

CLINICAL REVIEW

Alcohol and Community-Based Violence: A Review of Evidence and Control Policies

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ABSTRACT

Alcohol is one of the most widely available psychoactive drugs. Both alcohol use and community-based violence share some common physiological, social, and economic variables. While the link between alcohol consumption and violent behaviour has been recognized in the literature, environmental and social influences have not been fully explored. Although alcohol consumption does not always lead to violent behaviour, epidemiological studies have shown that 62% of violent offenders were intoxicated at the time of their offence. A review of recent literature published from 1999 to 2009 in the English language identified 28 articles that explored the relationship between alcohol consumption and community-based violence. Electronic databases, grey literature, reference lists of relevant studies and previously published reviews on similar topics were searched using 17 keywords. Six parameters were found to connect alcohol consumption and community-based violence: alcohol outlet density, alcohol retail sale hours, price of alcohol, alcohol sales, characteristics of violent bars, and alcohol-related violent injuries in the hospital emergency department. It was found that alcohol-related violence is perpetuated by increased availability and harmful use of alcohol. Systematic evaluation of the included studies pointed to a strong environmental and social connection between alcohol consumption and subsequent violent behaviours. Incidents of violent behaviour thus may be prevented through public health policies. Eight strategies and 21 recommendations are made to inform public health policies intended to reduce alcohol's contribution to community-based violence.

INTRODUCTION

Of the many psychoactive substances, alcohol is one of the most well-known, most commonly purchased, and most consumed.¹ According to the 2004 Canadian Addiction Survey, about 80% of Canadians aged 15 years and older report having consumed alcohol at least once in the previous year.² While alcohol consumption does not always follow a maladaptive pattern, the impairment resulting from its abuse can often lead to social or legal problems. In an epidemiological review of 26 studies involving 9,304 violent cases, Murdoch et al. found that 62% of violent offenders were intoxicated at the time of their offence.³

Community-based violence has been defined by Krug et al. as a type of interpersonal violence that typically occurs between acquaintances or strangers outside of the home (Figure 1).⁴ When this type of violence is linked to alcohol

consumption, it is found to be disproportionately committed by young people in the late-night economy. While the link between alcohol consumption and violent behaviour has been well-established, the mechanisms—particularly the social and environmental influences—by which alcohol consumption leads to the escalation of community-based violence are not clear. The purpose of this paper is to provide a summary of the current research that examines the effects of alcohol consumption on community-based violence. Information sought will be used to identify patterns in which alcohol use contributes to community-based violence, identify predisposing physical and social factors, and provide policy recommendations to reduce its occurrence.

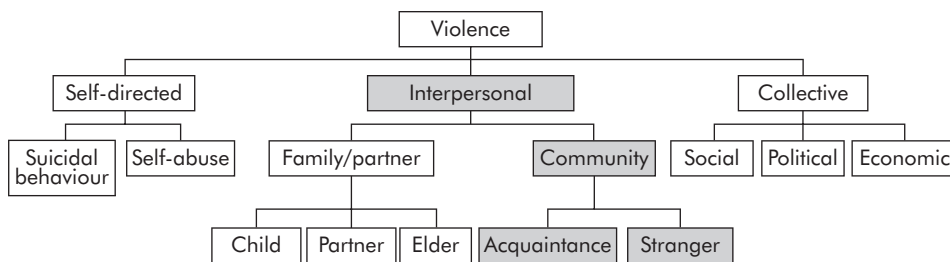


Figure 1. Typology of Violence⁴

METHODS

A review of the literature was performed in June 2009 by one researcher, to ensure consistency. The search for relevant literature included print, electronic, published and unpublished materials found through library databases, the Internet and reference lists of selected articles.

The library search strategy (Figure 2) used the following electronic databases: PubMed, Web of Science, and Scholars Portal (which included Social Sciences Citation Index, Sociological Abstracts, and Violence and Abuse Abstracts). These databases were chosen to encompass a wide range of

disciplines particular to this topic, including biomedical, social and behavioural sciences. Specific inclusion and exclusion criteria used in the screening of relevant studies are listed in Table 1. Thirteen keywords representing ‘alcohol use’ were combined with five keywords related to ‘community-based violence’ using the ‘AND’ Boolean operator (Table 2).

