

**Do relaxed trading hours for bars and clubs
mean more relaxed drinking?
A review of international research on the impacts
of changes to permitted hours of drinking**

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Do relaxed trading hours for bars and clubs mean more relaxed drinking? A review of international research on the impacts of changes to permitted hours of drinking

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Abstract

Trading hours of licensed premises have been progressively relaxed since World War II across much of the English-speaking world as part of a global trend towards liquor deregulation. This review was informed by a systematic search of studies published in the English language since 1965 which sought to evaluate the public health and safety impacts of changes to liquor trading hours for on premise consumption - namely "pubs" and clubs in the UK, "hotels" and "taverns" in Australia and New Zealand and "bars" in North America. The systematic search was supplemented by materials identified from the "grey literature", mostly government reports. A total of 49 unique studies met our inclusion criteria of which only 14 included baseline and control measures and were peer-reviewed. Among these, 11 reported at least one significant outcome indicating adverse effects of increased hours or benefits from reduced hours. Controlled studies with fewer methodological problems were also most likely to report such effects. It is suggested that differences between findings from Australia and the UK following the 2003 Licensing Act are most likely due to differences in methodological approach. It is concluded that the balance of reliable evidence from the available international literature suggests that extended late-night trading hours lead to increased consumption and related harms. Further well-controlled studies are required to confirm this conclusion.

Keywords: Licensing laws, violence, review, alcohol.

Table 1: Summary of studies of association with no baseline or control observations

First author, year, location, type of publication	Description	Results	Potential confounding/limitations
Douglass et al (1979) US (peer reviewed)	Evaluation of a range of regulative changes on population levels of liver cirrhosis deaths, homicides/assaults, road crash fatalities, occupational injuries.	Significant positive correlations on all measures.	Other concurrent regulatory changes
Ligon and Thyer (1993) US (peer reviewed)	Evaluation of Sunday closing restrictions comparing Sunday driver DUI arrests with other days of week.	Significantly lower in DUI arrests on Sundays compared to other day of the week, with the exception of Mondays.	Concurrent changes in police measurement strategies. Problematic measurement strategies. Police reporting biases and strategies.
d'Abbs <i>et al</i> , (1994) Australia (grey literature)	Examined effect of reducing nightclub trading hours from 4am to 6am closing in Darwin, Northern Territory on reported offences and BACs of city goers.	Policy to reduce trading hours may have actually increased overall hours of trade for nightclubs due to intensified competition and longer trading among nightclubs which previously closed before 4am.	Limited design did not allow any conclusions to be drawn regarding effects on alcohol-related harms. Concurrent changes in police activity. Limited statistical analysis and no test of significance.
Briscoe and Donnelly (2003) Australia (peer reviewed)	Compared levels of reported assault offences for licensed premises with standard, extended and 24-hour trading	Premises with normal trading hours less likely to be associated with violence than premises with extended and 24-hour trading.	Unable to account for size of venue/patron capacity. Absence of statistical tests of significance.

Table 2: Summary of studies with baseline comparison points but no control observations

