

A rapid narrative review of the evidence

The impact of on-premise trading hours on alcohol use and related harms

Evidence and Innovation: Alcohol and Drug Foundation

Date published: August 2026



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Declarations

This report was developed by the Alcohol and Drug Foundation (ADF).

No funding, financial support or other resourcing was received from the alcohol and other drugs industry for any component of the report, rapid narrative review design and delivery, or interpretation of findings. The authors have not received funding, via ADF employment or otherwise, from the alcohol and other drugs industry or affiliates, and have no other conflicts of interest to declare.

About the Alcohol and Drug Foundation

The [Alcohol and Drug Foundation \(ADF\)](#) is Australia's leading organisation committed to inspiring positive change and delivering evidence-based approaches to minimise alcohol and other drug (AOD) harm. As an evidence-based organisation, the ADF has a key strategic focus on 'knowing what works' and aims to build the knowledge base and understanding of effective AOD harm minimisation policies and programs.

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Acknowledgements

The ADF thanks external experts, Professor Tanya Chikritzhs and Professor Peter Miller, for their insightful recommendations and guidance in developing the search strategy, and review of the report draft.

We also wish to thank the ADF Evidence Reviews Advisory Group who have guided the scope of this review.

Suggested citation

Bovopoulos N, Rawlings L, Sebalj M, Zaccagnini S, Nott F, Chikritzhs T, Miller P, Gay L, Costello E, Martin, C. The impact of on-premise trading hours on alcohol use and related harms: a rapid narrative review of the evidence. Melbourne: The Alcohol and Drug Foundation; 2026.

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Acronyms and definitions

Abbreviation or term	
ADF	Alcohol and Drug Foundation.
Alcohol-related harms	Negative health, social, and criminal outcomes attributable to alcohol use, including violence, injury, hospitalisations, road traffic incidents, and gender-based family violence.
Alcohol use	The intake of ethanol-containing beverages, commonly measured by volume, frequency and patterns of intake over time (e.g. past week, past month, past year) and during specific drinking occasions, including episodic and regular use.
AOD	Alcohol and other drugs.
BAC	Blood Alcohol Concentration.
Displacement	A shift in the timing or location of alcohol-related harms following an intervention, rather than a true reduction in overall harm.
ETPs	Extended Trading Permits.
GBFV	Gender-based family violence, a broad concept which is intended to incorporate intimate partner violence (IPV), family and domestic violence (FDV) and child maltreatment
Interrupted time series (ITS)	A quasi-experimental design that examines trends in outcomes before and after an intervention to assess whether a change occurs beyond existing trends.
Last drinks	A specified time after which the sale of alcohol is no longer permitted on licensed premises, regardless of the venue's closing time.
Late-night trading	The sale and service of alcohol during late-night hours, typically extending beyond midnight and into the early morning period.
Lockout laws/policies	Lockout laws/policies permit licensed premises to continue serving alcohol to people on the premises past a specified hour but prohibits people from entering or re-entering the premises after that hour.
Multi-component interventions	Policy or regulatory approaches that combine changes to trading hours with additional measures - such as lockouts, policing strategies, venue regulations, or patron management - to reduce alcohol-related harm.
NZ	New Zealand.
On-premise outlets	Establishments where alcohol is sold and consumed on the premises (e.g. bars, hotels, clubs, restaurants).

Off-premise outlets	Establishments where alcohol is sold for consumption outside of a licensed establishment (e.g. bottle shops).
PICOT	Population/Patient, Intervention, Comparison/Control, Outcome, Time.
Pre-loading	Drinking at home or elsewhere prior to going to destination site for drinking.
Quasi-experimental study	An observational study design used to evaluate population- level interventions by comparing outcomes over time between intervention and comparison sites, where random assignment is not feasible.
SR	Systematic review.
Standard trading hours	The default or ordinary hours during which licensed premises are permitted to sell and serve alcohol under jurisdictional licensing regulations, prior to the application of any extensions or restrictions.
Trading hour extensions	Trading hour extensions can be applied for on-premises and off-premises outlets and may apply to individual venues, a cluster of venues within an ‘entertainment’ precinct, a whole community, or an entire jurisdiction. Types of extensions to on-premises outlets include: • later or specified closing times • later or specified last drinks (e.g. sales of alcohol permitted beyond standard cutoff times) • extended drinking periods, where alcohol use is permitted on premises beyond standard trading hours.
Trading hour restrictions	Trading hour restrictions can be applied for on-premises and off-premises outlets and be applied to a cluster of venues in an ‘entertainment’ precinct, a whole community or an entire jurisdiction, such as on Christmas Day. Types of restrictions to on-premises outlets include: • earlier or specified closing times • earlier or specified last drinks (e.g. no sales of alcohol after 2-3 a.m. and no sales of high-alcohol content drinks such as shots after midnight) • earlier or specified last drinking - where no further drinking is allowed on premises.
UK	United Kingdom.
USA	United States of America.

Summary of Findings

Background

On-premise alcohol trading hours are a key policy lever used to regulate alcohol availability and reduce alcohol-related harm. Changes to trading hours have been widely implemented across Australia and comparable jurisdictions, raising questions about their impact on alcohol use and related harms. A rapid narrative review was undertaken to examine the relationship between on-premise trading hour policies, alcohol use and alcohol-related harms.

Methods

A systematic search was conducted across four databases for systematic and narrative reviews published from 2005 to 2025, to identify eligible reviews. Single studies and government or research reports were also identified through manual searching. Together, these publications assessed the outcomes of key policy interventions across Australia, the UK, NZ, US, Canada and Norway that involved changes to trading hours. Data were extracted using [Covidence](#) (web-based systematic review tool), and a narrative synthesis was undertaken.

The review is presented in two parts: i) the development, consistency and strength of the evidence as reported by review studies, and ii) findings from key interventions that have extended trading hours, reduced trading hours, or included trading hours restrictions alongside other policies.