Table 1. List of Inclusion and Exclusion Criteria

Inclusion Criteria

- The study assessed alcohol intake and/or availability;
- The study assessed community-based violence documented through measured cases of injury, assault, violent crime and the like.

Exclusion Criteria

- Studies that focused on victims of alcohol-related violence or the views of the abused;
- Studies whose measure of violence was in the form of war, terrorism, or violent political conflict;
- Studies on the treatment of alcoholism;
- Studies that described the effects of alcoholism or alcohol-induced disorders;
- Studies whose focus was on a specific type of injury such as human bite injury, head trauma, traumatic brain injury; and
- Studies that only focused on a specific population such as young adults or Aboriginals.

Table 2: Search Terms

Keywords for ‘Alcohol Use’	Keywords for ‘Community-based Violence’
• Alcohol drinking	• Assault*
• Alcohol abuse	• Brawl*
• Alcohol consumption	• Community violence
• Alcohol misuse	• Violence
• Alcohol use*	• Violent behaviour*
• Alcohol-related drinking	
• Alcohol-related violence	
• Alcoholic beverages	
• Binge drinking	
• Drunkenness	
• Hazardous drinking	
• Harmful drinking	
• Social drinking	

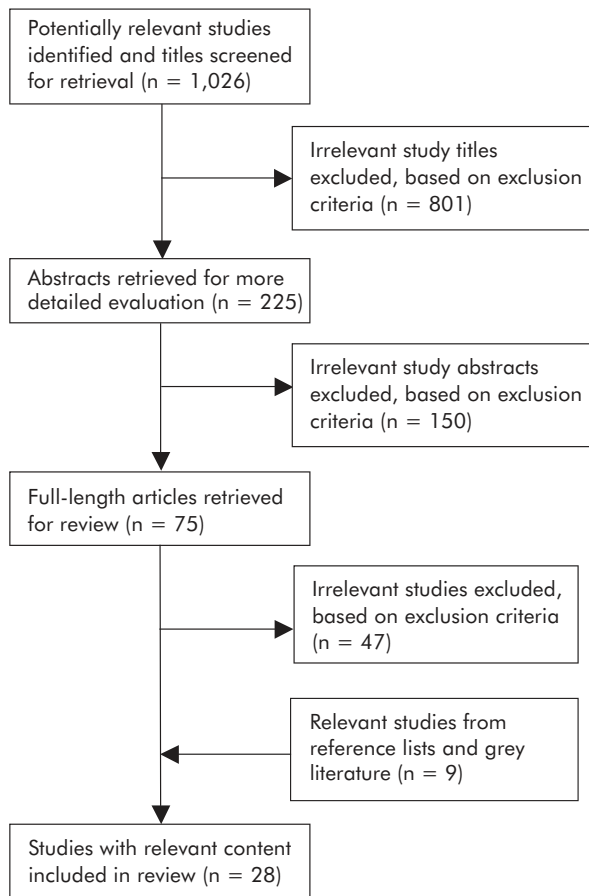


Figure 2. Search Strategy Used to Identify Included Studies

RESULTS

In total, 28 studies were identified through the described methodology (see Appendix published online at <http://mumj.org>). Included studies used a variety of study designs, including cross-sectional, retrospective, case-crossover, longitudinal, general population survey, case-control, and time-series analysis. Six major categories of alcohol and community-based violence studies were identified: alcohol outlet density; alcohol pricing; alcohol sales; alcohol retail sale hours; characteristics of violent bars; and alcohol-related violent injuries in the emergency department (ED).

Alcohol Outlet Density

There are two dominant theories about why alcohol outlet density and violence appear to be linked. The ‘selection effect theory’ suggests that simply the presence of outlets, as an independent factor, predisposes to violence.⁵ The ‘social disorganization theory’ presents a view that outlets provide a context for violence.⁶ From this perspective, alcohol outlets may represent a negative influence that promotes and encourages violence.⁷ Gorman et al. described the influence of this environment as follows: “Broken bottles and bars send essentially the same message as do broken windows, which is that mechanisms of informal social control have ceased to function.”⁹ It is debated whether the number of bars also correlates to the rate of violence.⁸ One study suggests that: “there may be a [threshold] point after which each additional outlet contributes increasing numbers of additional assaults.”¹⁴ Therefore, high alcohol outlet densities may reduce social prohibitions against violence, and subsequently, enable violence in community areas.