First author, year, location, type of publication	Description	Results	Potential confounding/limitations
Raymond (1969) Cited in Smith (1988c) Australia (peer reviewed)	Examined effect of 4 hr increase in closing hours on numbers of road traffic crashes.	No significant change.	Other concurrent regulatory changes.
Toomath and Nguyen (1974) New Zealand (grey literature)	Examined effect of increase from 6pm to 10pm closing on traffic casualties.	No significant change in road crash injuries.	Other concurrent regulatory (ie lower minimum drinking age) and economic changes.
Knight and Wilson (1980) UK (peer reviewed)	Examined effect of one hour increase and additional Sunday trading on alcohol consumption levels in Scotland using residential population surveys.	No significant change in alcohol consumption due to the one hour extension in closing times. Sunday trading associated with increased consumption among males aged 18-45yrs, with the largest increase evident among males 18-25yrs. Heavy drinkers more likely to have increased their consumption than moderate drinkers.	Unable to distinguish between impact of Sunday trading and daily one hour increase. Not enough time elapsed between trading hours changes and the after period survey to maximise likelihood of capturing change.
Bruce, (1980) UK (peer reviewed)	Examined effect of 1hr Sunday closing extension on alcohol consumption levels and disorder using residential population survey.	No significant change in drinking levels or disorder. May have had an inhibitory effect on binge drinking.	Concurrent economic recession.
Hoadley et al (1984) US (peer reviewed)	Examined effect of range of regulatory controls including Sunday trading and early closing hours on spirit consumption levels.	No association between Sunday trading and spirit consumption. A significant association between early closing hours and higher spirits sales.	Limited to spirits sales only, could not account for inter-state purchases. Aggregated data did not allow investigation of sub-groups.
Goddard (1986) UK (grey literature)	Examined effect of one hour increase and Sunday trading on alcohol consumption levels using residential population surveys in Scotland.	No significant increase in alcohol consumption for any age group among males. Significantly increased consumption for females. Associations between employment status and alcohol consumption among males.	Concurrent economic recession. Under-reported consumption likely.
Northridge et al (1986) UK (peer reviewed)	Examined effect of one hour increase and Sunday trading on numbers of hospitalisations for self-induced alcohol poisoning in Scotland.	Significant increase in the frequency of drinking associated with self poisoning.	Limited statistical analysis, did not adjust for potential serial autocorrelation in time series data or trends in non-alcohol-related poisonings.
Smith (1987) Australia (grey literature)	Examined effect of a short term increase in trading hours on road traffic crashes.	No significant change.	Substantial concurrent increase in police enforcement campaign.

Rhodes et al (1990) UK (peer reviewed)	Examined effect of 'all day drinking' on proportion of positive BAC ED attendances in England and Wales.	No significant change.	Insufficient statistical power to detect significant differences likely. Inadequate length of study period, potential seasonal variation unaccounted for, too few night-time presentations collected. Overall, description and details of study provided inadequate to determine reliability of results.
Goddard (1991) UK (grey literature)	Examined effect of increased trading hours for weekday afternoons and additional Sunday trading on alcohol consumption using residential population surveys in England and Wales.	No significant change.	Inadequate sample size for detecting moderate change.
d'Abbs et al (1996) Australia (grey literature)	Examined effect of range of liquor restrictions, including on-premise reduced trading hours on alcohol sales, police attended incidents, ED attendances, sobering-up shelter and women's refuge admissions on a the Tennant Creek community.	Apparent but unconfirmed (report did not provide tests of statistical significance): reduction in alcohol sales, criminal damage, unlawful entry, alcohol-related ED attendances, sobering-up shelter admissions. Increased number of stealing offences, criminal damage offences.	Subjective measure of alcohol involved ED presentations. Limited statistical analysis and absence of tests of significance.
Walker and Biles (1997) Australia (grey literature)	Examined effect of trial early closing hours (4am) for nightclubs on police reports of assault, drunkenness, underage drinking, disturbances and street offences. Surveyed licensees regarding actual effect on hours of operation.	No significant change. Only a small minority of nightclubs affected by the changes.	Reported negligible impact on actual trading hours. Other concurrent initiatives in operation (eg RBS programmes, designated driver schemes).
Gray et al (1998) Australia (peer reviewed)	Examined effect of trading hour restrictions for licensed premises on police reported assaults, public disorder, alcohol-related hospital admissions in community of Tennant Creek.	Significant decline in alcohol-related hospital admissions. Increased protective custody offences overall but reduced among Indigenous residents. No apparent changes for other measures.	Range of concurrent interventions (cask wine sales restricted). Restrictions also affected off-premise sales. Increased police activity and changes to policing practices.
Graham et al (1998) UK (peer reviewed)	Examined the effect of change from a late trading permit system to 'uniform' closing times for a range of licensed premises (eg hotels/restaurants 1am close, clubs 3am close, casinos 4am close) on positive BAC ED presentations in Scotland.	No significant change.	Brief, seasonally and temporally different before and after collection periods. Large numbers of ED presentations missed (44%). No measure of actual effect of 'uniform' closing time on availability.
d'Abbs et al (2000) Australia (grey literature)	Examined effect of range of liquor restrictions, including on-premise reduced trading hours on alcohol sales, police attended incidents, ED attendances for acute alcohol-related injuries, on the community of Tennant Creek.	Apparent but unconfirmed (report did not provide tests of statistical significance): Decline in alcohol sales and acute injury ED attendances; Initial decline in assaults, unlawful entry, theft and public drunkenness followed by a rise.	Did not measure per capita consumption of pure alcohol. Increased police activity and changes to policing practices. Limited statistical analysis and absence of tests of significance.