Findings

Across the evidence base, several clear patterns emerged:

- **Extensions to trading hours are linked to increased harm, particularly when they involve late-night trading.** The most consistent evidence relates to extensions that permit alcohol service after midnight, when alcohol-related violence and injury are most concentrated. Even small increases in trading hours – often as little as one hour extended into the late night or early morning period – are consistently associated with increases in alcohol-related harms, particularly violent crime and injuries. This relationship is strongest in studies using quasi-experimental designs with appropriate comparison sites. For example, in Perth (WA), a longitudinal study found that each additional late trading venue was associated with a 4.6% increase in night-time emergency department presentations, compared with a 0.6% increase for venues trading standard hours.¹ Internationally, a quasi-experimental study across 18 Norwegian cities found a 16% increase in police reported violent crime for each one hour extension to bar closing times.²
- **Road safety outcomes linked to trading hours are variable.** The impact of extended trading hours on alcohol-related crashes is less consistent, largely reflecting the influence of local conditions such as transport availability, traffic flow, and concurrent road safety initiatives. For example, in Perth (WA), extended hotel trading hours were associated with increases in alcohol-related road crashes, particularly those involving impaired drivers following late-night alcohol sales.³ Internationally, a one-hour extension in closing times in Ontario, Canada was associated with increases in alcohol-related traffic injuries in early-morning hours, alongside no overall change in traffic fatalities. The authors attributed this to concurrent road-safety initiatives such as graduated licensing and licence suspension policies.^{4, 5 6}
- **Reductions in trading hours reliably decrease alcohol-related harms.** Studies evaluating early closing times report immediate and sometimes substantial reductions in violence, including serious assaults and homicides.⁷ In Newcastle (NSW), reducing on-premise trading hours from 5am to 3:30am was associated with a 37% reduction in night-time assaults,⁸ with effects sustained for at least five years.⁹ Subsequent analyses indicate that the largest reductions occurred after the earlier closing time, rather than the lockdown, reinforcing the central role of trading hour restrictions.¹⁰

Internationally, Norwegian municipalities that reduced bar closing times experienced an estimated 20% reduction in assaults for each hour of reduced trading.²

- **Multi-component interventions** that include trading hour restrictions tend to produce the largest and most sustained reductions in harm. These interventions also illustrate the challenge of isolating individual policy effects, yet they reinforce the central role of trading hours as a key lever within broader regulatory packages. For example, in Sydney's CBD and Kings Cross, a package of measures that included a 3am cessation of alcohol service was associated with 10–40% reductions in assaults in the CBD^{11–13} and 22–49% reductions in Kings Cross,^{11, 13, 14} alongside a 24% reduction in serious alcohol-related injury emergency department presentations.¹⁵
- **Context matters.** The magnitude of effects may vary by neighbourhood characteristics, patron mix, outlet density and the degree to which venues adopt new trading hours. However, the direction of effects remains largely consistent across settings and jurisdictions. For example, in Queensland, precinct-level analyses showed that higher densities of late-trading on-premise venues were associated with significantly higher rates of serious assault, while precincts dominated by earlier closing venues experienced fewer assaults.¹⁶ In the United Kingdom, studies evaluating the *Licensing Act 2003* found little overall change in levels of violence in some locations and shifts in alcohol-related offences to later hours, likely reflecting low uptake of extended hours by venues and preexisting late-night trading.^{17–20}

Conclusion

Evidence across multiple jurisdictions is largely consistent that extensions in on-premise trading hours are associated with increased alcohol-related harms. Meanwhile, there is good evidence that reductions in trading hours of even one hour, can significantly reduce alcohol-related harms. Evidence suggests trading hours should be considered as a foundational component of alcohol harm minimisation strategies, particularly when designing or evaluating multi-component interventions.

1. Introduction

1.1. Background

Alcohol use contributes significantly to the global burden of disease and injury, with 2.6 million attributable deaths in 2019.²¹ This represents 4.7% of all deaths in that year.

In Australia, alcohol was the sixth highest risk factor contributing to the burden of disease in 2024, responsible for 4.1% of the total disease and injury burden.²² Risky alcohol use is widespread in Australia, with 31% of people aged 14 and over drinking in ways that puts their health at risk in 2022-2023.²³

The physical and temporal availability of alcohol is considered a key driver of alcohol use and related harms as described by availability theory.²⁴ The World Health Organization (WHO) recommends several alcohol policy interventions to lower alcohol use levels and related harms, including alcohol pricing policies, and restrictions on advertising and availability.²⁵

Restricting alcohol availability involves several approaches. These include minimum legal purchasing age requirements, responsible service of alcohol, and licensing restrictions to manage where, when, how much and at what price alcohol can be purchased and consumed.²⁵

Historically, alcohol-related harms, like late night assaults, have been associated with on-premise locations, such as bars, pubs, and clubs.^{26, 27} In these environments, patrons must purchase and drink alcohol on site. As a result, the length of time a venue is open and can serve alcohol can shape the length and intensity of patrons' drinking sessions.

The temporal availability of alcohol can be regulated in several ways including restricting or extending trading hours over the entire week or on specific days of trading. Alcohol sales can also be restricted (entirely, with purchase limits, or restrictions on specific products such as high-alcohol content beverages) after a specific time before closing ('last drinks'), and venue closing times can also be staggered in night-time entertainment precincts. In addition to changes to trading hours, other interventions can and are often implemented in the same setting, including lockouts, risk-based licensing, and increased police presence.²⁸

This review considers how on-premise trading hours (hereafter referred to as 'trading hours' unless otherwise specified) contribute to shaping patterns of alcohol use and harm. We consider trading hours in the context of the broader possible suite of interventions that can be implemented within on-premise outlets, night-time entertainment precincts and the wider night-time economy. This is in recognition that trading hours are likely to interact with other regulatory, environmental and policing strategies to collectively shape patterns of alcohol use and related harms.

1.2. Purpose

This review provides a comprehensive summary of evidence on the relationship between changes to trading hours, alcohol use and alcohol-related harms. It begins by synthesising reviews published in the last two decades to explore how the evidence base has developed and strengthened over time.

It then examines studies assessing key interventions in Australia and internationally. These include multi-component interventions where changes in trading hours were implemented alongside other strategies to reduce alcohol-related harms. Summarising the literature for each intervention may help clarify the strength of evidence and explore the contexts in which some approaches have been more effective.

1.3. Research question

'In Australia and comparative jurisdictions where individuals are exposed to different on-premise alcohol trading hour policies, what is the impact of extended trading hours, compared to more restricted hours, on alcohol-related harms?'

2. Methods

The focus for the review is to comprehensively summarise the broad evidence base on trading hours, consistent with a narrative review methodology. As a result, the search strategy aimed to be comprehensive.^{29,30} The research question for the review was developed collaboratively by the authors, using the PICOT (patient, intervention, comparison, outcome, and time) framework, guided by the purpose of the review, and reviewed by external subject matter experts.

