

An environmental scan of the evidence

Packaged liquor availability

Evidence and Innovation: Alcohol and Drug Foundation

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Declarations

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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.

Author contributions

Dr Nataly Bovopoulos (Evidence Reviews Lead):

Lead – planning, coordination and delivery;
Co-lead – conceptualisation and methodology, screening and analysis, writing – original draft.

Liana Rawlings (Senior Information and Evidence Officer): Support – methodology, writing – review and editing.

Eleanor Costello (Evidence Manager): Lead – funding acquisition, team supervision; Co-lead – conceptualisation and methodology, writing – review and editing.

Craig Martin (Head of Evidence and Innovation): Project Sponsor; Support – methodology, writing – review and editing.

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Acronyms and definitions

Term	Definition
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.
Chain store	A packaged liquor outlet that is part of a larger retail group or company operating multiple licensed outlets, often characterised by shared branding, centralised management, larger floor space, and standardised pricing and promotions.
Clusters	The spatial concentration of multiple alcohol outlets located close together within a defined area (e.g. the same street or precinct), distinct from overall outlet density across a wider area.
Displacement	The shift of alcohol purchasing, use, or related harms from one location to another or to a different time following changes to alcohol availability, such as outlet closures or trading hour restrictions, for example shifting purchasing to neighbouring areas or earlier in the evening.
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.
ETPs	Extended Trading Permits.
Independent store	A packaged liquor outlet that operates as a single business or as part of a small number of outlets, typically not affiliated with a large retail chain and often characterised by smaller store size and locally managed operations.
Interrupted time series (ITS)	A quasi-experimental study 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 of alcohol during extended evening or night-time hours beyond standard trading hours, often regulated through extended trading permits and associated with increased availability during higher-risk periods.
NZ	New Zealand.
Off-premise outlets	Retail business licensed to sell packaged liquor intended for consumption elsewhere (e.g. bottle shops, supermarkets, convenience stores, petrol stations).
On-premise outlets	Retail business licensed to sell alcoholic beverages intended for consumption on-site (e.g. bars, nightclubs, restaurants).

Outlet density (OD)	The concentration of outlets in a pre-defined area, measured via: 1) count, 2) proximity or 3) spatial access; as defined by below:¹ 1. Count: A measure of outlet density on a set of 'containers' using an existing (e.g. postal code) or user-defined boundary (buffer zone around a specific location). Count may be a raw number of outlets or divided by a measure of space or reach. 2. Proximity: A measure of outlet density between a fixed location to the closest outlet, which could be measured in road miles/kms or by a mode of transport, e.g. walking, cycling or driving distance. 3. Spatial access: A measure of outlet density that sum the raw or inverse distances from a location to a subset of alcohol outlets defined by a set number or a radius.
Packaged liquor	Alcohol available for sale at off-premise outlets like bottle shops, grocery stores and convenience stores that must be taken-away and consumed elsewhere.
Packaged liquor availability	The extent to which packaged liquor (off-premise alcohol) can be accessed in a given area or population, typically operationalised through characteristics of alcohol supply such as the density of outlets, trading hours, sales volume, and outlet characteristics (e.g. outlet type, size, chain vs independent).
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.
Sales volume	The amount of alcohol sold by an outlet or within an area over a specified time period, used as an indicator of alcohol availability that reflects purchasing patterns rather than outlet presence alone.
Secondary supply	The provision of alcohol to a person by someone other than a licensed retailer, including supplying alcohol to minors or to individuals already intoxicated, often regulated through specific legal provisions.
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-premise and off-premise 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-premise 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-premise and off-premise 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-premise outlets include: • earlier or specified closing times • earlier or specified last drinks (e.g. no sales of alcohol after 2-3 am and no sales of high-alcohol content drinks, such as shots, after midnight) • earlier or specified last drinking - where no further drinking allowed on premises.

UK	United Kingdom.
USA	United States of America.
Zoning	Land use planning regulations that determine where alcohol outlets can be located, including restrictions or permissions related to proximity to residential areas, schools, transport hubs, or designated commercial or entertainment precincts.

Summary of findings

Background and methods

To understand how the availability of packaged liquor influences alcohol use and related harms, an environmental scan of recent evidence, published in the last decade, was undertaken.

This included a brief narrative summary of key themes drawn from the literature and a table summarising findings from each reviewed study. This choice of methodology was driven by the broad research question.

Findings from six systematic reviews and 33 single studies were identified through a keyword search across three databases for publications from 2016–25. Australian evidence was prioritised for review however, international studies were included in order to expand the evidence base, and to compare to the Australian context, where appropriate.

Findings

- Adolescent access to and use of alcohol:** Across six studies and two systematic reviews, the majority of studies report a positive association between greater off-premise alcohol availability and adolescent alcohol use, with effects strongest for earlier initiation and heavier use in mid-adolescence. For example, in Australia, adolescents living or studying within walking distance of a liquor store at age 14 had substantially higher odds of ever drinking and engaging in heavy drinking by age 17.² Internationally, similar patterns have been observed following policy-driven increases in off-premise availability. In Ontario, Canada, a quasi-experimental study found that adolescents exposed to the introduction of alcohol sales in grocery stores were 1.7 times more likely to transition from abstinence to high-risk regular drinking over four years, and high-risk drinkers were more likely to sustain these behaviours compared with unexposed control groups.³
- Adult alcohol use:** Across six studies and one systematic review, the evidence indicates a generally positive association between greater off-premise alcohol availability and alcohol use in adults, though findings are more limited and context-dependent than for adolescents. The strongest Australian evidence comes from a longitudinal study of young adults aged 20 at baseline, showing a dose-response relationship whereby each additional liquor store near the home was associated with increased alcohol use two years later.^{4,5} In Ontario, Canada, partial deregulation of off-premise alcohol sales led to a substantial increase in licensed grocery outlets, with studies showing higher neighbourhood-level alcohol use in areas with greater off-premise availability, although effects varied considerably by city and population characteristics.⁶
- Violence and crime:** Across 16 studies and two systematic reviews, most studies report a positive association between greater off-premise outlet density and higher rates of assault, domestic violence, and public disorder, although the strength of association varies by outcome and setting. Australian quasi-experimental evidence found that extending takeaway trading hours in NSW was followed by a significant increase in domestic violence assaults,⁷ while restricting high-strength packaged liquor in remote WA communities was associated with substantial reductions in domestic violence-related hospitalisations.⁸ Internationally, stronger and more consistent associations with violence have been reported in urban settings. In New York City, areas with higher densities of off-premise outlets, particularly grocery and liquor stores, experienced significantly higher rates of aggravated assault and street robbery than on-premise venues.⁹
- Injuries, accidents and health:** Across eight studies and one systematic review, most Australian evidence reported a positive association between greater packaged liquor availability and higher rates of alcohol-related injuries and health harms. However, findings are less consistent than for violence and appear shaped by local context. For example, in Melbourne, higher off-premise outlet density - particularly around large chain outlets selling cheaper alcohol - was associated with higher rates of both intentional

and unintentional traumatic injury.¹⁰ In Perth, however, associations between outlet density, sales volume and injury differed by distance from the CBD, suggesting different harm pathways such as preloading in suburban areas.¹¹ Comparable findings have been reported internationally following policy-led increases in availability. In Ontario, Canada, deregulation of off-premise alcohol sales and extended trading hours was followed by a 17.8% increase in alcohol-attributable emergency department presentations.¹²