Lange and Voas (2000) Mexico/US (peer reviewed)	Examined effect of brief periods of prohibition in Tijuana on number and levels of BACs among randomly selected pedestrians and drivers returning to San Diego.	Significant reduction in numbers of intoxicated pedestrians and drivers crossing from Tijuana to San Diego after midnight during prohibition.	Changes limited to only two weekends of prohibition. Potential displacement of drinkers to other nearby areas.
Ragnarsdottir et al (2002) Iceland (grey literature)	Examined effect of unrestricted closing hours (24-hour trading) using police reports and ED attendances, telephone survey of licensees, interviews with local residents; and 'field visits'.	Possible increases in alcohol sales, greater numbers of patrons, patrons drank for longer periods. Observed increase in drink-driving and ED attendances (especially for male acute injury). Fewer people in city centre at late hours and apparent decrease in late night peaks.	Small numbers of observations. Limited statistical analysis and absence of tests of significance.
Duailibi et al (2007) Brazil (peer reviewed)	Examined the effect of replacing 24-hr trading with 11pm close on population rates of homicide and violence against women in Diadema. Controlled for linear time trend only (no control region or non-alcohol-related controls).	Significant reduction in homicides. Reduction assaults not significant after control for linear time trend.	Did not distinguish between alcohol and non-alcohol-related events. Potential displacement of drinkers to neighbouring areas. Unable to directly control for economic changes, linear time trend control limited. Assault time series overly brief.
Vingilis et al (2007) Canada (peer reviewed)	Examined effect of extended closing from 1am to 2am on crash and non-crash related injury presentations between 11pm and 3am in Ontario.	Significant increase in non-crash related injuries between 2am and 3am. No increase in crash-related injuries between 2am and 3am but significant decrease between 11pm and 2am.	Concurrent road-safety measures potentially responsible for apparent decline in crash-related injuries. Limited statistical power.
Newton et al (2007) UK (peer reviewed)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on alcohol-related ED attendances at inner city hospital (London).	Significant increase in ED attendances.	Numbers of alcohol-related attendances likely to have been underestimated due to reporting methods used.
Bellis et al (2006) UK (grey literature)	Examined the effect of Alcohol Misuse Enforcement Campaigns (AMECs) and the Licensing Act 2003 (which introduced unrestricted trading hours policy) on assault-related ED attendances in the North West of England.	Significant reductions in assault-related ED attendances.	Reported limited uptake of extended and 24-hr trading. Unable to distinguish effects due to AMECs and trading hours changes. Insufficient length of time elapsed for reliable after period comparison regarding trading hours component.
Babb (2007) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on police assault and disorder reports from England and Wales.	Apparent but unconfirmed (report did not provide tests of statistical significance): no change in crime and disorder offences.	Reported limited uptake of extended and 24-hr trading. Overly brief observation periods, no statistical analyses reported. Concurrent changes to police powers, reporting practices and local and national alcohol policy initiatives. Crime reports not alcohol-specific.