2.1. Eligibility criteria

Eligibility criteria were applied to three literature types, reviews, single studies and reports, as summarised below in Table 1. The search was limited to studies published in English from 2005 onwards. Reviews were eligible if they were peer-reviewed. Grey literature reviews were also eligible where no corresponding peer-reviewed article had been published. Single studies and reports were eligible if they were peer-reviewed articles or grey literature drawing on data collected in Australia, New Zealand, the United States, Canada, the United Kingdom, Ireland and Norway. This criterion was applied to focus on key interventions implemented in jurisdictions that were socio-politically similar to Australia. Most included single studies were cited as key literature in at least one of the reviews, except where they had been published after the most recent review.

Table 1: Eligible literature included in the review

Literature type	Years	Study designs	Peer-reviewed literature	Grey literature	Data source location	Intervention
Reviews	2005 - 2025	Systematic reviews, rapid reviews, narrative reviews, meta-analyses	Yes	Yes (if no corresponding peer-reviewed article published)	Any	Impact of restrictions or extensions to trading hours on alcohol consumption or alcohol-related harms. If within a multi-component or complex intervention, impacts of trading hours were isolated and reported on.
Single studies	2005 - 2025	Randomised controlled trials, case control studies, longitudinal studies and quasi-experimental studies	Yes	Yes (if no corresponding peer-reviewed article published)	Australia, NZ, the US, Canada, the UK, Ireland, Norway	
Reports (drawing on data from several studies)	2005 - 2025	Randomised controlled trials, case control studies, longitudinal studies and quasi-experimental studies	Yes	Yes (if no corresponding peer-reviewed article published)	Australia	

Ineligible literature included:

- letters, commentaries, opinion pieces, theses, dissertations, policy submissions, and briefs
- reports including data which was subsequently published in a peer-reviewed journal article
- studies that did not report on the impacts of on-premise trading hours, e.g. off-premise trading hours, studies aggregating on and off-premise effects, policy analyses or those examining lock-out laws (interventions designed to restrict entry into venues after certain times or manage late-night movement, rather than alcohol sale hours).

Eligible studies included those which investigated on-premise trading hour impacts on alcohol consumption, and/or harms including:

- violence, such as assault and injury, and gender-based family violence (GBFV)
- road safety, including drinking-driving, traffic accidents, injuries and fatalities
- hospitalisations and mortality
- non-violent crime
- other alcohol-related harms.

2.2. Search strategy

An environmental scan of the literature was conducted and seed papers were examined for key search terms. Search terms, synonyms and strings were developed by the Specialist Librarian and reviewed by key staff and external experts. Key search terms included ‘alcohol’ and ‘outlet(s)’ and ‘hour(s)’. Search limits included studies published in the English language between 2005–25 for systematic reviews and single studies. Search strings were subsequently tested, revised, and finalised by the Specialist Librarian and applied across the ADF Library, Google Scholar, Pub Med Central, as well as Google to capture grey literature.

2.3. Screening and selection

Searches were completed in November 2025. All relevant results from each search string were assessed according to the search strategy, duplicates removed, and eligible publications saved and imported to [Covidence](#) for abstract and full text review. All abstracts were single screened by one reviewer (NB), with at least 20% of abstracts screened by a second author (LR, MS).

In addition, hand searching of references was conducted for systematic and narrative reviews and for papers that addressed the general topic but did not align with the research question. The selected full-text articles were assessed for eligibility by one of the Lead Reviewers (LR, NB), and a second author (MS, SZ, FN). Any full text papers that were identified as ineligible for inclusion were discussed between reviewers to reach consensus. Where there was discrepancy about the eligibility of an article, it was discussed by two reviewers, and if a consensus could not be reached, a third reviewer was consulted.

2.4. Data extraction and evidence synthesis

Data extraction fields were developed and tested in Covidence, tailored to the included study designs and the research question. Reviewers (LR, NB, MS, FN, SZ) completed data extraction for the included studies, with a second reviewer (NB) independently assessing 20% of records extracted by other reviewers for consistency. Discrepancies were resolved through discussion between the two reviewers.

All eligible studies were included in the evidence synthesis. Results from the evidence synthesis were exported from Covidence, cleaned in Excel and organised into tables by the lead author (NB). A narrative synthesis of the findings was then conducted and segmented by literature type.

2.5. Report structure

In **Section 3.1** we provide a summary of findings from reviews in a chronological order.

Section 3.2 provides a summary of findings from single studies examining the impact of extended trading hours on alcohol-related harms.

Section 3.3 summarises the findings of single studies assessing restricted trading hours.

Finally, **Section 3.4** summarises findings of single studies assessing restricted trading hours in the context of multi-component interventions.

3. Findings

3.1. Findings from reviews of trading hour studies

Standard trading hours for pubs in Australia were gradually extended in the 1970s and 1980s.³¹ Supporters argued that this would allow people to pace their drinking, reduce their alcohol use and prevent “mass exiting of patrons at a single closing time, enabling police to better control and patrol high-risk areas at high-risk times”.³²(p592) Supporters of extensions also viewed extended trading as an opportunity for economic growth.¹⁰

Early reviews of these reforms generally found that extended trading hours were associated with increased alcohol use and alcohol-related harms. In a major review, Stockwell and Chikritzhs (2009)³¹ synthesised a large body of international literature examining the impacts of these changes in Australia, the UK and North America. Between 1965 and 2008, the authors identified 49 studies published across eight countries including peer-reviewed articles and government reports. However, the evidence base was methodologically heterogeneous, with substantial variation in design, outcome measurement and analytical approaches. Many studies relied on cross-sectional designs and did not fully account for other changes that co-occurred with relaxed trading hours. In addition, some studies did not consider whether alcohol-related harms shifted to other locations (displacement) or whether extended hours were taken up uniformly by venues. Of note, 19 of 21 UK studies did not include a control group, limiting the ability to attribute observed changes to policy reforms.

