

# **Bad Bars**

## **A Review of Risk Factors**

**Joanna Green & Martin Plant**

Alcohol & Health Research Trust, Centre for Public Health Research,  
University of the West of England, Blackberry Hill, Bristol BS 16 1DD,  
United Kingdom.

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## **Abstract**

Bars, inns, taverns and hotels have been popular settings for recreational alcohol consumption for centuries. The bar is firmly established as an important adjunct of leisure in many societies. Alcohol consumption in bars is mainly convivial, restrained and problem-free. Even so it has long been apparent that heavy drinking in bars is associated with aggression, violence, public disorder and injuries. This paper examines published empirical evidence related to the possibility that problematic behaviours are associated with identifiable characteristics of a bar. It is concluded that evidence suggests that a number of factors are associated with elevated risks that a bar will be a focus for problematic behaviour. These risk factors are considered under the following main headings: internal physical characteristics and atmosphere (e.g. layout, crowding), organisational factors (e.g. beverage promotions, entertainment), patron characteristics (e.g. gender, age), beverage choice and external characteristics (e.g. location, density). It is concluded that the type of evidence presented here should be taken into account when reviewing licensing arrangements, designing bars and planning the location, type and density of bars in any locality where such establishments are situated.

## **Introduction**

Bars have long been an important and valued element in the lives of people in many countries. Even so, it has been evident for centuries that bars and other public drinking locales are frequently associated with aggression, public disorder, violence and injuries (Cavan 1966, Collins 1982, Single and Storm 1982, Giesbrecht et al. 1989, MCM Research 1990, 1993, Stockwell et al. 1993, Homel et al. 1992, Graham and Homel 1996, 1997, Lang and Rumbold 1997, Plant, Single and Stockwell 1997, Klingemann et al. 2000, Plant, Plant and Thornton, 2002, Graham and Plant 2002, Plant et al. 2002a). Most of what would be recognised as ‘research’ into this topic has been conducted during the past 40 years. Even so, interest in the possible effect of bar characteristics upon drinking behaviour is not new. The Select Committee of the UK House of Commons on Public Houses and Morals, headed by Charles Villiers (1852-54) and the Royal Commission on the Liquor Licensing Laws, headed by Viscount Sidney Peel (1896-98) considered the possible effects on drinking of the design of licensed premises. There are factors that are associated with the risk of alcohol-related problems in and around licensed premises (e.g. Single and Storm op cit.). Accordingly, a review was conducted to achieve the following aims:

- 1) To identify factors associated with high and low levels of intoxication, aggression, public disorder, crime, underage drinking and injuries in and near public bars and licensed clubs.
- 2) To identify priorities for reducing the levels of problems associated with licensed premises.

This paper sets out to address the first of these aims.

## **Methodology**

This review was not restricted to randomised controlled trials. These are not the basis of this literature. Nor did it exclude studies because of imperfect methodology. This exercise sought to provide an overview of what is suggested by available empirical evidence, particularly that in peer-reviewed journals. The review examined evidence related to the characteristics of licensed establishments. These included organisation, management and bar patrons as well as external characteristics such as location and geographical density of bars. The review was carried out during October and November 2005. It was designed to incorporate relevant English language literature from major scientific journals and any other relevant publications that could be identified. Internet search

engines were mainly used to identify publications. In addition an examination of hard copies of both journals and books was also conducted to expand the scope of this inquiry. Selected databases used were examined using keyword searches. Internet search engines used were searched using either keyword searches in which case one word of each type was found somewhere in the text of the literature or, when this method provided a number of results so large that all pieces could not be checked for relevance, the keywords search was used to search the title and abstract of the literature only. The databases used for keyword searches and abstract and title keyword searches and the numbers of records obtained are noted in Tables 1 and 2:

**Table 1:** Databases used for keyword searches and the number of records obtained

ASSIA – 237 Records
BNI – 12 Records
Child Data – 7 Records
CINAHL – 503 Records
Community Wise – 76 Records
HMIC – 87 Records
IBSS – 106 Records
Index to Theses – 64 Records
ISI Proceedings – 483 Records
NHS – National Research Register – 201 Records
SOCABS – 626 Records
DrugScope – 73 Records
LexisNexis Professional: Statutes Search – 92 Records
UK Journals – 448 Records
BHI – 167 Records
Environment – 0 Records
PLANEX – 100 Records
PAIS – 121 Records
SOSIG Gateway – 7 Records
NMAP/OMNI Gateway – 4 Records

## Results

The literature did suggest that some factors were associated with the risk of alcohol-related problems in and around bars. Some reports were essentially anecdotal or impressionistic. The following section presents a summary of evidence-based publications.

**Table 2:** Databases used for abstract and title keyword searches and the number of records obtained

EMBASE – 221 Records
MEDLINE – 307 Records
PsychInfo – 228 Records
Science Direct – 108 Records
SOC Index – 285 Records.
ETOH single word searches and number of records obtained:
Hotel – 30 Records
Hotels- 10 Records
Inn – 9 Records
Inns – 2 Records
Tavern – 43 Records
Taverns – 12 Records
Bar – 284 Records
Bars – 48 Records
Licensing – 359 Records Indexes single word searches used:
SAGE Urban Studies abstracts: Print edition vol 1- 27
Online edition vol 28 -33 (45 Records)

## **Internal Physical Characteristics and Atmosphere**

The internal space of an establishment includes factors such as the size and layout and the serving bar which will affect factors such as crowding and noise levels, the tidiness, cleanliness, ventilation and lighting of the establishment.

