89.1	0.74	88.6	89.9	0.56
Witnessed/involved in verbal argument/physical assault	52.2	51.9	52.3	54.9	—	—	65.4	49.5	0.09	38.0	63.7	<b>0.01</b>

Bold indicates significant result.

**Table 3.** Age-/sex-standardized proportion of participants who found alcohol harm-reduction strategies acceptable in entertainment precincts by region of residence, night-time visitor to the entertainment precinct, proximity of residence to the entertainment precinct and risk of acute harm from alcohol consumption ( $P < 0.01$ )

	Region of residence			Night-time visitor to entertainment precinct		Proximity of residence to entertainment precinct		Alcohol consumption acute risk	
	Total ( $n = 694$ ) %	Geelong ( $n = 318$ ) %	Newcastle ( $n = 376$ ) %	Yes ( $n = 247$ ) %	No ( $n = 447$ ) %	Inner-city ( $n = 91$ ) %	Outer-city ( $n = 603$ ) %	Non-risky ( $n = 398$ ) %	Risky ( $n = 295$ ) %
Found strategy acceptable				$P$		$P$		$P$	
More visible licensing inspections	96.3	95.1	96.8	0.26	96.6	92.9	96.9	96.4	96.1
Higher penalties for premises	86.8	87.4	86.5	0.79	87.3	87.0	86.7	89.5	83.1
Police asking offenders/victims location of last drink and warning premises	76.6	79.8	75.2	0.21	81.2	68.5	78.2	78.8	73.7
Licensee responsibility for patrons leaving their premises	27.3	30.5	25.8	0.49	30.2	26.1	27.5	29.7	24.0
Earlier closing of premises	71.0	69.4	71.7	0.34	79.7	63.4	72.5	78.9	60.5
Before 12 am	23.5	11.9	28.4	<0.001	31.2	20.5	24.1	29.8	15.0
Between 12 and 1 am	22.5	12.7	26.7	<0.001	24.9	10.9	24.6	23.4	21.3
Between 1 and 2 am	23.9	27.9	22.2	<0.001	24.6	26.4	23.5	25.8	21.5
Between 2 and 3 am	20.8	30.0	16.8	<0.001	15.3	26.9	19.7	15.9	27.5
After 3 am	7.1	12.7	4.6	<0.001	3.0	11.4	6.3	4.3	10.9
Mandatory lock-outs	77.4	73.5	79.0	0.15	81.9	73.3	78.1	81.8	71.4
Before 12 am	52.0	35.2	59.2	<0.001	64.3	32.0	55.7	62.8	37.9
Between 12 and 1 am	27.3	24.6	28.5	<0.001	23.2	29.3	26.9	21.3	35.0
Between 1 and 2 am	12.6	25.7	7.0	<0.001	8.8	18.1	11.6	11.3	14.4
Between 2 and 3 am	3.8	7.1	2.4	<0.001	1.7	11.5	2.4	1.9	6.4
After 3 am	0.9	1.3	0.7	<0.001	0.4	1.7	0.7	0.3	1.5
Stricter restrictions on discounts/promotions	71.9	72.7	71.5	0.72	75.9	71.6	72.0	78.4	63.1
Restricting new premises where high outlet density already exists	52.0	51.5	52.2	0.83	60.8	45.4	53.2	61.2	39.5

Bold indicates significant result.

late-night premises should close earlier with 55% preferring closure before 01:00 h compared with 25% for Geelong residents ( $P < 0.001$ ). Similarly, differences between regions were found for timing of lock-outs, with 88% of Newcastle residents preferring lock-outs before 01:00 h compared with 59.8% for Geelong residents ( $P < 0.001$ ). Non-night-time visitors were significantly more likely to indicate that late-night premises should close before 02:00 h ( $P = 0.01$ ), support police asking offenders/victims about their drinking prior to the incident ( $P = 0.005$ ), restricting outlet density ( $P = 0.001$ ) and closing premises earlier ( $P < 0.001$ ). Non-night-time visitors, those who lived in the outer city and non-acute risk alcohol consumers were all significantly more likely to indicate that mandatory lock-outs should occur before 00:00 h ( $P < 0.001$  for all). Non-acute risk alcohol consumers were significantly more likely than acute risk alcohol consumers to support higher penalties for premises ( $P = 0.007$ ), early closing times ( $P = 0.006$ ), stricter restrictions on discounts/promotions ( $P = 0.003$ ), restricting new outlets ( $P = 0.005$ ) and earlier lockouts times.