Sivarajasingam et al (2007) UK (grey literature)	Examined trends over time in age and sex specific violence-related attendances to EDs, 2000 – 2007 in England and Wales (before and after introduction of unrestricted trading hours policy).	Apparent but unconfirmed (report did not provide tests of statistical significance): decline in ED attendances for assault-related injuries.	Reported limited uptake of extended and 24-hr trading. Non-random sample of EDs. Did not distinguish between alcohol and non-alcohol-related violent incidents. Concurrent changes to police powers and local and national late-night alcohol policy initiatives. Limited statistical analysis and absence of tests of significance.
Goddard (2008) Great Britain (grey literature)	Household survey of self-reported alcohol consumption from 2005 and 2006 (before and after introduction of unrestricted trading hours policy).	Marginally significant decline in consumption from 2005 to 2006 (Goddard did not provide evidence of confirmatory statistical analyses significance but was confirmed from peer reviewed article by Hough and Hunter, 2008).	Under-reported consumption likely and potential increasing tendency for individuals to under-estimate. Inaccurate reporting due to rapid increase in wine glass sizes. Declining survey participation by young people and potential declining response rate of heavy drinkers.
London Ambulance Service (2008) UK (grey literature)	Examined alcohol-related ambulance call-outs in London in from 2004 – 2008 (before and after introduction of unrestricted trading hours policy).	Apparent but unconfirmed (report did not provide tests of statistical significance): increase in call-outs after 24 hr trading introduced.	No adjustments for population size or potential mobility of drinkers. Evidence for increasing trends prior to changes. Limited statistical analysis and absence of tests of significance.
Newton et al (2008a) and Newton & Hirschfield (2008) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on violent crime, criminal damage, calls to police for disorder/assistance, ED attendances/ambulance call-outs in Birmingham.	Significant decline calls for disorder/assistance. No significant change other measures.	Reported limited uptake of extended and 24-hr trading. Concurrent changes to police powers and local late-night alcohol policy initiatives. Difficulties with distinguishing violent incidents on or near premises with extended versus non-extended hours.
Newton et al (2008b) and Newton & Hirschfield (2008) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on violent crime, criminal damage, calls to police for disorder/assistance, ED attendances/ambulance call-outs in Blackpool.	No significant change.	As above.
Newton et al (2008c) and Newton & Hirschfield (2008) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on violent crime, criminal damage, calls to police for disorder/assistance, ED attendances/ambulance call-outs in Croydon.	Significant decline in recorded violent crime. No significant change in other measures.	As above.

Newton et al (2008d) and Newton & Hirschfield (2008) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on violent crime, criminal damage, calls to police for disorder/assistance, ED attendances/ambulance call-outs in Guildford.	Significant increase in recorded violent crime and calls for disorder/police assistance. No significant change in other measures.	As above.
Newton et al (2008e) and Newton & Hirschfield (2008) UK (grey literature)	Examined effect of replacing 11pm standard closing with unrestricted trading hours policy on violent crime, criminal damage, calls to police for disorder/assistance, ED attendances/ambulance call-outs in Nottingham.	Significant decline in criminal damage. No significant change in other measures.	As above.
Hough et al (2008a) UK (grey literature)	Examined impact of 2003 licensing act on uptake of trading hours, alcohol sales and police data on violent incidents in several towns in North of England.	No significant overall change across all sites. Limited uptake of new hours and evidence of displacement of violent incidents into early hours of the morning.	As above.

Table 3: Summary of studies with baseline and control observations

First author, year, location, type of publication	Description	Results	Potential confounding/limitations
Smith (1978) Australia (peer reviewed)	Examined effect of Sunday trading in Perth city on numbers of road traffic casualties. Used remainder of state as control region.	Significant increase for Sundays.	Unable to identify alcohol-related casualties and those associated with licensed premises. Could not rule out possibility of a temporal redistribution of crashes.
Duffy and Plant (1986) UK (peer reviewed)	Examined effect of 1 hr increase in closing on liver cirrhosis and alcohol dependence deaths, total alcohol-related deaths, hospital admissions for drunkenness, and drink-driving in Scotland. Used England and Wales as control region.	No significant negative effects. Apparent decrease in public drunkenness.	Concurrent economic recession, price increase for alcohol and changes to policing. Did not consider potential lagged effects associated with measures of chronic harm.
Smith (1988a) Australia (peer reviewed)	Examined effect of 4 hr closing time increase on road traffic casualties. Used time of day as an internal control.	Significant overall increase.	Unable to identify alcohol-related crashes and those associated with licensed premises.
Smith (1988b) Australia (peer reviewed)	Examined effect of Sunday trading in Brisbane city on numbers of road traffic casualties and property damage crashes. Used remainder of state as control region.	Significant overall increases for both measures.	Numbers instead of rates were used. Unable to identify alcohol-related casualties and those associated with licensed premises.
Smith (1988c) Australia (peer reviewed)	Examined effect of change from 10pm close to 'free' closing times in Tasmania on numbers of road traffic casualties. Used time of day as an internal control and South Australia as an external control.	No significant overall change. Significant increase between 10pm and 6am and accidents more likely to occur after midnight.	Total numbers of trading hours for premises did not change.
Smith (1990) Australia (peer reviewed)	Examined effect of initial 2 hr closing time increase for Sundays and subsequent 8 hr Sunday increase on numbers of road traffic casualties. Used time of day as an internal control.	Significant increase after closing time following 8 hr increase. No change for smaller 2 hr Sunday increase. No evidence of decline during other time periods. Overall increase in traffic casualties.	Few licenses premises responded to initial 2 hr extension. Unable to identify alcohol-related casualties and those associated with licensed premises.
McLaughlin and Harrison-Stewart (1992) Australia (peer reviewed)	Examined effect of a short term closing time increase in City of Fremantle on 18-28 yr old male consumption levels using residential survey. Used a Perth region as a control.	No significant change. Heavier drinkers in both areas most likely to report using extended trading hours.	Few respondents (local residents) actually attended licensed premises during the event. Atypical heavy presence throughout the study period. Inadequate sample size for detecting small effect.
Pinot de Moira and Duffy (1995) UK (peer reviewed)	Examined effect of 1 hr increase in closing on mortality rates for liver cirrhosis, pancreatitis, alcoholic poisoning, alcohol dependence and alcoholic psychosis in England and Wales. Used Scotland as control region.	Significant increase in alcoholic poisoning, no change for other measures.	Problematic choice of control region (Scotland in economic recession). Inappropriate choice of alcohol measures (all long-term conditions excepted of poisoning).
Gray et al (1998) Australia (peer reviewed)	Examined effect of trading hour restrictions for licensed premises on local alcohol consumption levels in Tennant Creek community. Used whole of Northern Territory as a control region.	Significant decline in per capita alcohol consumption in Tennant Creek, no decline for the Northern Territory as a whole.	Range of concurrent interventions. Restrictions also affected off-premise sales.