To address these limitations, Stockwell and Chikritzhs conducted a separate analysis of the 14 peer-reviewed articles included in the review that collected baseline and control data. Most of these higher-quality studies examined road safety outcomes. The majority (11 of 14) reported an association between extended trading hours for bars and clubs and increases in at least one outcome measure (risky alcohol use or rates of harm).³¹ The review suggested that any differences in findings from Australia and the UK following deregulation of standard 11pm pub closing times may be due to variability in study design and quality, rather than reflecting true differences in policy impact. It also highlighted the need for further well-controlled studies to better isolate the effects of late-night trading hours on alcohol use and related harms. In summary, the weight of the evidence to date indicated that extended late-night trading hours increase alcohol use and related harms.

A subsequent review reached similar conclusions. Popova et al. (2009)⁶ produced a narrative review of 11 studies published in the preceding eight-year period. All included studies focused on the impacts of extended trading hours. Most examined at least one type of alcohol-related harm, while a smaller number explored the relationship between trading hours and drinking patterns. Several studies examined the effects of natural experiments in which extended trading permits were introduced in Ontario (Canada), Perth (Australia) and the UK (these interventions are discussed in more detail in Section 3.2).⁶

Studies published within this decade continued to vary in design, with many involving simultaneous interventions and limited controls. Overall, the evidence synthesised in the review indicated that changes to alcohol trading hours have meaningful effects on alcohol-related harms. Although some study designs limit

causal inference, stronger longitudinal and quasi-experimental evidence consistently shows that extended trading hours are associated with increased alcohol use and harms.⁶

In the US, Hahn et al. (2010)³³ explored whether the size of an extension influenced alcohol use and related harms. Interventions extending trading hours by two or more hours consistently showed increased alcohol use and related harms, with 10 studies across six interventions reporting positive associations. In contrast, evidence for small extensions of less than two hours was weaker. Six studies assessing five such interventions did not provide sufficient evidence to determine whether shorter extensions had a significant impact on alcohol-related harms. Taken together, reviews published between 2009 and 2010 consistently linked extended trading hours with increased alcohol-related harms, although uncertainty remained regarding the effects of smaller extensions.

As the evidence base matured, research increasingly shifted from examining whether trading hours influence harm to identifying which harms are most affected and under what conditions. In 2015, Fitterer et al.³⁴ examined the effects of alcohol availability via trading hours, outlet density, pricing and taxation on interpersonal violence. Of the 19 included studies examining trading hours interventions (on and off-premise outlets, including staggered closing times and lockouts), 12 (63%) reported significant increases in violent crime rates.³⁴ The strongest evidence came from 11 controlled intervention studies, seven of which reported significant impacts on violent crime, particularly following extensions in trading hours. Studies evaluating staggered closing times or lockouts generally reported no significant effects on the rates of hospital- or police-reported assaults.³⁴ In contrast to Hahn et al., well-designed studies included in the review suggested that “even modest policy changes, such as 1% increases in alcohol price, one hour changes to closing times, and limiting establishment densities to <25 outlets per postal code substantively reduce violent crime.”³⁴(p8)

In 2015 Australian researchers (Miller et al.)³⁵ published a commissioned report combining a literature review with a Delphi panel consensus study³⁶ involving researchers and practitioners such as police and public servants. The aim was to assess the effectiveness of different interventions (including restrictions of trading hours for licensed venues) in reducing alcohol supply, demand, and related harms. The review considered several alcohol trading hour policy options, including service finishing 30 minutes before closing, sales restrictions in specific geographic areas, and changes to trading hours. The report estimated that alcohol-related intoxication and harm increased by 15% and 20%, respectively, for every hour of trading after midnight. Importantly, closing all venues earlier was identified as the most evidence-based approach to reducing intoxication levels. The evidence base was limited for service finishing earlier while remaining open, and mixed for sales restrictions. Overall, the evidence most strongly supported reducing trading hours and days of sale as effective strategies in Australia and internationally.³⁵

As more Australian evaluations became available, reviews began to place greater emphasis on interventions involving restrictions rather than extensions. Wilkinson et al. (2016)¹⁰ reviewed 19 studies published between 2005–15. This was the first major review to synthesise literature examining the impacts of trading hour restrictions and trading hour extensions. By this stage, several Australian studies had examined combinations of lockouts and reduced trading hours, with some of the strongest evidence coming from Newcastle and Kings Cross. These studies broadly demonstrated decreases in rates of violence (discussed in detail in Section 3.4). The review concluded that “well-designed studies from Australia demonstrate that reducing the hours during which on-premise alcohol outlets can sell alcohol late at night can substantially reduce rates of violence”¹⁰(p5) and that these findings were broadly supported by a growing body of international research.

Sanchez-Ramirez & Voaklander³⁷ examined the impact of restrictions and extensions on trading hours and days of sale across specific alcohol-related harms within 26 studies published since 2000. While research on restrictions had increased, it continued to lag behind research on extensions, with approximately three-quarters of reviewed studies focused on extended trading hours and days of sale.

Consistent evidence supported the argument that “policies regulating times of alcohol trading and consumption can contribute to reduce injuries, alcohol-related hospitalisations/emergency department

visits, homicides and crime.”³⁷(p99) However, the impacts on violent crime and road safety outcomes were more mixed, suggesting that these relationships are likely complex and warrant further investigation.

In 2020, Nepal et al.³⁸ addressed an existing evidence gap by synthesising on and off-premise trading hours literature separately for the first time. The review focused on high-quality evidence examining the impact of alcohol-related assault and unintentional injuries published to 2018. All included studies compared changes over time within an intervention site compared to a control site, and a formal risk-of-bias assessment was undertaken to identify higher-quality evidence. The literature remained weighted towards trading hour extensions, with 15 studies examining extended hours and only five examining restricted hours. Extended trading hours at on-premise outlets were typically followed by increases in assault, unintentional injury or drink-driving offences. Eleven of the 15 studies (73%) reported an increase in at least one harm indicator, while two reported a decrease, and two found no association. Despite the smaller evidence base, all five studies examining restricted hours found reductions in at least one measure of alcohol-related harm. These included restrictions in Norway (discussed in Section 3.3) and Australian multi-component interventions in Kings Cross, Newcastle and Geelong (discussed in Section 3.4).

The most recent review largely reinforces earlier findings, while also highlighting the importance of local context and complementary interventions. In what is arguably the most comprehensive review to date, Eassey et al. (2024)²⁸ investigated the impacts of a variety of interventions within night-time entertainment precincts and outdoor music festivals. The authors searched across nine databases, and although studies were not restricted to higher-quality designs, all were assessed for risk of bias using formal validated tools. Of the 100 included studies, ten investigated changes to trading hours and alcohol-related harms, with half reporting mixed findings.