## Discussion

Almost nine in 10 participants indicated that alcohol-related violence was a concern in their regions entertainment precinct and just over three quarters reported that alcohol consumption in licensed premises was a significant contributor to crime in their city. Seven out of eight harm-reduction strategies were supported by the majority of participants, including restrictions on the availability of alcohol. With the exception of preferred closing times for premises and lock-outs, no differences in perceptions of crime or support for strategies were found between the two regions. Such findings suggest a commonality of views across communities and provide clear public support for the implementation of harm-reduction strategies, including restrictive strategies.

Notwithstanding differences in methodology, the prevalence of concerns regarding alcohol-related problems found in this study is greater than or similar to those found in community perceptions of alcohol-related problems more generally [43,44,53]. Such findings suggest a common concern across countries and communities regarding harms arising from alcohol misuse. Similarly, participant's perception of the prevalence of crime aligned with its occurrence in Australia. For example, a study of alcohol-related crime in regional cities of New South Wales reported that 32% of violence and 72% of disorder incidents involved the prior consumption of alcohol. Forty-nine percent of alcohol-related violence incidents and 57% of alcohol-related disorder incidents were found to involve the

consumption at licensed premises prior to the incident [12]. Such an alignment between public perception and the occurrence of alcohol-related crime suggests the public have an accurate understanding of the determinants and extent of such crime in their communities [1,4,54,55].

The majority of participants indicated support for seven of the eight harm-reduction strategies, particularly for greater enforcement of liquor licensing laws. Similar findings have been reported internationally, with 86% of participants in a Swedish study supporting licensees losing their licence if they breached liquor licensing legislation [27]. In Australia, a national survey found that 89% of participants supported stricter enforcement of licensed premises [25], while a survey of people in rural areas reported that 83% supported more visible police inspections of licensed premises [46]. Such consistent findings suggest community members across different countries, cities and areas of residence support greater enforcement of licensing laws as a strategy to reduce alcohol-related crime [18,55].

Traditionally, lower levels of public support have been found for policies that intrude on individual choice [24]. For example, in a number of countries less than a third of community members support earlier closing times or restriction of premise density [27,56,57]. Slightly higher levels of support for such strategies have been previously reported in Australia (49.6% and 34.8%, respectively) [25]. Not only was a much higher level of support for such strategies found in this current study (71% and 52%, respectively), such support was found to extend to other strategies including those which restricted the availability of alcohol and limited alcohol discounts and promotions. Such findings suggest an alignment exists in the two regions between evidence of the effectiveness of strategies and public support for such strategies, an alignment not previously reported [16,17,23].

The higher levels of acceptability for harm-reduction strategies found in the current study may be a function of both study regions having a history of community responses to local alcohol-related problems [30,39,40]. This suggests that where community members address alcohol-related concerns in their communities, a greater acceptance of more restrictive policies may ensue. Further research regarding the acceptability of location-specific harm-reduction strategies is required to confirm if this is also the case for such strategies.

Newcastle residents were significantly more likely to support earlier closing and lock-out times than those in Geelong. Given that earlier times are part of the conditions that have been implemented in Newcastle and not in Geelong, such findings support those reported by Diepeveen *et al.* that public acceptability of policies is greater for those policies that have been implemented

and shown to be effective [24]. The mechanism whereby such support is achieved is unknown, but is likely to be a function of extensive community debate via the media and other mechanisms regarding the implementation and outcomes of the strategies in Newcastle [39,40].

Higher support for earlier lock-out times was evident for outer-city residents compared with inner-city residents. Although not tested in this study, this finding may be attributable to a higher proportion of younger people residing in inner-city areas [31–37]. Visitors to the entertainment precincts were significantly less likely to support earlier closing times, earlier mandatory lock-outs, or restricting new premises in areas where high density already exists. Similarly, the groups most likely to benefit from alcohol harm-reduction strategies (acute risk drinkers) were less likely to support earlier closing, higher penalties, greater restrictions on discounts/promotions and restrictions on new liquor premises. Such findings support those of Diepeveen *et al.* [24] and others [26,27,29] suggesting that people directly affected by a restrictive public health policy are less likely to be supportive, presumably for reasons of self-interest. Despite this differential, the majority of night-time visitors and acute risk alcohol consumers were supportive of strategies, suggesting that they may have perceived that there were benefits to be gained from such restrictions, or that the restrictions had little negative impact on their activity.

Interpretation of results of this study needs to occur within the context of its methodological characteristics. First, the generalisability of the findings may be limited by the low response rate. However, the calculation reported is based on the most conservative AAPOR rate for telephone surveys using random digit dialling as the sampling method, one that is not equivalent to the sampling method utilized in this study [51]. Low response rates for community surveys are not atypical, for example, a telephone interview of Queensland residents on social issues including alcohol yielded a response rate of 35% [58]. Similarly, a telephone survey in Canada on alcohol policy [59], and an online survey in Norway [60] resulted in response rates of 47% and between 33% and 55%, respectively.