Geospatial studies linking alcohol outlet density and rates of violence have uniformly illustrated a positive relationship.^{5,6,10-12} However, the degree of association is dependent on the type of outlet—with pubs and clubs increasing the strength of the association—as well as the neighbourhood in which they are located.¹³ In relation to place characteristics, Gruenewald et al. found that bars had a marked effect on violence in poor, unstable areas (violence rates increased with increased alcohol outlets), but were actually protective in stable, wealthy ones (violence rates decreased with increased alcohol outlets).¹⁵ This seems to illustrate an interaction between outlet density and socioeconomic status on alcohol-related violence.

Alcohol Pricing

Wagenaar, Salois & Komro’s meta-analysis of 112 studies found that alcoholic beverage taxes and increased prices reduce alcohol use.¹⁶ This relationship applies to all types of alcoholic beverages, and not only to overall consumption, but also to heavy drinking.¹⁶ Sivarajasingam, Matthews & Shepherd analyzed 353,433 alcohol-related violence ED cases along with the regional price of alcohol in England and Wales from 1995 to 2000.¹⁸ Their results indicated that “high regional violence-related injury rates correlated with low real price of alcohol as measured by price of beer,” and support an estimate that a “one-percent sustained increase in the price of alcohol above

inflation will decrease violent injuries by nearly 2,200 a month in England and Wales.”¹⁸ Furthermore, a survey study conducted in New York found that “the cost of drinks was reported to be lower in violent bars than in nonviolent bars.”¹⁹ These findings suggest that increases in the price of alcoholic beverages may be an effective means of reducing violent injuries.

Alcohol Sales

Several international studies have demonstrated that increased sales through alcohol outlets are correlated with higher rates of violence.^{17,18,20,21} Factors shown to be important in this link include the volume of alcohol consumed and its frequency of consumption, cultural characteristics, social context, and income. Differences in drinking culture are especially important, since greater acceptance of alcohol misuse is likely to spur alcohol sales and levels of violence.²² Ray et al. assessed the association between retail alcohol sales across Ontario, Canada, and risk of hospitalization for intentional injuries captured by the Canadian Institute for Health Information Discharge Abstract Database from April 1, 2002 to December 1, 2004.²¹ Ray and his colleagues found that the risk of being hospitalized because of a violent assault was higher among those who live in the immediate vicinity of alcohol outlets with rising sales, measured through total volume of alcohol sold at each outlet.²¹ The study noted “a 13% higher risk of being hospitalized for assault with each additional 1,000 [litres] of alcohol sold per day, equivalent to about a doubling of the usual daily sales.”²¹ The risk of being violently assaulted was 41% higher during periods of peak alcohol sales than when sales were at their lowest.²¹

Alcohol Retail Sale Hours

Several studies have evaluated whether changes in temporal access to alcohol affect local rates of violence.^{23,24} Restricting hours of alcohol sales may be a potential method of limiting alcohol availability and related violence. A policy to restrict alcohol sales was introduced in July 2002, prohibiting on-premise alcohol sales after 11 p.m. in Diadema, a city of predominantly low socio-economic status in Brazil. Before the law, most bars remained open 24 hours. One study analyzed assault data from 2000 to 2005 and found that “the average monthly [number of] assaults fell from 48 during the two years before the new law to 25 assaults in the three years after it.”²⁷ Underlying trends were not accounted for in their analysis, however, and it is unclear if these effects were the result of the new law or another factor.

Changes in alcohol retail sale hours in Sweden enabled Norstrom and Skog to evaluate associated changes in assault rates.²⁵ In 2000, alcohol retail monopoly shops extended sales hours to allow Saturday openings in certain parts of the country, for a trial period. Seventeen months later, Saturday opening was extended to the rest of Sweden. The authors found that the extension in retail sales to the whole of Sweden was followed by a slight increase in total alcohol sales of about 4%, with no significant change found in the indicators of alcohol-related

assaults.²⁵ The only Ontario-based evaluation considering hours of alcohol retail sales was conducted by Vingilis, Mcleod, Mann & Seele.²⁶ They examined the impact of extended drinking hours in Windsor and London, two cities in southwestern Ontario. No overall increase in assaults was observed in either locale. These two study findings suggest that extending drinking hours does not correlate to increased rates of violence.