- **Contextual and policy factors:** Across outcomes, the evidence suggests that the direction and magnitude of harm associated with packaged liquor availability varies by local context and policy settings. For example, in Melbourne, chain outlets selling cheaper alcohol were associated with higher injury rates.¹⁰ Policies that increase packaged liquor availability through petrol stations in Canada were more consistently associated with increased use and harm, than expansion to grocery stores.¹³

Conclusion

Alcohol use and related harms, particularly violence, injury and hospital presentations, are associated with off-premise outlet density, trading hours, sales volume and outlet characteristics. The strength – and in some cases the direction – of these relationships appear to vary by local context, including neighbourhood characteristics, social norms and jurisdictional policy and enforcement settings.

1. Background

To understand how the availability of packaged liquor influences alcohol use and related harms, an environmental scan of recent evidence was undertaken. Packaged liquor refers to alcohol available for sale at off-premise outlets, like bottle shops, grocery stores and convenience stores, that must be taken-away and consumed elsewhere.

A targeted search of peer-reviewed and grey literature published in the last 10 years was conducted to identify studies examining associations between packaged liquor availability and alcohol-related harms, which resulted in six systematic reviews and 30 single studies.

See Appendix 1 for more detailed information. Tables 1 and 2 on pages 17 – 26 provide detailed summaries of findings per study.

2. Findings

2.1. Associations with adolescent access to, and use of, alcohol

Characteristics of included studies

Associations with adolescent access to, and use of, alcohol was examined in six single studies and two systematic reviews. The single studies were conducted primarily in Australia (n = 4), with one study from Canada and one from the USA. Studies were mainly longitudinal/cohort in design (n = 4), alongside one quasi-experimental study and one cross-sectional study using a mystery shopper design.

Four single studies examined the relationship between adolescent alcohol use and off-premise outlet density, while two focused on specific outlet or sales characteristics. Of the two systematic reviews, one synthesised relevant evidence from the UK, New Zealand and Switzerland on off-premise trading hours and adolescent alcohol use. The other review examined the relationship between outlet density and adolescent drinking across multiple countries.

Single studies

Four Australian studies report consistent findings that off-premise alcohol availability is associated with adolescent alcohol use and underage purchasing of alcohol.

Firstly, in a cohort study conducted in Perth, Western Australia (WA), living or studying within walking distance of liquor stores at age 14 was linked to earlier initiation and heavier drinking in mid-adolescence.² Specifically, living or studying within 800 metres of a liquor store was associated with a 49% increase in the odds of ever drinking and a 79% increase in the odds of ever engaging in heavy drinking at age 17. However, this relationship did not persist at age 20.

Secondly, a 2016 study¹⁴ explored the relationship between outlet density and adolescent alcohol use over time using national survey data. The study drew on repeated cross-sectional data from respondents aged 12-17 years who had participated in the Australian Secondary Students' Alcohol and Drug (ASSAD) survey (using data across five jurisdictions - WA, VIC, QLD, NSW and the NT). A higher density of off-premise outlets (based on number of licences per 1,000 population) was significantly associated with adolescent risky drinking in urban - but not regional - areas.¹⁴ This finding was attributed to off-premise outlets being less spread out in urban vs regional areas, facilitating greater adolescent exposure to retail outlet advertising and opportunity to attempt purchases.

Thirdly, a study estimated the extent to which mystery shoppers who appeared to be underage were able to purchase alcohol across 310 packaged liquor outlets in 28 urban and rural communities in WA, QLD and VIC, Australia.¹⁵ Mystery shoppers successfully purchased alcohol in 60% of 310 outlets, with purchase rates highest in WA (85%), followed by VIC (61%), then QLD (34%). Associations between outlet type and

illegal sales varied by jurisdiction. Underage purchasing was more likely in independent outlets compared to chain stores in VIC and more likely in chain stores compared to independent outlets in WA and QLD. No store level variables, including number of staff in outlet, presence of security staff, number of customers, and busyness of the store were identified as predictors of sales. Underage purchasing was found to be significantly higher in regional areas compared to urban across all three states. Outlet density was inconsistently associated with purchasing in VIC and WA, with no relationship for QLD. More specifically, in VIC higher density of general outlets was significantly associated with the likelihood of being sold alcohol. However, in WA, higher density of general outlets was significantly associated with lower odds of purchases.¹⁵

No definitive explanation for this inverse relationship was proposed, with the study noting instead that differences in policy environments across the states may have shaped enforcement practices, norms or outlet behaviour in ways not directly captured in the analysis. For example, secondary supply laws were introduced in QLD in 1992 and VIC in 2011, which may have facilitated a stronger norm of not supplying alcohol to adolescents. These laws were not in place in WA at the time of the survey. Differences in licensing frameworks, including the introduction of risk-based licensing introduced in VIC (which penalises operators for breaches in the Liquor Act), may have also influenced retailer behaviour. Overall, the findings identified “a complex mix of local and possibly State policy factors associated with confederates purchasing alcohol,”¹⁵(p798) with the study concluding “consistent enforcement of policies across the states of Australia, and reducing the number of alcohol outlets, will help prevent alcohol outlets illegally selling alcohol to underage adolescents.”¹⁵(p790)

Finally, an Australian longitudinal study of Victorian high school students observed a link between increased underage alcohol use over time and high overall outlet density.¹⁶ A 10% increase in overall outlet density was associated with a 17% increase in the odds that an adolescent would consume alcohol in the following year at wave two (when survey participants were on average aged 14). However this association was only found when outlet density was measured as an aggregate, when density measures were disaggregated by outlet type at wave 1 (into packaged liquor, general, club and on-premise), none were associated with alcohol use at wave 2.¹⁶

Looking at overseas research, the relationship between introducing alcohol sales in grocery stores and adolescent drinking has been examined in Ontario, Canada. In a well-designed quasi-experimental study³ of 2,267 grade 9 students, adolescents in Ontario were 1.7 times more likely to transition from abstinence to high-risk regular drinking four years later than adolescents in Ontario and Alberta control groups. Adolescents who were high-risk regular drinkers at baseline were also 1.8 times more likely to maintain their behaviours at follow-up. No significant changes were observed in drinking behaviour among periodic or low-risk drinkers following the policy change.