However, the risk of bias in this study is considered to be partially mitigated by the finding that the age and gender characteristics of the sample were not different to those of the populations from which the samples were drawn.

Second, it is possible that the sample was biased based on access to a listed telephone landline being an eligibility criterion. As it has been suggested that people without landlines are more likely to consume alcohol at risky levels [61,62], the overall levels of support may be an overestimate.

Third, the acute risk of alcohol-harm data collected by the survey is not consistent with the current Australian Alcohol Guidelines because of the use, based on the AUDIT, of a cut-point of six standard drinks as opposed to the current recommended four standard drinks [42]. As a consequence, the prevalence of at-risk drinking is likely to underestimate the proportion of respondents drinking at such levels.

Finally, as the study was conducted in two regions, the generalisability of the findings to other populations is unknown. However, the conduct of the study in two separate jurisdictions, and in geographically distant cities is considered to suggest some degree of commonality of public views. Nonetheless, further research involving a broader range of locations is warranted.

## Acknowledgements

This research was funded by the National Drug Law Enforcement Research Fund (Australian Government Department of Health and Ageing), and Hunter New England Local Health District. We would like to thank the research assistants that conducted the interviews.

## References

- [1] World Health Organization. Global status report on alcohol and health. Switzerland: WHO Press, 2011.
- [2] World Health Organization. Management of substance abuse. WHO, Switzerland, 2013. Available at: [http://www.who.int/substance\\_abuse/facts/alcohol/en/index.html](http://www.who.int/substance_abuse/facts/alcohol/en/index.html) (accessed March 2013).
- [3] Baumberg B. The global economic burden of alcohol: a review and some suggestions. *Drug Alcohol Rev* 2006;25:537–51.
- [4] Collins DJ, Lapsley HM. The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05—summary. Canberra (AUST): Commonwealth of Australia, 2008.
- [5] Morgan A, McAtamney A. Key issues in alcohol-related violence. Research in Practice Summary Paper No.04; December 2009. Australian Institute of Criminology, 2009.
- [6] Rowe SC, Wiggers JH, Wolfenden L, Francis JL. Establishments licensed to serve alcohol and their contribution to police-recorded crime in Australia: further opportunities for harm reduction. *J Stud Alcohol Drugs* 2010;71:909–16.
- [7] Arro P, Crook G, Fenton T. The nature and extent of alcohol-related incidents requiring police attention in South-East Queensland. Brisbane, Department of Health and Queensland Police Service, 1992.
- [8] Warburton AL, Shepherd JP. Tackling alcohol related violence in city centres: effect of emergency medicine and police intervention. *Emerg Med J* 2006;23:12–17.
- [9] Briscoe S, Donnelly N. Liquor licensing enforcement activity in NSW. *Alcohol Studies Bulletin*, no. 4. Sydney (AUST): NSW Bureau of Crime Statistics and Research, 2003.
- [10] Briscoe S, Donnelly N. Temporal and regional aspects of alcohol-related violence and disorder. *Alcohol Studies Bulletin* No 1. Sydney (AUST): NSW Bureau of Crime Statistics and Research, 2001.