Chikritzhs and Stockwell (2002) Australia (peer reviewed)	Examined effect of 1-2 hr closing time extension after midnight on police reported assaults and volumes of alcohol sales attributable to individual licensed premises in Perth. Used assaults associated with premises trading with standard hours as controls.	Significant increase in reported assaults and corresponding significant increase in volumes of high alcohol content beverage sales.	Could not determine whether significant increases were due to greater level of alcohol consumption by individuals at late trading premises (or both). Non-randomized premises.
Vingilis et al (2005) Canada/US (peer reviewed)	Examined effect of extended drinking hours from 1am to 2am on positive BAC driver traffic fatalities in Ontario on alcohol and non-alcohol-related traffic crash driver fatalities. Total Ontario fatalities and trends in New York and Michigan casualties used as controls. Also measured alcohol sales.	No significant change in alcohol-related driver fatalities. Overall beer consumption declined.	Limited statistical power. Limited uptake of extended hours by licensees. Low BAC testing rates in control region concurrent road safety initiatives in operation.
Vingilis et al (2006) Canada/US (peer reviewed)	Examined effect of extended closing from 1am to 2am on alcohol-related road traffic casualties occurring in Windsor, Ontario. Used Detroit, Michigan USA as external control areas. Examined potential cross-border effects.	Significant increase in total and alcohol-related casualties in Windsor. No change in total casualties for the total Ontario region. Windsor increases partly due to 'repatriation' of Windsor drivers involved in crashes across border in neighbouring Detroit. No evidence of increased numbers of Detroit drivers crashed in Windsor.	Low uptake of extended hours in Windsor outside of Windsor city.
Chikritzhs & Stockwell (2006) Australia (peer reviewed)	Examined the effect of 1-2 hr closing time extension after midnight on numbers of positive BAC road traffic crashes, driver BAC levels and volumes of alcohol sales attributable to individual licensed premises in Perth. Used crashes associated with premises trading with standard hours as controls.	Significant increase when controlled for crashes associated with normally trading premises and the introduction of mobile breath testing stations to Perth freeways. Corresponding significant increases in high alcohol content beverage sales. No significant relation with driver BACs.	Could not determine whether high numbers of crashes due to greater level of alcohol consumption by individuals at late trading premises (or both). Non-randomized premises.
Chikritzhs & Stockwell (2007) Australia (peer reviewed)	Examined the effect of 1-2 hr closing time extension after midnight on positive driver BAC levels among patrons of late trading premises by time of day, age and sex. Used driver BACs among patrons of normally trading premises as controls.	Male patrons of late trading premises aged 18–25 years and apprehended between midnight and 2am had significantly higher BACs. Female patrons of late trading premises apprehended for drunk driving between 10pm and midnight (before closing time) had significantly lower BACs.	Non-randomized premises. Potential for patron drinking at multiple locations.

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