Systematic reviews

Other international evidence can be drawn from two systematic reviews examining how alcohol supply reduction policies and geographical availability of outlets impact adolescent behaviour.^{17, 18}

In the first, there was good quality evidence that reducing off-premise trading hours across the week was an effective measure in reducing adolescent alcohol-related hospitalisations in Switzerland.¹⁷ This is supported by an earlier 2016 rapid review of alcohol availability that concluded international research points to the effectiveness of restricted trading hours to reduce adolescent and young adult alcohol-related harms.¹⁹

A second review of 21 studies, including 16 from the USA, found studies looking specifically at off-premise alcohol availability more commonly reported a positive link between alcohol availability and use, than studies that examined on- and off-premise together. The study concluded this finding may be attributable to alcohol being cheaper and easier for adolescents to purchase at off-premise compared to on-premise outlets.¹⁸

2.2. Associations with alcohol use in adults

Characteristics of included studies

Associations with alcohol use in adults was examined in six single studies and one systematic review.

The single studies were conducted primarily in Canada (n = 3), with two studies from Australia and one from the USA. Three studies were longitudinal/cohort in design, and four reporting cross-sectional findings. Most (n = 4) examined off-premise outlet density, while two focused on specific outlet characteristics. The systematic review examined sales expansion of retail outlets (including to grocery stores and petrol stations) across the USA and Canada.

Single studies

Australian longitudinal evidence provides clear support for a positive association between off-premise alcohol availability and adult alcohol use, with the effect impacted by local variables.

Two Australian studies using the same longitudinal dataset - the Western Australian Pregnancy Cohort (Raine) Study - found a positive association between off-premise outlets and alcohol use in young adults.⁴

⁵ Young adults aged 20, who had more liquor stores located near their homes, consumed more alcohol two years later, with each additional liquor outlet increasing average daily alcohol use by 8%.^{4,5} A significant association was found for liquor stores of any size within 1,600m and between 1,601 and 5,000 of home. Having a single liquor store with larger floor space (greater than 300m² and 600m²) within different 'donut' distances (defined as walkable distance up to 1,600m, cycling up to 5,000m and drivable up to 10,000m) were not significantly associated with alcohol use at age 22. This may reflect that the presence of multiple stores regardless of their size or proximity, may increase market competition. This competition may in turn lower prices to levels similar to those found at large liquor superstores.⁴

International evidence, particularly from North America, is more mixed.

In Ontario, Canada, alcohol sales were partially deregulated leading to a 15% increase in alcohol outlets between 2015 and 2017, with 88% of these being grocery stores.²⁰ In a 2022 cross-sectional study of 11,742 neighbourhoods, higher off-premise outlet density was linked to higher neighbourhood level alcohol use, however, effects varied considerably between Ontario cities.⁶ A lower percentage of immigrants, higher percentage of the population between ages 20 and 29, higher median income, and higher population density were associated with an increased neighbourhood-level prevalence of high-volume alcohol use.⁶

In addition, high-volume alcohol use was highest in peripheral suburbs where off-premise alcohol outlets were less physically available. Neighbourhood level patterns may be driven by harder-to-measure influences - like local environments, culture, and commuting patterns - that require qualitative or mixed-methods research to be better understood.⁶

When examining the relationship between off-premise density and alcohol use in Ontario over time, no consistent trends were found after a four year increase in grocery stores gaining alcohol licences.²⁰

Study findings included an estimated 21% relative increase in past week drinking in women and 38% increased odds of heavy drinking in men, among those living 1,000m from a licensed grocery store. Three factors may have contributed to the unexpected findings, firstly that the effects of deregulation were not extensive enough to detect an effect, secondly it may have been assumed that individuals stop at the stores closest to their residences, and finally alcohol sales in grocery stores may be concentrated to specific population subgroups including those with high alcohol use or alcohol use disorder.²⁰

In another Canadian study, mixed effects were found when comparing rates of heavy episodic drinking (HED) - defined as consuming ≥ 5 drinks for men or ≥ 4 drinks for women on one occasion, occurring at least monthly in the past year - among young adults aged 18-29 years living in British Columbia (BC) vs Quebec.

In Quebec, where beer and wine are sold in grocery and convenience stores, higher off-premise accessibility was associated with an increased likelihood of HED. However in BC, where convenience store

sales are not permitted and few grocery stores hold liquor licences, higher off-premise accessibility was unexpectedly associated with reduced likelihood of HED.²¹

Local conditions may drive these relationships, as alcohol is more accessible in urban over suburban BC neighbourhoods which may have different drinking cultures.²¹ This counterintuitive association in BC suggests that factors other than outlet accessibility – such as social norms or drinking cultures – may need to be better understood and accounted for in these settings.

Review studies

The impact of local variables on findings were also highlighted in a broader review of several USA and Canadian cross-sectional studies and natural experiments.¹³

Across five studies that examined expansion of retail sales, the review found that “allowing alcohol sales in gas station convenience stores was associated with increased consumption and harms, whereas expanding to grocery stores was not.”¹³(p1)

For example, across the USA, states that allowed liquor sales in grocery stores did not observe increased alcohol use in women aged 18–44, while past-year alcohol use in this population group significantly increased in states where petrol stations sold heavy strength beers. Meanwhile, there was no relationship between changes in alcohol use over time in surveyed adults following the 2016 introduction of beer and wine sales at grocery stores in Pennsylvania¹⁷ (and beer, wine and cider in Ontario grocery stores from 2015²⁰).

One possible explanation for these varied findings is that the impact of increased packaged liquor availability may depend on how consumers use different types of outlets.¹³ Consumers may shift planned alcohol purchases from other outlets to grocery stores, rather than purchase additional alcohol from grocery stores.¹³

As mentioned, alcohol sales in grocery stores may also be greater in sub-populations like individuals with alcohol use disorder, which are harder to detect in population-based studies. Expanding alcohol access via convenience store/petrol station outlets may create more opportunities for increased alcohol use via impulsive alcohol purchasing by catering “to drivers and individuals making spontaneous purchases”.¹³(p15)

The review also highlighted that retail environments matter: how alcohol is displayed and sold within stores can shape purchasing behaviour. Approaches that limit visibility or separate alcohol from other goods, such as confining sales to designated areas or service points, may help reduce exposure (particularly for children), curb impulse purchases, and avoid reinforcing alcohol as an everyday commodity.¹³

2.3. Associations with violence, crime and public disorder

Characteristics of included studies

This outcome was examined in 13 single studies and two systematic reviews.