- [11] Wood LJ, McLean S, Davidson J, Montgomery IM. One for the road: on the utility of citation for identifying problem hotels. *Drug Alcohol Rev* 1995;14:115–24.
- [12] Rowe S, Wiggers J, Kingsland M, Nicholas NC, Wolfenden L. Alcohol consumption and intoxication among people involved in police-recorded incidents of violence and disorder in non-metropolitan New South Wales. *Aust N Z J Public Health* 2012;36:33–40.
- [13] Stockwell T, Somerford P, Lang E. The relationship between licence type and alcohol-related problems attributed to licensed premises in Perth, Western Australia. *J Stud Alcohol* 1992;53:495–8.
- [14] Livingston M. A longitudinal analysis of alcohol outlet density and assault. *Alcohol Clin Exp Res* 2008;32:1074–9.
- [15] Chikritzhs T, Stockwell T. Impact of later trading hours for Australian public houses (hotels) on levels of violence. *J Stud Alcohol* 2002;65:591–9.
- [16] National Drug Research Institute. Restrictions on the sale and supply of alcohol: evidence and outcomes. Perth (AUST): National Drug Research Institute, Curtin University of Technology, 2007.
- [17] Babor T, Caetano R, Casswell S, *et al.* Alcohol: no ordinary commodity—research and public policy. Oxford (UK): Pan American Health Organisation, 2010.
- [18] Andreasson S, Lindewald B, Rehnman C. Over-serving patrons in licensed premises in Stockholm. *Addiction* 2000;95:359–63.
- [19] Scott L, Donnelly N, Poynton S, Weatherburn D. Young adults' experience of responsible service practice: an update. *Alcohol Studies Bulletin* No 9. Sydney (AUST): NSW Bureau of Crime Statistics and Research, 2007.
- [20] Graham K, Homel R. Raising the bar: preventing aggression in and around bars, pubs and clubs. London: Willan Publishing, 2008.
- [21] Bevan T. The Australian night time economy—a first analysis 2009 and 2011. National Local Government Drug and Alcohol Advisory Committee; February 2013.
- [22] Miller P, Coomber K, Staiger P, Zinkiewicz L, Toumbourou JW. Review of rural and regional alcohol research in Australia. *Aust J Rural Health* 2010;18:110–17.
- [23] Miller P, Diment C, Zinkiewicz L. The role of alcohol in crime and disorder. *Prevention Research Quarterly* August 2012b; Number 18. The Australian Drug Foundation, 2012b.
- [24] Diepeveen S, Ling T, Suhrcke M, Roland M, Marteau T. Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. *BMC Public Health* 2013;13:756.
- [25] Australian Institute of Health and Welfare. 2010 National Drug Strategy Household Survey: detailed findings. Canberra (AUST): AIHW, 2012.
- [26] Bongers I, Van De Goor I, Garretsen H. Social climate on alcohol in Rotterdam, The Netherlands: public opinion on drinking behaviour and alcohol control measures. *Alcohol* 1998;32:141–50.
- [27] Wallin E, Andreasson S. Public opinion on alcohol service at licensed premises: a population survey in Stockholm, Sweden 1999–2000. *Health Policy (New York)* 2005;72:265–78.
- [28] Geisbrecht N, Ialomiteanu A, Anglin L, Adlaf E. Alcohol marketing and retailing: public opinion and recent policy developments in Canada. *J Subst Use* 2007;12:389–404.
- [29] Wilkinson C, Room R, Livingston M. Mapping Australian public opinion policies in the new millennium. *Drug Alcohol Rev* 2009;28:263–74.
- [30] Miller P, Tindall J, Sonderlund A, *et al.* Dealing with alcohol-related harm and the night-time economy: final report. Monograph No. 43. National Drug Law Enforcement and Research Fund, 2012a.
- [31] Australian Bureau of Statistics. 2006 Census Community Profiles: Greater Geelong (C). 2007a. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2011/communityprofile/LGA22750?opendocument&navpos=220](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/communityprofile/LGA22750?opendocument&navpos=220) (accessed May 11 2013).
- [32] Australian Bureau of Statistics. 2006 Census Community Profiles: Surf Coast (S). 2007b. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA26490?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA26490?opendocument&navpos=230) (accessed May 11 2013).
- [33] Australian Bureau of Statistics. 2006 Census Community Profiles: Newcastle (C). 2007c. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA15900?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA15900?opendocument&navpos=230) (accessed May 11 2013).
- [34] Australian Bureau of Statistics. 2006 Census Community Profiles: Lake Macquarie (C). 2007d. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA14650?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA14650?opendocument&navpos=230) [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA15900?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA15900?opendocument&navpos=230) (accessed May 11 2013).
- [35] Australian Bureau of Statistics. 2006 Census Community Profiles: Port Stephens LGA. 2007e. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA16400?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA16400?opendocument&navpos=230) (accessed May 11 2013).
- [36] Australian Bureau of Statistics. 2006 Census Community Profiles: Maitland (C). 2007f. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA15050?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA15050?opendocument&navpos=230) (accessed May 11 2013).
- [37] Australian Bureau of Statistics. 2006 Census Community Profiles: Cessnock (C). 2007g. Available at: [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2006/communityprofile/LGA11720?opendocument&navpos=230](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2006/communityprofile/LGA11720?opendocument&navpos=230) (accessed May 11 2013).
- [38] Miller PG, Sønderlund AL, Coomber K, *et al.* The effect of community interventions on alcohol-related assault in Geelong, Australia. *Open Criminol J* 2012c;5:8–15. 1874-9178/12 2012.
- [39] Jones C, Kypri K, Moffatt S, Borzycki C, Price B. The impact of restricted alcohol availability on alcohol-related violence in Newcastle, NSW. NSW Bureau of Crime Statistics and Research. Number 137 (November 2009), 2009.
- [40] Kypri K, Jones C, McElduff P, Barker D. Effects of restricting pub closing times on night-time assaults in an Australian City. *Addiction* 2011;106:303–10.
- [41] Babor TF, Higgins-Biddle JC, Saunders JB, Monteiro MG. AUDIT—the alcohol use disorders identification test: guidelines for use in primary care, 2nd edn. Geneva: World Health Organisation; Department of Mental Health and Substance Dependence, 2001.
- [42] National Health and Medical Research Council. Australian Alcohol Guidelines: Health Risks and Benefits. Commonwealth of Australia, 2001.
- [43] Hubner L. Swedish public opinion on alcohol and alcohol policy, 195 and 2003. *J Subst Use* 2012;17:218–29.
- [44] Institute of Alcohol Studies. Public Perceptions of Crime. Available at: <http://www.ias.org.uk/Alcohol-knowledge->