Characteristics of Violent Bars

Briscoe and Donnelly examined the distribution of violent crime across licensed premises in three inner-urban areas of New South Wales and found that a large proportion of violent incidents occurred within a small proportion of licensed premises.²⁸ Graham et al. analyzed incidents of aggression recorded by trained observers who attended large-capacity bars and clubs in Toronto, Canada.²⁹ Incidents of aggression were based on narrative descriptions of behaviour related to both harm and intent to harm. Not only is the absolute level of intoxication a predictor of violence, but the level of intoxication relative to others was also a moderating factor in the relation between intoxication and violence.²⁹ Homel et al. showed that reducing levels of intoxication of bar patrons at nightclubs in city-centre entertainment areas in Australia reduced violence.³⁰ Key environmental variables associated with declining violence rates were identified: improved comfort, availability of public transport, less overt sexual activity, and fewer intoxicated males.³⁰ These findings highlight the potential for violence-prone bars to modify their drinking environment by addressing certain physical and social characteristics (Table 3), thereby curtailing potential violence within their establishment.^{19,28-32}

Table 3. Summary of Physical and Social Characteristics Associated with Violent Bars^{19,28-32}

Physical Characteristics	Social Characteristics
Overall comfort	Certain behaviours
High temperature	Rowdiness
High levels of noise and music	Overt expressions of sexual activity
Poor lighting	High levels of swearing
Poor ventilation	Sexual or general competition
Smoke-filled air	Heavy drinking or intoxication
Dirtiness	Underage drinking
Uncomfortable seating	Illegal drug use
	Dancing
Crowd characteristics	Bar location
Crowd density	Proximity to other bars
Capacity of venue	Neighborhood area where bar is located (residential district versus entertainment district)
Ethnic mix of patrons	
Others	Management practices
Presence of pool tables or billiards	Staff gender and attitude
Availability of public transport	Permissiveness of environment
Discounted drinks	Maintenance of bar environment
Employed bouncers	Serving to intoxication

Alcohol-related Violent Injuries in the Emergency Department

Violence is among the top causes of alcohol-related injuries presenting to the ED.³³ In several studies across Latin America³⁴ and New Zealand,³⁵ 35-50% of all patients with a violence-related injury had recently consumed alcohol. Two Canadian studies, merged ED data from 16 countries to investigate alcohol impairment (based on blood alcohol concentration) for different types, causes, and contexts of injury.^{33,36} The authors found that patients with alcohol impairment were significantly more likely to sustain substance-related injuries than injuries from any other causes (such as vehicle crashes, falling, poisoning, or burns). In particular, approximately 22% of those with injuries were intoxicated, as opposed to 8% of those involved in motor vehicle crashes. The study noted: "Those consuming alcohol within six [hours] prior, compared to those not drinking during this time, were found to be 34 times more likely to have a violence-related injury among all cases [of emergency room patients] and controls, and 23 times more likely to have a violence-related injury among drinkers."³⁷ In addition, there is evidence that the risk and severity of a violence-related injury increases sharply with increasing amounts of alcohol consumed.³³⁻³⁵ Further, Macdonald et al. found that "a positive blood alcohol content (BAC) and a BAC of 0.08% were significantly related to violence."³⁶ A significant association was also found between a BAC level over 0.08% and the number of body regions injured.³³ These results point to a causal role of alcohol in injuries related to violence, and suggest that the relation between alcohol consumption prior to the time of the injury is stronger than the relation between general alcohol consumption patterns (or dependence) and violence.^{36,38}

DISCUSSION AND CONCLUSIONS

A review of the evidence shows that excess alcohol consumption contributes to community-based violence. This finding emphasizes the increasing need for public health policy to address alcohol-related harm, as it relates to violence. Many incidents of violence can be prevented by reducing population alcohol consumption, particularly in areas of high alcohol outlet concentration. While regulations such as a minimum drinking age and a maximum BAC level for drivers currently exist in Ontario, even these policies are not easily enforceable. Future research in the area of alcohol-related violence prevention is needed to determine how discounted drinks, drink sizes, venue capacity, and venue style may be related to bar violence. Spatial analysis of bar locations would also provide more information about the alcohol-violence link. In addition to the list of physical and social factors that contribute to violence (Table 3), future policy development would benefit from identifying effective management practices as it relates to reducing violence. Further, reviewed studies that analyzed the relationship between alcohol retail sales hours and violence did not show a strong association; however, regulating alcohol retail sale hours is deemed an alcohol control best practice.⁴⁰ This topic therefore requires further exploration in relation to violence.