The single studies were conducted primarily in the USA (n = 8) and Australia (n = 4), with one study from the UK. Most studies employed cross-sectional designs (n = 8), with fewer longitudinal or cohort studies (n = 4), and quasi-experimental studies (n = 2). Most single studies examined off-premise outlet density (n = 11), while a smaller number examined outlet characteristics (n = 4). One study examined outlet sales volume. Two studies evaluated specific policies; one extended trading hours and one restricted high-strength alcohol. The systematic reviews synthesised international evidence on trading hours and/or outlet density.

Single studies

Australian findings are mixed but generally support a positive association between greater off-premise availability and higher rates of violence.

In summary, two studies reported positive associations between higher off-premise alcohol availability and violence, one no association, and one a negative association. Finally, one study found a positive relationship between restricted sales of high-strength packaged liquor and reduced violence.

Two studies^{7, 22} found associations between packaged liquor access and family or domestic violence in VIC and NSW respectively. Later trading hours of bottle shops and home delivery services from 10–11pm was followed by a significant increase in NSW domestic violence assaults.⁷ An estimated additional 1,120 DV assaults occurred in the 38-months after trading hours were extended.

In NSW, no relationship was found between changes in off-premise density over time and assault rates.²³ In an interrupted time-series analysis in the Kimberley Region of WA, domestic violence hospitalisation rates reduced by over 20% four years after sales restriction of high-strength alcohol.⁸

International evidence is larger and more consistent.

Several cross-sectional studies from the USA found higher violent crime, assault, gender-based family violence (GBFV) and robbery rates in areas with more liquor and grocery stores selling alcohol.^{9, 24-26}

In New York City, a study examined the relationship between nine outlet types and assault and street robbery.⁹ Grocery stores selling beer and wine had the largest influence of all nine outlet types, on the likelihood of aggravated assault and street robbery across the five examined boroughs.⁹ Alcohol retail stores were associated with aggravated assaults and street robberies in some but not all boroughs. The study concluded that alcohol-related crime reduction efforts should be unique and localised according to the risk associated with outlet type and the neighbourhood.⁹ In another cross-sectional study in New York, liquor, grocery and drug stores in the Bronx were linked to higher levels of violent crime, however on-premise outlets were not.²⁶

The association between alcohol outlets and violence and crime was examined in two cross-sectional studies in Milwaukee, USA.^{24, 25} In the first study, off-premise outlets were significantly associated with assaults, when even the influence of neighbourhoods' characteristics were accounted for.²⁴ In the second study, rates of violent, property and disorder crimes were 25, 19 and 17 times higher, respectively, near off-premise outlets (defined at 50-feet surrounding outlet) than anywhere else in Milwaukee. Specific outlet characteristics associated with crime in off-premise environments included grocery or convenience stores, an alley next to the outlet, security features, visible garbage or litter inside the outlet and lighting.²⁵

USA and UK research examining a relationship between off-premise outlets and crime over time reported more mixed findings.²⁷⁻³⁰ In a micro-temporal longitudinal study in Oakland USA, GBFV occurred more often in areas with more off-premise outlets on weekend days, with robberies occurring more often in areas with more off-premise outlets on weekend nights.²⁷

In Texas, USA, greater densities of off-premise outlets were related to higher rates of violent crime in adjacent neighbourhoods over five years.²⁸ In London, UK, no association was found between alcohol-related violence and off-premise outlets.²⁹ In California, USA, a non-significant reduction in violent crime was observed with increasing off-premise outlet density.³⁰ Violent crimes were also related to the percentage of population that were male, had higher incomes, had owner occupied houses, and with lower population density, suggesting that crime may have been acting as an indicator of neighbourhood stability and resources.

Review studies

Two large reviews of the evidence found that off-premise outlet density is generally more strongly associated with violence than on-premise outlet density, although the evidence is inconsistent.^{19, 31} Adding nuance, reviewers highlighted that the relationship between violence and density may be better accounted for by the volume of alcohol sold by various outlets; which is often underexplored in studies.¹⁹ Evidence for this argument was based on research that use data on alcohol sales finding that the volume of sales rather than the number of outlets is associated with harm rates. Using sales volume, rather than outlet counts

alone, may better capture harmful alcohol availability. This approach avoids assuming “that each outlet in a particular category is equivalent to every other outlet in that category.”¹⁹(p21).

Meanwhile a second review²⁷ argued that though off-premise densities often seem more strongly related with assaultive violence across five ecological studies, “little is known about which type of off-premise is most strongly associated (e.g. liquor stores selling packaged alcohol or small grocery stores selling only beer).”²⁷(p43). The reviewers noted that violence tends to cluster around off-premise outlets - particularly in high-density “hot spots” - but similar clustering is also seen around other busy locations, suggesting broader environmental factors like congregation and accessibility play a key role. Overall, off-premise outlets may contribute to violence partly due to lower supervision compared to bars, but their effects are highly context-dependent and may reflect general patterns of where people gather, with alcohol playing an “aggravating role” rather than directly contributing to harms.

2.4. Associations with injuries, accidents and long-term health outcomes

Characteristics of included studies

Associations with injuries, accidents and long-term health outcomes was examined in eight single studies and one systematic review. Most single studies were conducted in Australia (n = 5), followed by two from Canada and one from the USA. Most studies employed cross-sectional designs (n = 5), with fewer longitudinal or cohort studies (n = 2), one quasi-experimental and one retrospective panel study. All eight single studies examined off-premise outlet density, with one examining outlet sales, with another specific outlet types. The systematic reviews synthesised international evidence on trading hours.

Single studies

In Australia, evidence generally shows a positive association between packaged liquor availability and injuries, accidents and long-term health harm, with some variability.

In an interrupted time-series analysis in the Kimberley Region of WA, decreases in allowable alcohol content sold in products at liquor outlets were associated with fewer alcohol-related emergency visits and hospitalisations.⁸ Over 10 years, there was a significant reduction of over 40% on rates of alcohol-related acute hospitalisations and ED attendances in two remote towns. Injury-related hospitalisation rates also reduced by over 20% in both towns.