- centre/Crime-and-social-impacts/Factsheets/Public-perceptions-of-crime.aspx (accessed September 2013).
- [45] Home Office. 2008–9 British Crime Survey Questionnaire. UK Data Archive Study Number 6367, 2008.
- [46] Hawkins N, Sanson-Fisher R, Shakeshaft A, Webb G. Differences in licensee, police and public opinions regarding interventions to reduce alcohol-related harm associated with licensed premises. *Aust N Z J Public Health* 2009;33:160–6.
- [47] National Health and Medical Research Council. Australian Guidelines to reduce health risks from drinking alcohol. Commonwealth of Australia, 2009.
- [48] Ireland C, Thommeny J. The crime cocktail: licensed premises, alcohol and street offences. *Drug Alcohol Rev* 1993;12:143–50.
- [49] Stigler S. 'Fisher and the 5% level'. *Chance* 2008;21:12.
- [50] Feise RJ. Do multiple outcome measures require p-value adjustment? *BMC Med Res Methodol* 2002;17:8.
- [51] The American Association for Public Opinion Research. Standard definitions: final dispositions of case codes and outcome rates for surveys. 7th edn. Deerfield, Illinois: AAPOR, 2011.
- [52] Centre Epidemiology and Evidence. NSW Population Health Survey (SAPHaRI). NSW Ministry of Health, 2013. Available at: [http://www.healthstats.nsw.gov.au/Indicator/beh\\_alc\\_age/beh\\_alc\\_lhn](http://www.healthstats.nsw.gov.au/Indicator/beh_alc_age/beh_alc_lhn) (accessed May 2014).
- [53] MacLennan B, Kypri K, Langley J, Room R. Public sentiment towards alcohol and local government alcohol policies in New Zealand. *Int J Drug Policy* 2012;23:45–53.
- [54] New South Wales Auditor General. New South Wales Auditor-Generals Report: performance audit—cost of alcohol abuse to the NSW government. NSW Treasury, NSW Police Force, NSW Ministry of Health, Department of Premier and Cabinet, Department of Attorney General and Justice. August, 2013.
- [55] Preventative Health Taskforce. Australia: the healthiest country by 2020. Technical Report 3: preventing alcohol-related harm in Australia: a window of opportunity including addendum for October 2008 to June 2009. Commonwealth of Australia, 2009.
- [56] Greenfield TK, Ye Y, Giesbrecht NA. Views of alcohol control policies in the 2000 National Alcohol Survey: what news for alcohol policy development in the US and its States? *J Subst Use* 2007;12:429–45.
- [57] Greenfield TK, Ye Y, Giesbrecht N. Alcohol policy opinions in the United States over a 15 year period of dynamic per capita consumption changes: implications for today's public health practice. *Contemp Drug Probl* 2007;34:649–80.
- [58] Meurk C, Partridge B, Carter A, Hall W, Morphet K, Lucke J. Public attitudes in Australia towards the claim that addiction as a (brain) disease. *Drug Alcohol Rev* 2014;33:272–9.
- [59] Macdonald S, Stockwell T, Luo J. The relationship between alcohol problems, perceived risks and attitudes towards alcohol policy in Canada. *Drug Alcohol Rev* 2011;30:652–8.
- [60] Rossow I, Storvoll EE. Long-term trends in alcohol policy attitudes in Norway. *Drug Alcohol Rev* 2014;33:220–6.
- [61] Australian Communications and Media Authority. Landlines ditched in favour of mobiles. Available at: <http://www.news.com.au/money/cost-of-living/old-phones-ditched-with-technology/story-fnagkbpv-1226432511294> (accessed January 2013).
- [62] Wilkins C, Casswell S, Barnes H, Pledger M. A pilot study of a computer-assisted cell-phone interview (CACI) methodology to survey respondents in households without telephones about alcohol use. *Drug Alcohol Rev* 2003;22:221–5.