Overall, extended trading hours were sometimes linked to increases in violence, alcohol-related injuries, emergency department (ED) presentations and assaults (e.g. in Reykjavik, Sweden and Norway). Some studies found no overall change in violence with a shift to later hours (e.g. Manchester, UK). Smaller extensions produced mixed outcomes, including increased alcohol-related injuries in Amsterdam, and reductions in road traffic accidents on certain nights of the week among young drivers in England and Wales. Policies allowing local variation in closing times produced inconsistent effects in Bavaria, while studies from Norway reported increases in harms. Restrictions on trading hours were associated with reductions in alcohol-related hospitalisations in Spain but also linked to increases in night-time violence in some parts of Bavaria. The review found “good evidence to support the careful application of trading hour restrictions, but less so for staggered closing times”.²⁸(p16)

The review also examined the effects of multi-component interventions across 41 studies, with over half including some type of change to trading hours. Many Australian interventions were classified as multi-component, including those implemented in Kings Cross, Newcastle, and Queensland (QLD), as well as interventions in New Zealand and the US (discussed in Section 3.2). These interventions produced the strongest public health (62% positive) and criminal justice (84% positive) outcomes, with 71% of studies rated as strong quality. Overall, multi-component interventions targeting alcohol accessibility and availability were associated with reductions in assaults.

Taken together, the evidence accumulated over the past two decades synthesised in reviews consistently indicates that extended trading hours are associated with increased alcohol use and alcohol-related harms, while restrictions on trading hours are generally associated with reductions in harm. Although findings vary by setting, intervention design and study quality, the direction of evidence has remained broadly consistent across successive reviews.

3.2. Extended trading hours

3.2.1 Australia

In Perth, Western Australia, on-premise outlets have been able to apply for permits to extend trading past midnight on Mon–Sat, or past 10pm on Sundays, since the late 1980s. Between 1980–97, over 70 Perth hotels were granted permits to extend trading hours after midnight.³² Two studies examining these policy changes reported increases in assaults and night-time injuries,^{1,32} with a third reporting increases in monthly road traffic accidents.³

More specifically, during the period 1990–98 and 1996–97, an increase in monthly rates of alcohol-related road crashes was found to be associated with higher volume sales of high-alcohol-content beer, wine and spirits in late-trading Perth hotels.³ Between 1991–97, an increase in monthly assault rates in or around hotels with one-hour extended trading was also attributed to increased sales of high-alcohol-content drinks.³²

A later study using data from 2002–10, found that each additional late-trading outlet was associated with a 4.6% increase in night-time injuries presenting to Perth EDs and a 4.9% increase in weekend night injuries.¹ In contrast, each additional outlet with standard trading hours was linked to only a 0.6% increase in night-time injuries and a 0.8% increase in weekend night injuries.¹ All three studies examined changes over 7–8 year periods and analysed wholesale alcohol purchase data to make inferences on alcohol use patterns.

3.2.2 The United Kingdom

UK studies examining the impact of the *UK Licensing Act 2003* report mixed results. The law removed a fixed 11pm closing time for pubs and allowed venues to apply for extended hours, with trade up to 24 hours a day.³⁹ These changes were driven by the view that staggered closing hours would reduce overcrowding and violence resulting from all pubs closing at 11pm.⁴⁰

Four studies (all lacking controls) reported decreases or no changes in violent crime across different parts of the UK and are described below.^{17–20} In relation to violent crime, a 2011 before-and-after study found a 14% decrease in violence and 15% decrease in criminal damage in Hartlepool in the north east of England between 8pm – 4:59am, following the extension policy.¹⁷ Although, the number of overall interpersonal violence offences decreased over three years, the “the shift in the time of offences resulted in an absolute increase in offences occurring between 2am and 4:59am”.¹⁷(p43) In Manchester, two studies published in 2013¹⁸ and 2014¹⁹ reported no overall change in violence over 3–4 year time periods, with the 2013 study reporting a gradual and permanent shift in violence occurring between 3–6am increasing by 36% by the end of the study period. Another reported a trend in increased assaults over eight years in Cambridgeshire, with a significant increase in weekend assaults presenting later in the night.²⁰ As per other studies, these findings were attributed to violence patterns shifting to later at night due to the staggering of closing hours.⁴¹

For non-violent crime, one study reported an increase in the number of ambulance attendances and public order offences (antisocial behaviour) following the extension.¹⁷ In contrast, another study found a subsequent decrease in alcohol-related crimes.⁴² A significant increase in the police workforce (by 13% over seven years in England and Wales), may have driven a reduction in the rates of alcohol-related crime.³⁸

It is critical to note however, that several authors have suggested that the lack of evidence of expected effects of the *UK Licensing Act 2003* is likely due to the Act having little impact on actual trading practices.^{10, 39, 43} Researchers across several studies note that many venues were already operating past 11pm (via Special Hours) prior to the Act, and only a small number of premises applied for 24-hour licenses subsequently.³⁹

Meanwhile, in Scotland, the 2005 *Licensing Act* allowed local government licensing boards to set local trading hours policies, which has led to expanded trading hours over time in different cities. In Aberdeen, Scotland 38 bars/pubs extended their hours by one to two hours to 3am from 2017, while in Glasgow, 10 nightclubs were permitted to extend trading by one hour to 4am from 2019. In a well-designed study using an interrupted time series design with Edinburgh as a control,⁴⁰ researchers observed a 17.4% increase in alcohol-related ambulance attendances and a 7.9% increase in reported crimes in Aberdeen, compared to the control site. Peak times for alcohol-related ambulance call outs also shifted an hour later, aligning with later closing times. No significant changes were observed in Glasgow however this was attributed to the reduced number and size of venues, compared to Aberdeen.

3.2.3 North America

In Ontario, Canada, the *Liquor Licence Act* was amended in 1996 to extend the hours of alcohol sales and service in licensed establishments from 1–2am. Two studies subsequently observed increases in alcohol-related harms in the early morning hours after outlets closed.^{44, 45}

A 2008 study observed increased police-recorded assaults between 2–3am on weekdays, and between 3–4am on weekends.⁴⁴ However, no overall change in assaults was observed across the 11pm–4am period, and decreases in some earlier time periods (e.g. 1–2 am on weekends) suggested that incidents may have shifted later into the night following the extension of trading hours, rather than increasing overall. The same study also reported reductions overall in impaired driving, with increases in specific early-morning windows, including in drink-driving offenses between 2–3am and 3–4am on weekdays and weekends. Another 2006 study⁴⁵ found an increase in alcohol-related traffic and non-traffic injury between 2–3am on weekdays. This was consistent with a cross-border effect, whereby extended hours in Ontario may have reduced travel to nearby Michigan, USA, leading to an increase in local alcohol-related motor vehicle casualties.