In an ecological cross-sectional study in Melbourne,¹⁰ traumatic injuries were more common as off-premise alcohol availability increased, with 38% higher rates of intentional and 18% higher rates of unintentional injuries. The pattern was similar around chain outlets – defined as outlets where the licensee held more than one licence in the state - with 35% higher intentional and 20% higher unintentional injuries. Chain outlets were found to be larger and sold cheaper alcohol than independent stores in the study. The study concluded that “reducing concentrations of chain outlets, possibly representing larger outlets selling cheaper alcohol, may yield the greatest public health benefit.”¹⁰(p63)

In a cross-sectional study, living in disadvantaged areas of Melbourne with fewer off-premise outlets within 800 metres of home was associated with better self-rated health.³²

Findings from two studies in Perth, WA, were more complex.^{11, 33} One study reported that alcohol-related road crashes were more strongly linked to the number of on-premise outlets compared to off-premise, and in some instances alcohol-related road crashes occurred in areas where fewer bottle shops were located.¹¹ Another study found the relationship between outlet density, alcohol sales and alcohol-related injuries differed by outlet distance from the CBD. Injuries and outlets were stratified by Perth postcode zones to examine these spatial effects. More specifically, in the inner and outer postcode zones, each additional off-site outlet was associated with 6.8% fewer alcohol-related injuries, whereas in the middle postcode zone, mean off-site sales were positively associated with injury.³³

These mixed findings likely reflect the influence of local context on how packaged liquor availability is linked to harm. Differences in where outlets are situated (e.g. commercial vs residential areas), the

characteristics of those outlets (such as chain vs independent stores and pricing), and neighbourhood socioeconomic factors could all influence patterns of use, risky drinking and exposure to harm.

In relation to alcohol-related car crashes, one possible explanation is that people purchase and consume packaged liquor while driving to nightlife precincts – potentially contributing to alcohol-related crashes en route.¹¹ Future research linking bottle shop sales data and crash timing could help clarify this phenomenon better. Similarly for injuries, a stronger association with off-site (rather than on-site) sales in suburban Perth suggests that packaged alcohol may contribute to harms through pre-loading before visiting on-site venues, many of which are located in the CBD.³³

International evidence is more consistent.

More specifically, the association between alcohol availability and alcohol-related ED visits following deregulation of off-premise outlets has been examined in Ontario, Canada.¹² Alcohol-attributable ED visits increased by 17.8% during the study period – more than twice the overall increase in ED visits. In Ontario, areas that expanded alcohol sales – particularly through grocery store deregulation and longer trading hours – experienced significantly higher rates of alcohol-related ED visits over time.¹² In a later study using repeated cross-sectional data,³⁴ greater alcohol retail access in Ontario, was associated with higher rates of ED and outpatient healthcare visits attributed to alcohol, among those without previous alcohol-related health care. People with alcohol use disorder may be less affected by local retail availability because they tend to stock up, or are willing to travel for, alcohol, whereas people without a disorder may be more influenced by nearby outlets, purchase cues, and easier access.³⁴

In Baltimore, USA,³⁵ each additional off-premise alcohol outlet was associated with a 12.3% increase in the rate of pedestrian injury when controlling for convenience and corner stores and other confounders. In addition, in a simulated case-control study, 4.9% of injuries could be attributed to the neighbourhood presence of off-premise alcohol outlets, when controlling for neighbourhood features and convenience stores.³⁵

Review studies

A systematic review of the impacts of trading hours on injuries found two high quality studies from Germany and Switzerland, where regional restrictions to trading hours of off-premise outlets resulted in reduced alcohol-related emergency department visits and hospitalisations.³⁶

Appendices

Appendix 1. Methodology

A search was carried out in October 2025 using three databases (Google Scholar, ADF Library and Google) for English language peer-reviewed and grey literature published between 2016 and 2025.

The keywords used broadly related to packaged liquor and harms. The main search string used was 'packaged liquor OR beer outlet OR liquor superstore OR (off-premise AND alcohol) OR (retail AND alcohol) OR (grocery AND alcohol) OR (convenience AND alcohol).'

Eligible study designs included systematic reviews and single studies (cross-sectional or longitudinal). Ineligible literature included commentaries, dissertations, theses, conference abstracts, policy submissions.

For single studies, the search focused on studies published in Australia, extended to studies published in the USA, UK, New Zealand, Ireland and Canada, as relevant.

Abstracts and full text articles were screened for relevant findings related to the availability of packaged liquor and associations with alcohol use and alcohol-related harms. Analysis of strengths and limitations of the studies were outside the scope of this report.

Six systematic reviews and 30 single studies were included in the environmental scan, with the findings summarised overleaf from pages 17 onwards in Tables 1 and 2.

Appendix 2. Summary of findings tables

Table 1: Summary of relevant findings from systematic reviews published 2016–25 (in descending order by author)

Author	Year	Focus	Aim of study	Findings	Interpretations / Conclusions
Baldwin et al. ¹⁷	2022	Effects of restricting trading hours on children and adolescents	A systematic review to examine how alcohol supply reduction policies impact the physical health, mental health, and offending behaviour of children and adolescents	Good quality evidence that reductions in off-premise trading hours across the week were an effective measure in reducing adolescent alcohol-related hospitalisations in Switzerland Although alcohol-related harms are more likely to occur on weekend evenings (Teece & Williams 2000; Young et al. 2004), US research indicates approximately 20% to 30% of adolescent alcohol consumption occurs on weeknights or after school hours (Goncy & Mrug 2013; Jackson et al. 2016)	Closure of cheaper off-premises alcohol outlets prevents opportunistic alcohol purchases occurring across the entire week, rather than only limiting the opportunity on two higher-risk days Limited recent research to adequately understand the impact of alcohol off-premise trading restrictions on children and adolescents
Gmel et al. ³¹	2016	Effect of outlet density on alcohol-related outcomes	A systematic review of 65 studies	Off-premise density is more related to violence than on-premise, but little is known about what type of outlet is contributing to violence (e.g. liquor stores selling packaged alcohol or grocery stores selling only beer)	Local conditions like zoning, clustering and outlet type, likely impact the extent to whether harms occur
Livingston et al. ¹⁹	2016	Effects outlet density and trading hours have on consumption and harms	A rapid review of the evidence on an association between alcohol availability (via outlet density and trading hours), alcohol consumption and harms	Some studies find that the density of off-premise (or packaged) liquor outlets is more important for violence than density of on-premise outlets, while others find the reverse. Restrictions of packaged liquor outlet trading hours is not well understood, though overseas studies point towards its effectiveness, particularly for adolescents and young adults	Good evidence that outlet density is associated with violence for packaged liquor outlets, though the effects may be accounted by the volume of alcohol sold
Nepal et al. ³⁶	2020	Effect of reducing trading hours on hospitalisations	A systematic review to assess the effects of extensions and restrictions in trading hours of on- and off-license alcohol outlets	Restricting off-license trading was followed by reductions in hospitalisations in two high quality studies, particularly among young people (Marcus & Siedler 2015; Wicki & Gmel 2011)	Restricting trading hours at on- and off-license premises was typically followed by decreases in the incidence of assault and hospitalisation