In addition to limitations associated with the use of police record and emergency record data employed in many of the reviewed studies, the methodology of this review has some shortcomings. Abstraction forms were reviewed by a second researcher, however, selection bias may exist during the screening process in which only one researcher selected relevant studies and abstracted the data. Furthermore, 'intentional injuries' was not included as one of the search terms. Limitations on time and resources have also limited the scope of included studies.

The literature reviewed indicates that alcohol and community-based violence can be addressed by controlling the availability of and harmful use of alcohol. Effective alcohol control policies can help control alcohol-related violence. Table 4 illustrates eight strategies and 21 recommendations around regulation, taxation, service provision, and education, that can be acted on to help control alcohol-related violence. These recommendations are a culmination of data extracted from the literature reviewed, along with expertise of staff at Ontario Public Health Association's (OPHA) Alcohol Policy Network, and are consistent with and supportive of those proposed by others.^{1,39-41}

There is a clear niche for Public Health to work with relevant stakeholders and government agencies to effect the

changes necessary to reduce alcohol-related harm. This may include the introduction of alcohol policy as well as the support and development of a provincial alcohol and violence prevention strategy. To this end, the development, implementation, and evaluation of evidence-informed interventions will play a positive role in mediating violence. †

ACKNOWLEDGEMENTS

The authors would like to acknowledge the following individuals and groups for their valuable contributions to this paper:

Dr. Joel G. Ray, Clinical Scientist, St. Michael's Hospital; Associate Professor, Departments of Medicine, and Health Policy Management and Evaluation, University of Toronto.

Connie Utrecht, Executive Director (2005-2010), Ontario Public Health Association.

Dorothy Birtalan, Chief Information Officer, Ontario Public Health Association.

Ontario Public Health Association's **Violence Prevention Workgroup**.

The Alcohol Policy Network is housed at the Ontario Public Health Association and is funded through the **Ontario Agency for Health Protection and Promotion**.

Table 4. Alcohol and Community-based Violence Control Policies

	Strategy	Activities
REGULATION	1. Regulate alcohol availability	<ul style="list-style-type: none"> Limit alcohol outlet density Limit the opening of new outlets Permanently close or heavily fine outlets that repeatedly violate liquor laws Regularly review operational liquor licensing policies Impose strict mandatory insurance requirements to operate a licensed establishment
	2. Restrict hours and days of alcohol sales	<ul style="list-style-type: none"> Restrict hours in which retail alcohol sales are permitted Restrict days of alcohol sales Consider the effects other municipalities (i.e., border-towns) have on alcohol sales and control measures
TAXATION	3. Address pricing and taxation	<ul style="list-style-type: none"> Increase the full price of alcoholic beverages Price alcohol based on the percentage of alcohol Introduce a tax levy
SERVICE PROVISION	4. Increase policing and enforcement	<ul style="list-style-type: none"> Target high-risk areas Target late-night venues Mandate evaluated server and security staff training Significantly increase the number of provincial liquor inspectors
	5. Modify the drinking context	<ul style="list-style-type: none"> Address the physical characteristics of venues where alcohol is sold Limit the number of intoxicated patrons within such venues
	6. Implement a violence management system	<ul style="list-style-type: none"> Develop a violence management system that will collect Emergency Department injury data
EDUCATION	7. Utilize education and persuasion strategies	<ul style="list-style-type: none"> Develop evidence-informed educational campaigns as part of comprehensive health promotion interventions
	8. Support Provincial Strategies	<ul style="list-style-type: none"> Support a Provincial Alcohol Strategy Support a Provincial Violence Prevention Strategy

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