Two further Canadian studies found no clear effects on traffic fatalities or injuries.^{4, 5} More specifically, a 2005 study⁴ found no evidence of an effect on Blood Alcohol Concentration (BAC) positive traffic fatalities, and a 2007 study⁵ similarly found no change in traffic injuries. There are several possible explanations for this. Firstly, licensed venue changes may not have been extensive across the city, and several concurrent road-safety measures were introduced around the same time as extended trading hours, which may have contributed to reduced drink-driving. These included Ontario's Graduated Licensing System and 90-day licence suspensions, which likely reduced drink-driving and masked any effects of a small increase in alcohol availability. Finally, other authors noted changes in road safety trends in neighbouring regions changed at the same time (including decreases involving collisions with vehicles with Ontario licence plates), suggesting that drinkers may have changed their drinking patterns and remained at Ontario venues for longer.⁶

In the US, a 2014 study⁴⁶ examined the effects of extending bar operating hours from midnight – 2am and a temporary increase in downtown police patrols at bar closing time in the city of San Marcos, Texas. The measures were intended to minimise alcohol use-related harms, however, study authors reported that the strategy didn't achieve its objectives, and rather, the extended hours ordinance was associated with increases in public intoxication incidents downtown and drink-driving complaints citywide.

They also found that the expanded police presence produced no meaningful reductions in verbal disturbances, intoxication, or driving under the influence-related calls.⁴⁶ Although patrol increases produced a small deterrent effect on physical disturbances, authors suggested that extended trading hours contributed to higher alcohol use and more intoxicated people dispersing at 2am, rather than midnight. Authors called for complementary measures to mitigate harm, particularly safe transport options for patrons.⁴⁶

A 2007 US study⁴⁷ of Minnesota found evidence of increasing harms following a one-hour extension from 1–2am for on-premise outlets, including restaurants and bars. The study, using a time-series model, reported an 'abrupt and sustained increase' in police stops for suspected drink-driving where drivers exceeded the legal limit of 0.08% BAC, compared to the 1.5 years prior to the trading hour extensions.

3.2.4 Norway

In Norway, local municipalities can choose to extend or restrict closing hours within a maximum range of midnight – 3am. This regulation context has provided a unique study environment where small changes in trading hours can be studied in either direction.

Using robust quasi-experimental methods, Rossow et al.² observed a 16% increase in police-reported violent crime for each additional one hour extension for venues across eight of 18 Norwegian cities granted permission to change their hours.

Another study found that later closing hours are associated with increased road traffic accidents in smaller towns, and decreased accidents in more populated areas.⁴⁸ The study suggests that the mixed effects of trading hours on road safety outcomes are likely to be mediated by environmental factors, such as public transport availability, population density and traffic flows.

3.3. Restricted trading hours

3.3.1 North America

Addressing an evidence gap noted in an earlier review,³³ the first US evaluation of reduced trading hours was published in 2024.⁷ In Baltimore, Maryland, trading hours were reduced in bars and taverns from 1 July 2020 (moving from 6am–2am to 9am–10pm) in an attempt to reduce violent crime in a high-priority neighbourhood. A month later, late-night violent crimes decreased by 14%, and subsequently reduced by 29% annually in the two years following, compared to other Baltimore neighbourhoods. While homicide rates did not significantly change immediately after the reduction to trading hours, rates dropped by 48% each year for two years. Sensitivity analysis also confirmed that crimes did not shift to earlier in the day or further away from outlets.⁷

3.3.2 Norway

Evidence from Norway also suggests that reducing trading hours may reduce alcohol-related violence. Across 10 of 18 cities that reduced closing times by between 30 and 120 minutes from a 3am closing, assault rates fell by an average of 20% for each hour of reduced trading.²

3.4. Multi-component interventions

3.4.1 Australia

In 2008, licensing changes were introduced in Newcastle and Hamilton (both in NSW) that restricted entry into licensed premises from 1:30am (lockout). In addition, Newcastle introduced restrictions to on-premises trading hours, reducing closing times from 5am to 3:30am. This created a natural experiment that enabled researchers to isolate the effects of restricted trading hours in Newcastle.⁸ Eighteen months after the changes were implemented, assaults in Newcastle between 10pm–6am had reduced by 37%.⁸ These reductions were sustained five years later in a follow-up study.⁹ The greatest reductions occurred after 3am, suggesting the reduced trading hours – rather than the lockout – were primarily responsible for the observed effects.¹⁰

A 2022 study⁴⁹ examined the impact of the Newcastle and Hamilton interventions on GBFV, comparing trends to two non-equivalent control sites in the same state (Wollongong and Maitland). Over an 11-year period, police-reported domestic violence assaults decreased at both intervention sites, while rates increased at control sites. However, statistically significant reductions were observed only in Newcastle, again suggesting that trading hours restrictions may have been driving the effect. An estimated 204 family and domestic violence assaults were prevented over this time, representing an overall reduction of 29%. The authors noted that the intervention catchment areas did not align closely with locations where GBFV reports generally occurred, likely resulting in an underestimation of the true effect.⁴⁹

A study compared alcohol-related injury ED presentation rates during high-alcohol hours (6pm Friday to 6am Sunday) in two regional cities with comparable characteristics, Geelong (Victoria) and Newcastle (NSW). The two cities had different approaches to reducing harms associated with licensed venues.⁵⁰ The City of Greater Geelong employed a voluntary collaborative approach to reducing harms, with interventions such as ID scanners at licensed venues, safe taxi ranks, increased police presence during high-alcohol hours, and risk-based licensing, where a new licensing system differentiated between types of venues, trading hours and size.⁵⁰ Compliance with any of these interventions was voluntary.