Martín-Turrero et al. ¹⁸	2024	Adolescent alcohol consumption	A systematic review of the associations between geographic availability of alcohol outlets measured through different methodologies and drinking outcomes in adolescents	Positive associations with prevalence of alcohol consumption were more numerous among those studies that considered off-premises outlets separately, compared to those that included only on-premise or analysed both on- and off-premise outlets together. (Pastor et al. 2020b; Rowland et al. 2016b)	Effect could be explained by underage alcohol purchasing being easier in off-premise outlets, where there may be lower enforcement of minor purchasing bans and alcohol might be cheaper
Shakory et al. ¹³	2024	Effect of reducing or expanding spatial availability of takeaway alcohol	To review the evidence on the impacts of policies regulating the spatial availability in four areas (malt liquor restrictions, sales expansion to retail outlets, privatisation and changes to allowable alcohol content) of off-premise alcohol on consumption and harms	Across the USA, states that allowed liquor sales in grocery stores did not see increased alcohol consumption in women aged 18-44, while their past year alcohol use significantly increased in states where petrol stations sold heavy beers Meanwhile there was no relationship between changes in alcohol consumption over time in surveyed adults and adolescents following the 2016 introduction of beer and wine sales at grocery stores in Pennsylvania (and beer, wine and cider in Ontario grocery stores from 2015)	Limited evidence that increasing offpremise availability alone increases alcohol use or harms. Effects vary by outlet type and consumer behaviour Alcohol sales in petrol station convenience stores were more consistently associated with increased consumption and harms, whereas expanding to grocery stores showed weaker effects Consumers may shift routine, planned alcohol purchases from other outlets to grocery stores, whereas convenience store type petrol stations create opportunities for impulsive alcohol purchasing Complementary policies including temporal restrictions, product placement controls and “store-within-a-store” models may reduce exposure, impulse purchasing and normalisation of alcohol, particularly to children

Table 2: Summary of findings from single studies published 2016–25 (in ascending order by author)

Author	Year	Outcome	Population and relevant age group	Design	Aim of study	Findings	Interpretations / Conclusions
Auchincloss et al. ³⁷	2022	Alcohol consumption	Philadelphia, USA Adults (18+)	Cross-sectional and longitudinal	Examine whether changes in the density of neighbourhood off-premise alcohol outlets affected changes in alcohol consumption one year after regulatory changes increased alcohol availability	Cross-sectional analyses found that higher outlet density was associated with more alcohol consumption and residing farther from an outlet was associated with less alcohol consumption In longitudinal analyses, exposure to more outlets was associated with 64% higher odds of drinking on more days per week and 55% higher odds of consuming more drinks per week	This study – conducted in a context where alcohol regulations were undergoing liberalisation – affirmed that off-premise outlet density and proximity were positively associated with alcohol consumption in cross-sectional analyses. In longitudinal analyses, increases in outlet density may promote more alcohol consumption; results were strongest for frequency of days consumed alcohol
Azar et al. ¹⁴	2016	Adolescent alcohol consumption	Australia Adolescents (12-17)	Repeated cross-sectional	Explore association between density of four types of outlets and adolescent alcohol use, including rural vs urban differences using data from the Australian Secondary Students' Alcohol and Drug (ASSAD) Survey in WA, VIC, QLD, NSW and NT	Despite density being higher in regional areas, off-premise outlet density was significantly associated with risky drinking for adolescents in urban areas but not regional	The authors attributed this to outlets being less spread out in urban areas, facilitating greater adolescent exposure to retail outlet advertising and opportunity to attempt purchases
Badland et al. ³²	2016	Self-rated health	Melbourne, Australia Adults (18+)	Cross-sectional	What outlet density measures are related to long-term health outcomes and if this is different according to neighbourhood disadvantage	For those living in more disadvantaged areas, not having off-premise outlets available within 800 metres was protective of self-rated health	Local alcohol outlet density may have a more detrimental effect on self-rated health for those living in more disadvantaged neighbourhoods, compared with those living in more advantaged areas
Boshari et al. ²⁹	2020	Alcohol-related violence	London, UK Population-level (not age-specific)	Cohort study	Examine whether alcohol-related violence is associated with licensed premises	No association between takeaway and off-premise outlets and alcohol-related crime	This finding was surprising, and the assumption that all off-premise outlets contribute equally may have contributed to null effect

Caetano et al. ³⁰	2021	Violent crime	California, USA Population-level (not age-specific)	Cohort study	Examine trends and population-level correlates of violent crime rates from 2005 to 2017 in California, including outlet density	Violent crimes were negatively related to percent total outlets that are off-premise, percent population male, percent with higher than 2017 adjusted median income, percent owner occupied houses, and lower population density	This negative association with crime rates may be acting as an indicator of an increased level of stability and community resources in neighbourhoods
Feng et al. ⁹	2019	Street robbery and assault	New York City, USA Population-level (not age-specific)	Cross-sectional	How 9 outlet types are associated with assault and street robbery across the 5 NYC boroughs	Off-premise grocery stores (that are limited to selling beer and wine) had the largest influence on the likelihood of both aggravated assault and street robbery in all 5 NYC boroughs Alcohol retail stores were associated with aggravated assaults and street robberies, but not in all boroughs Drug stores were associated with street robberies	Not all alcohol outlet types are equally associated with crime across neighbourhoods in New York City Crime reduction efforts should be unique and localised, according to the risk associated with outlet types and place
Foster et al. ⁵	2017	Alcohol consumption	Perth, Australia Young adults (20-22)	Longitudinal study	Explore associations between liquor licence types and alcohol consumption at 20-years and 22-years using data from the Western Australian Pregnancy Cohort (Raine) Study	For each additional liquor store, alcohol consumption increased by 8% to 1.22 grams/day between 20 and 22-years, equating to approximately 0.8 standard drinks/week	Policies designed to limit the number of neighbourhood liquor licences could contribute to a reduction in young adults' alcohol consumption levels
Foster et al. ⁴	2018	Alcohol consumption	Perth, Australia Young adults (20)	Cross-sectional	Evaluate whether liquor store size was associated with young adult alcohol consumption using data from the Western Australian Pregnancy Cohort (Raine) Study	Significant associations between the number of liquor stores within closer proximity of home and alcohol consumption, whereas larger stores were not associated (i.e. > 300 m ² and > 600 m ²) with alcohol intake	The presence of multiple stores close to home increases market competition, driving alcohol prices down and plausibly results in prices similar to liquor superstores