On the other hand, Newcastle employed a mandatory, regulatory approach to reducing harms, including reduced trading hours (with all premises prohibited from trading later than 3:30am) and a 1:30am lockdown, along with Responsible Service of Alcohol measures and compliance audits.⁵⁰

The study found that none of the interventions in Geelong were effective at reducing alcohol-related injury ED presentations.⁵⁰ In Newcastle, reducing trading hours was effective at reducing ED presentations, however there was no evidence of effectiveness for lockdowns.⁵⁰

Overall, the evidence suggests that a regulatory approach with monitoring and enforcement mechanisms, combined with trading hour restrictions, may be more effective than voluntary measures in reducing alcohol-related harms in night-time entertainment districts. The authors concluded: “The findings suggest that mandatory measures that address the amount of time people are able to drink are more likely to be effective than voluntary measures, which try and control patron behaviour once they are intoxicated.”⁵⁰(p321)

In February 2014, the NSW Government introduced key changes to licensing regulations in Sydney’s CBD and Kings Cross entertainment districts. The key changes included a precinct-wide 1:30am ‘lockout,’ a 3am cessation of alcohol service, a ban on takeaway alcohol after 10pm, and no service of ‘shots’ after midnight. Prior to these reforms, individual licences granted venues to trade up to 5am.⁵¹ Seven publications reported on findings that studied the impact of these changes. Most used interrupted time series (five studies)^{11, 12, 14, 52, 53} and two used a before-and-after design.^{13, 15}

Outcomes included assaults (six studies)^{11-14, 52, 53} and ED presentations for alcohol-related injuries (one study).¹⁵ All seven publications reported significant changes in the outcomes measured. ED presentations for serious alcohol-related injuries decreased, particularly during peak drinking periods (6pm Friday – 6am Sunday), with a relative reduction of 24%.¹⁵ Assaults also declined significantly in both the CBD and Kings Cross, with reductions ranging from 10-40% in the CBD¹¹⁻¹³ and 22-49% in Kings Cross.^{11, 13, 14}

There was mixed evidence of harms shifting to a surrounding area rather than being reduced (displacement). Two publications^{11, 14} reported increases in assaults in neighbouring districts, and one publication⁵² found no evidence of displacement. It is important to note that these licensing changes occurred alongside other initiatives, including volunteer night patrols, increased police presence, and the introduction of ID scanning in some venues,¹⁵ which may have contributed to the observed changes in ED presentations.

In QLD, a statewide *Tackling alcohol-fuelled violence* (TAFV) policy introduced restrictions on alcohol service from 3–5am across 15 late-night entertainment precincts, a ban on high-alcohol-content beverages like shots, and mandatory ID scanners.²⁸ The policy also included other strategies such as patron banning, education campaigns and restrictions on takeaway alcohol.⁵⁴

A 2021 study using police-recorded serious assault data found that higher rates of assault were associated with areas that had a higher density of late-trading venues (operating beyond midnight). Conversely, significantly fewer serious assaults occurred within areas of higher density early-trading venues (closing between 8pm and midnight). Study authors also noted that assaults increased when alcohol was available until 5am, compared to earlier closing times.¹⁶

Another 2021 study⁵⁵ examined alcohol-related harms in QLD, focusing on the Fortitude Valley district. Although there was a small reduction in injury-related ED presentations, which may be potentially

attributable to introduction of the TAFV policy, they found no significant associations between the policy and late-night ED presentations or hospital admissions were reported.

These findings contrast with those from those reported in the QLD Alcohol-related Violence and Night-Time Economy Monitoring (QUANTEM) project evaluation.⁵⁴ That evaluation found associations between the introduction of TAFV legislation leading to trading restrictions and patron bans and improved safety in and around venues, with significant reductions in hospital admissions for ocular bone fractures, serious assaults, and ambulance callouts. Importantly, there was no displacement of alcohol-related harms for most of the ‘safe night precincts’ studied.⁵⁴

However, not all components of the QUANTEM project were effective, with individual drinking behaviours targeted by education campaigns not shifting substantially. In particular, levels of pre-drinking (drinking alcohol prior to attending precincts) remained high and education campaigns had little measurable impact in reducing rates of intoxication and violence.⁵⁴

The apparent differences between the findings of the two TAFV policy evaluations^{54, 55} may be explained by differences in study design, outcomes measured or timeframes of data collection. For example, one evaluation⁵⁵ focussed on ED presentations and hospital admissions, whereas the QUANTEM evaluation⁵⁴ also included police-recorded serious assaults and ambulance callouts, providing a broader set of harm indicators.

3.4.2 New Zealand

In New Zealand, the *Sale and Supply of Alcohol Act* included trading hour limits for all liquor outlets, changes of licensing procedures and legal enforcement of one-way door policies.²⁸ A 2020 study found that trading hour restrictions from 24 hours to between 8am and 4am had no impact on overall night-time violence (between 9pm–6am), likely due to trading hour reductions only affecting 6% of premises because few premises had been trading for extended hours prior to the restrictions.⁵⁶ However, researchers observed a gradual permanent decrease of 12.4% for late-night assaults (4–6am) over 10 years, following the introduction of a 4am closing time.⁵⁶

4. Discussion

This review aims to comprehensively synthesise evidence on the impact of trading hours policies on alcohol use and alcohol-related harms. Across more than five decades of research, there is highly consistent evidence that extending trading hours increases alcohol-related harms. This pattern is observed in Australia and internationally, evident even with relatively modest one-hour extensions. Earlier reviews that pooled outlet types made interpretation more challenging, but as the literature has expanded, contemporary reviews of the evidence base have reached the same conclusion – that longer trading hours increases alcohol-related violence and injuries.

Findings regarding road safety outcomes is more variable, with some studies linking extended trading hours to increases, decreases or no effect. This is not unexpected and consistent with outlet density research where complex spatial patterns have also been observed.^{57, 58} Importantly, outlet density research indicates that road safety impacts are shaped by factors including public transport effects and traffic flow conditions. This indicates a need for analyses to incorporate local environmental factors, such as research which has been conducted in Norway,⁴⁸ rather than suggesting that there is an absence of effect.

In contrast, the evidence for trading hours restrictions – while smaller in volume than extensions – is highly consistent. The available studies demonstrate both immediate and long-term reductions in alcohol-related harms. For example, substantial and immediate decreases in violent crime in high-risk areas⁷ were found, alongside long-term sustained reductions in GBFV a decade later.⁴⁹

The most recent systematic reviews highlight the value of investments in multi-component interventions aimed at reducing harms, that include trading hour restrictions alongside other alcohol availability and accessibility controls, such as those implemented in Newcastle.⁴⁹

These studies also offer a realistic picture of how complex interventions operate in practice and demonstrate the challenges of evaluating multi-component interventions. Even so, where these interventions have been evaluated rigorously, trading hour restrictions have emerged as a key contributor to positive outcomes.²⁸

4.1. Future research directions

While the evidence base for trading hours extensions and restrictions is substantial, it can be added to in several ways. As already highlighted, trading hour extensions have been extensively studied in comparison to trading hour restrictions.

In the absence of available natural experiments, modelling studies may provide useful insights. This study design has been well established for estimating the potential impacts of other alcohol prevention policy options internationally, such as minimum unit price in the UK.^{59, 60} To date, one modelling study of restricted trading hours has been conducted for NSW.⁶¹ Researchers estimated the impact of early closing of NSW on-premise outlets at 3am and 1am over five years on alcohol-related violence, ED presentations and hospitalisations, compared to a baseline of 5am, using 2017 data. Both scenarios produced significant reductions in harm. The two-hour restriction (to 3am) produced the greatest reduction in harms among female heavy drinkers; while the four-hour restriction (to 1am) resulted in similar and substantial reductions in acute harms for both female and male heavy drinkers.

Secondly, impacts on women and children in relation to GBFV remain largely understudied.^{49, 62} Most studies examining trading hours and assaults rely on police-reported data and do not apply a gender or age lens, limiting their ability to detect these harms. For example, a 2002 systematic review, identified only four studies examining trading hours and child-related outcomes.⁶³ An earlier review found only one higher quality study within eight that evaluated the impact of community-level restrictions of trading hours and days of sales on GBFV.⁶⁴ A recent umbrella review of 22 reviews in 2023 confirmed that this lack of evidence on gendered and family-related harms persists across alcohol policy research more broadly.⁶⁵

A key opportunity to address this gap is measuring the right outcomes. GBFV may be more likely to occur within the home,⁶⁴ and much of the literature has relied on police-reported incidents, which tend to under-represent these harms.⁶² This points to the value of future research that includes multiple measures of harms to increase sensitivity, such as calls to helplines, ambulance call-outs and official assault cases via hospital-provided data.^{66, 67}

Adjusting the spatial scale of measurement could also assist decision making. Many studies rely on health or harm data aggregated at large geographical units which can mask localised effects (e.g. census tracts and postal codes).⁴¹ Analyses using localised data for some acute health harms, such as ambulance attendances, could help determine whether broad interventions have consistent effects across specific neighbourhoods.³⁴ This would be particularly useful for road safety outcomes, where differential effects can be found in towns compared to cities.⁴⁸ This would also assist with an understanding of the effects of interventions where actual uptake is low or unevenly spread across a city. For example, in the UK and NZ, effects were often small or absent, possibly because only small proportions of venues changed trading hours following policy reforms, or because parallel interventions and pre-existing late trading limited exposure to substantial changes.³⁹

A continued opportunity for future research lies in disaggregating studies by outlet type. The 2015 and 2018 reviews drew on highly diverse studies pooling interventions across broad categories, such as all liquor outlets (off and on-premises), or any changes to trading hours or days of sale.^{34, 37} Such aggregation makes it difficult to interpret findings clearly. More specifically, the 2018 review included interventions affecting off-premises outlets like grocery stores in the US and Germany – settings that attract a much broader population than bars and clubs. Several authors have subsequently highlighted that combining outlet types in this way risks obscuring meaningful differences in outcomes and limiting policy relevance.^{68,}

⁶⁹

Finally, variation in the design of multi-component interventions limits the ability to identify elements that can lead to more positive outcomes in different settings and populations.²⁸ Comparison across Australian cities suggest interventions that include trading hours restrictions may be more effective than those that do not.⁵⁰ However, isolating these effects requires strong evaluation designs with comparison sites.³⁸ Overall, these gaps point to the value of greater upfront investment in the design of robust, comprehensive evaluations to help further determine who benefits from which intervention, under which circumstances, particularly those who are disproportionately affected by alcohol-related harm.³⁸

4.2. Strengths and limitations

This review has several notable strengths.

Firstly, it employs a comprehensive and systematic search strategy, ensuring wide coverage of relevant and diverse literature, including grey literature reviews and reports that are typically excluded from systematic reviews, including one Scottish article in pre-print.⁴⁰ Secondly, we conducted a search of the last 20 years to capture the full scope of available evidence, including a concentration of influential studies from the early to mid-2010s. In this review, nine of 30 included studies were published in 2014–2015 alone, reflecting a period when many key natural experiments on trading hours were undertaken. While around half of the included studies were published in the past decade, earlier studies form an important foundation for the evidence base, and findings have remained broadly consistent over time.

Thirdly, by incorporating international studies, the review was able to draw on evidence from a variety of jurisdictions comparable to Australia. Fourthly, the analysis of interventions largely relies on higher-quality designs with controls, which are particularly valuable for evaluating policy or population-level changes where randomised controlled trials are impractical. Compared with other non-randomised designs, quasi-experiments provide stronger causal inferences while maintaining ecological validity. Fifthly, the review considered a broad range of outcome domains, thereby enhancing its policy and practice relevance. Finally, the review segmented findings by intervention type consistent with most recent systematic reviews.^{28, 38}

As with any rapid narrative review, some methodological limitations should be noted.

Searching four databases may have excluded some relevant studies. However, this risk was mitigated through a supplementary manual search of reference lists from included reviews. Resource constraints also necessitated adding limits to jurisdictions, language and study designs, meaning some evidence (including international evidence from parts of Europe) was not included. Finally, although a formal critical appraisal of the evidence was not undertaken, it was reported where such assessments have been conducted in systematic reviews, including Nepal et al. and Eassey et al.^{28, 38} Overall, these limitations are not expected to materially affect the direction of the review's conclusions, which align closely with findings from more exhaustive reviews.

5. Conclusion

Overall, the evidence demonstrates that extending trading hours increases alcohol-related harms, while restricting hours reduces them.

Multi-component interventions that include trading hour restrictions show significant public health benefits, including reduced assaults and GBFV.

While contextual factors such as policy uptake, local environments and enforcement practices may influence the strength of impact, the direction of the effect is as expected.

Together, this body of evidence provides a strong foundation to understand the impact of trading hours on alcohol-related harm.

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