Friesen et al. ⁶	2022	Alcohol consumption	Ontario, Canada (Adults 18+)	Cross-sectional	Evaluate the association between off-premise alcohol availability and alcohol use and the degree to which this association varies between cities	Higher off-premise alcohol availability was associated with a higher prevalence of neighbourhood-level alcohol use, however this association varied substantially between cities	Regional variability in the local built environment, types of outlets available in different zones, drinking cultures, community patterns and other neighbourhood factors may influence the effect of jurisdictional alcohol regulation policies
Gohari et al. ³	2021	Adolescent alcohol consumption	Ontario, Canada Adolescents	Longitudinal quasi-experimental	To evaluate the impact of authorising sales of alcohol in some Ontario grocery stores on adolescent alcohol consumption using a quasi-experimental design with control groups in Alberta and Ontario	The new policy had no negative impact among periodic and low-risk drinkers The risk of transitioning from the abstainer (lowest risk status) to high-risk regular drinker (highest risk status) among the exposed cohort was 1.71 times greater compared with those of Ontario-unexposed (0.50) and Alberta-unexposed cohorts (1.00) The probability of sustaining high-risk drinking among the exposed cohort increased by a factor of 1.76, compared with 1.13-fold and 0.89-fold among the Ontario-unexposed and Alberta-unexposed cohorts, respectively	Youth are more likely to transition from abstinence to high-risk regular drinking, and high-risk regular drinkers are more likely to maintain their behaviours after introduction of alcohol sales in grocery stores When formulating policy interventions, youth access to alcohol should be considered in order to reduce their harmful alcohol consumption
Gorman et al. ²⁸	2018	Violent crime	Texas, USA Population-level (not age-specific)	Longitudinal study	Assess if the introduction of a large number of off-premise alcohol outlets could affect rates of violent crime	Off-premise outlets had a small, significant positive association with violence within a given block group. However, the spatially lagged effect for off-sale premises was well-supported, indicating that greater densities of these outlets were related to greater rates of violent crime in adjacent areas	Outlets in a local area may be related to violence in nearby geographic areas They indicate the importance of examining neighbourhood-specific effects of alcohol outlets on violence in addition to the city-wide effects

Gruenewald et al. ²⁷	2023	Crime	Oakland, California, USA Population-level (not age-specific)	Cross-sectional	Explore if areas with more bars/pubs, restaurants or off-premise outlets have more crime during days and times when alcohol sales are greatest	Intimate partner violence (IPV) occurred more often in areas with more off-premise outlets on weekend days Robberies occurred more often in areas with more off-premise outlets on weekend nights	Some crimes associated with takeaway alcohol like IPV, may occur some distance from the place where alcohol is sold, so current estimates based on geographical areas likely underestimate the true effects
Hobday et al. ¹¹	2018	Motor vehicle crashes	Perth, Australia Population-level (not age-specific)	Cross-sectional	Explore the association between distance between on-premise outlets and bottle shops and alcohol-related motor vehicle crashes	There was some evidence that crashes with lower number of bottleshops in adjacent buffer zones were more likely to be alcohol-related crashes, although this was not consistent across both models and all buffer zones	Young people may purchase alcohol takeaway and pre-load as they drive (and crash on the way) to on-premise outlets – bottle shop sales would be a better indicator than number of bottle shops to understand this
Hobday et al. ³³	2016	Injuries	Perth, Australia Population-level (not age-specific)	Longitudinal	Examine the effects of licensed outlets and sales on levels of alcohol-related injuries presenting to emergency departments (EDs) in the inner, middle and outer postcode zones of Perth, Australia	In the inner and outer postcode zones, an additional off-site outlet was associated with 6.8% fewer alcohol-related injuries In the middle postcode zone, mean off-site sales were positively associated with injury	The relationship between alcohol availability and injury was different depending on distance to the CBD
Jiang et al. ²³	2023	Domestic and non-domestic assault	NSW, Australia Population-level (not age-specific)	Longitudinal study	To investigate the association between alcohol outlet density and rates of domestic and non-domestic assault in NSW	Changes in off-sales outlets did not lead to changes in the rates of domestic and non-domestic assaults	Findings are consistent with previous research Targeting density of hotels and on-premise outlets may be effective in reducing assault in NSW
Morrison et al. ¹⁰	2016	Traumatic injury	Melbourne, Australia Population-level (not age-specific)	Cross-sectional	Examine whether injury rates are higher in areas with more off-premise alcohol outlets and if larger chain outlets contribute more than smaller independents	Greater off-premise outlet density is related to greater incidence of traumatic injury, and chain outlets appear to contribute most substantially to traumatic injury risk	Chain outlets were larger and appeared to sell alcohol at cheaper prices than independent outlets, suggesting increased convenience and affordability associated with greater densities of outlets (particularly chain outlets) in neighbourhoods lead to more problems

Morrison et al. ³⁸	2019	Adolescent alcohol consumption	San Francisco Bay Area, USA Adolescents (<21)	Longitudinal study	Examine relationships between adolescents' exposure to alcohol outlets, and alcohol consumption	Exposure to bars and off-premise outlets near home was positively associated with accessing alcohol from peers aged <21, and in turn, accessing alcohol from peers aged <21 was positively associated with alcohol consumption	Interventions that reduce adolescents' access through peers aged <21 may reduce adolescents' alcohol consumption
Myran et al. ³⁴	2024	Alcohol-related health service use	Ontario, Canada Adults (18+)	Repeated cross-sectional	Examine the association between alcohol retail access and health-care visits attributable to alcohol	Greater alcohol retail access is associated with higher rates of emergency department and outpatient health-care visits attributable to alcohol among those without previous alcohol-related health care	People with alcohol use disorder may be less affected by local retail availability because they tend to stock up or are willing to travel for alcohol, whereas people without a disorder may be more influenced by nearby outlets, purchase cues, and easier access
Myran et al. ¹²	2019	Emergency department (ED) visits	Ontario, Canada Adults (18+)	Cross-sectional and pre-post	Examine the association between alcohol availability and alcohol-related ED visits during a period where the control of number of off-premise outlets was reregulated	Alcohol-attributable ED visits increased by 17.8% during the study period - more than twice the overall increase in ED visits Areas that expanded alcohol sales, particularly through grocery store deregulation and longer trading hours, experienced significantly higher rates of alcohol-related ED visits	Deregulation may have also increased exposure to alcohol marketing at point-of-sale promotion at grocery stores, increasing impulse buys The findings highlight the need for ongoing regulations to protect the population from alcohol harm and suggest that placing limits on the number of alcohol outlets and their weekly hours of operation should be part of any alcohol strategy
Nesoff et al. ³⁵	2018	Injury	Baltimore City, USA Population-level (not age-specific)	Cross-sectional	Compare pedestrian injury rate around alcohol retail outlets to other retail outlets that don't sell alcohol	Each additional off-premise alcohol outlet was associated with a 12.3% increase in the rate of pedestrian injury when controlling for convenience and corner stores and other confounders In the simulated case-control study, 4.9% of injuries could be attributed to neighbourhood presence of off-premise alcohol outlets, when controlling for neighbourhood features and convenience stores	Findings reinforce the unique importance of alcohol outlets in understanding neighbourhood pedestrian injury risk and may provide evidence for informing policy on liquor store licensing, zoning, and enforcement

Rowland et al. ¹⁵	2017	Adolescent purchase of alcohol	Western Australia, Victoria and Queensland, Australia (Underage appearing confederates)	Mystery shopper study	Estimate extent adolescents that appeared underage were able to purchase alcohol from packaged liquor outlets; and to identify store and sales characteristics associated with illegal purchasing	Confederates successfully purchased alcohol at 60% of outlets Underage alcohol purchase was more likely in rural areas across all states Underage alcohol purchase more likely in independent stores and where general liquor outlet density was greatest, however the strength of relationship varied by state	Overall, the findings suggest that a mix of local (e.g. density, chain store, urban location) and possibly state policy factors (such as secondary supply laws, risk based licensing) are associated with young people illegally purchasing alcohol Consistent and effective policies, monitoring and reductions in outlet density could reduce adolescent alcohol consumption
Rowland et al. ¹⁶	2016	Adolescent alcohol consumption	Victoria, Australia Adolescents (12-17)	Longitudinal study	To explore whether living close to a more concentrated density of alcohol outlets is associated with increased adolescent consumption in the next year, over and above other established risk factors for alcohol use	A positive association between overall density and underage drinking was identified; however, no association was found for the model examining each of the densities (packaged liquor, pub/bar, on-premise, club)	A higher density of alcohol outlets in the local community was a longitudinal risk factor increasing the proportion of adolescents who consume alcohol
Schwartz et al. ²⁰	2024	Alcohol consumption	Ontario, Canada Adults (18+)	Before / after study	Examine the impacts of a nearby grocery store gaining an alcohol license on adults' alcohol use	No consistent trends showing increases in alcohol use in populations living near an alcohol-licensed grocery store relative to controls	Local retail conditions – such as clustering, outlet type or urban vs suburban differences - may moderate effects of off-premise outlet density on alcohol consumption
Scott et al. ²²	2022	Family violence	Victoria, Australia Population-level (not age-specific)	Cross-sectional	Explore the association between access to alcohol outlets, and family and intimate partner violence using paramedic clinical records	Access to a liquor licensed outlet was significantly associated with family violence-related attendances across all outlet types including packaged liquor licenses	Evidence of the relationship between alcohol-related family violence in both victims and perpetrators Licensing policy and town planning changes are needed to reduce these harms by restricting alcohol availability

Sersli et al. ²¹	2024	Risky drinking in young adults	British Columbia and Quebec, Canada Young adults (18-29)	Cross-sectional	Assess the association between alcohol availability and heavy episodic drinking (HED) among young Canadians aged 18–29	In British Columbia, higher accessibility to both offsite and onsite was associated with lower odds of HED. In Quebec, offsite accessibility was positively associated with HED while no clear trend was seen for onsite availability	Local conditions may drive these relationships, as alcohol is more accessible in urban over suburban BC neighbourhoods which may have different drinking cultures driving behaviours Factors other than outlet accessibility - such as social norms or drinking cultures - may need to be better understood and accounted for
Singh et al. ²⁶	2024	Violence	The Bronx, NY, USA Population-level (not age-specific)	Cross-sectional	Assess the relationship between alcohol outlet types and types of violent crimes	Liquor, grocery, and drug stores were linked to higher levels of violent crime in several ways, but on-premise outlets were not Different types of off-premise stores were connected to different kinds of violent crime, and liquor and grocery stores showed the strongest and most consistent links in all the analyses	Different types of off-premise outlets have different effects on total violent crime
Snowden. ²⁴	2019	Violence	Milwaukee, USA Population-level (not age-specific)	Cross-sectional	Explore the association between neighbourhood characteristics, alcohol outlets, other micro-places, and neighbourhood violence rates	Off-premise alcohol outlets have a consistently significant positive relationship with simple and aggravated assaults, even when the influence of the neighbourhood characteristics and micro-places is accounted for	Violence may occur more near off-premise outlets due to limited formal surveillance of events that occur at, or near, the locations, such as nearby parks, parking lots or at home
Snowden. ²⁵	2021	Crime	Milwaukee, USA Population-level (not age-specific)	Cross-sectional	Examine the association between off-premise alcohol outlets and crime	Violent, property, and disorder crimes were higher around off-premise alcohol outlets compared to other areas, with both environmental and outlet characteristics - such as security features, litter, lighting, and outlet type - linked to increased crime	Specific environmental conditions and characteristics of off-premise outlets are associated with increased crime

Sun et al.⁸	2019	Hospital and emergency department visits	Kimberly Region, WA, Australia Population-level (not age-specific)	Interrupted time-series analysis	Evaluate the long-term effects of alcohol sales restrictions on health service utilisation in two remote towns in Kimberley	Control of high strength packaged liquor was associated with a significant reduction of over 40% on rates of alcohol-related acute hospitalisations and ED attendances in two remote towns Domestic violence and injury related hospitalisation rates also reduced by over 20% in both towns	The total restriction of selling high strength alcohol through a community driven process has shown to be effective in reducing alcohol-related health service utilisation in post-intervention period
Trapp et al.²	2018	Adolescent alcohol consumption	Perth, Australia Adolescents to young adults (14–20)	Cohort study	Examine whether proximity to liquor stores at age 14 years was associated with alcohol intake at ages 14, 17, and 20 years.	At age 14, having a liquor store within 800 metres of school was associated with having ever consumed alcohol Living or studying within 800 metres of a liquor store was linked to both trying alcohol and engaging in heavy drinking Proximity to liquor stores at age 14 also predicted alcohol use at age 17, but not at age 20	Liquor store availability in early adolescence may be a risk factor for alcohol intake in early and middle, but not late, adolescence. Improved understanding of the longer-term impacts of liquor store exposure on sensitive populations could help inform future licensing regulations
Wang et al.⁷	2022	Domestic violence	NSW, Australia Population-level (not age-specific)	Longitudinal	Examine impact of trading hours extension of bottle shop from 10–11pm in December 2016 on the incidence of domestic assault in NSW	Extension to takeaway alcohol sales was associated with a very small but statistically significant increase in DV assaults.	Unable to tell whether change in assaults was to do with extended trading hours of bottle shops, home delivery services or both An additional 1,120 DV assaults estimated to have occurred in the 38-months after trading hours were extended

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