### **Layout**

Homel and Clark (1994) found that the size of the establishment was only a moderate predictor of aggression, with crowding being a more important factor. It has also been concluded that aggressive behaviour increased in establishments with enclosed design due to inefficient pedestrian movement and crowding (Macintyre and Homel 1997). This finding implies that the layout of an establishment may be more important in controlling behaviour than overall size. It has been concluded that strategies for reducing violence in and around licensed premises should take note of the design of establishments and the spacing of furniture to reduce crowding whilst removing hidden areas to facilitate supervision (Brookman and Maguire 2003).

The atmosphere of the establishment can affect type of patrons who use a bar and also their behaviour. The selection of patrons can be affected by the location, appearance, décor and price list of the establishment (Sommer 1969). It is considered that pleasant surroundings increase the mood enhancing effect of alcohol; however this may indicate that

unpleasant drinking environments may also affect a drinker's mood. Dark, crowded and noisy bars were found to increase the severity of aggression between patrons (Leonard, Collins and Quigley 2003) Greater intoxication was associated with increased seating capacity, rows of tables, no theme, low cleanliness and maintenance levels and shabby décor (Graham et al. 1980). Violence tends to occur in bars which are untidy and poorly kept (Pearson-Woodd 1998). Violence is expected more in bars which are untidy (Leather and Lawrence 1995).

Graham and Homel (1997) have suggested that attractive, well furnished bars provide a message that bad behaviour will not be tolerated. Graham, West and Wells (2000) found that permissive environments, where patrons believed they could act aggressively, were most relevant to drink-related incidents. The attraction of specific types of patrons was shown by Leonard, Quigley and Collins (2003). They found that the atmosphere of the bar differentiated between patrons who had observed bar violence and those patrons who had not. Graham et al. (1980) found that red décor in "Skid Row" bars was associated with decreased aggression. This might be because red denoted a better appearance in Skid Row bars which tend to be drab.

Some factors within the bar environment can be considered as irritants which may influence the patrons' behaviours. Such irritants may be due to poor ventilation, with poor quality, smoky air (Homel and Clark 1994) and excessive noise levels which may hurt the ears. Excessive heat, noise and air pollution are related to aggression (Geen 1990, cited by Graham and Homel 1997). Feelings of physical discomfort, either due to crowding or inadequate seating, were related to aggression (Homel et al. 1992, cited by Graham and Homel 1997). However, observed improvements in lighting, comfort of tables and chairs, ventilation and cleanliness along with increases in crowding, caused decreasing levels of aggression and violence (Homel et al. 2004). Evidence related to internal bar environment and atmosphere is shown in Table 3:

### **Organisational Factors**

Organisation includes such factors as the effect of the type of establishment, the effect of the owner/manager, bar staff and door staff ('bouncers'), the effect of drinks and other promotions, the effect of entertainments and the effect of policies used to modify patrons' behaviour.

**Table 3:** Risk factors associated with the internal bar environment and atmosphere.

Study	Date	Location	Methodology	Size of study group	Type of study group	Type of problems	Type of risk factors
Graham et al	1980	Vancouver, Canada	Observation	185 Drinking establishments	Skid Row bars	Aggression	Permissive decorum expectations, Unpleasant physical surroundings. Tables crowded together in rows
Graham, West and Wells	2000	Ontario, Canada	Observation	105 incidents of aggression	Bars frequented by young adults	Aggression	Permissive environment, expectations that aggression would be tolerated
Homel and Clark	1994	Sydney, Australia	Observation	147 visits to 45 sites	All public houses normally visited by young people	Aggression	Smoke and poor ventilation
Homel et al	1992	Sydney, Australia	Observation	23 licensed premises	Establishments categorised as high and low risk	Violence	Crowding and thus inadequate seating
Leather and Lawrence	1995	UK	Vignette task	92 University students	Expectation of 1 Public house	Violence expectations	Untidy establishment
Leonard, Collins and Qigley.	2003	Based in New York	Questionnaires and interview	190 males	Men who reported aggression or being threatened in a bar in the past year	Aggression severity	Dark, crowded and noisy establishment
Leonard, Qigley and Collins	2003	Based in New York	Survey and interview	368 males and 269 females	Bar patrons	Violence experience	Atmosphere of establishment

### Establishment type

Teece and Williams (2000) found that pubs and clubs were the most common location for victimisation from alcohol-related insult. Macdonald et al. (1999) reported that 37% of injuries caused by violence

at an emergency room occurred at a bar or club. The effect of different types of establishment on the types of alcohol-related problems encountered is reported in Smith's (1989) longitudinal study of the number and type of outlets in Western Australia. This indicated an increase in hotels, taverns and stores and a decrease in licensed clubs, restaurants and other premises were associated with increases in liver cirrhosis mortality but a decrease in driver and motorcyclist mortality. The behaviours and expectations of patrons differs in public drinking situations. Wall, McKee and Hinson (2000) found that participants in a bar setting (versus a lab setting) expected greater alcohol-related stimulation and pleasurable disinhibition. However, the problem of underage drinking in licensed premises has been considered as a reduced risk compared with unsupervised outdoor locations (Coleman and Cater 2005).

There is evidence suggesting that nightclubs, music events, bars and pubs, hotels and sports event bars experience different types and severity of problems.

### Nightclubs

Nightclubs are reported to encounter large numbers of intoxicated patrons, alcohol-related harm, violence and drug use. Staff in nightclubs report a high frequency of encounters with highly intoxicated patrons (Nusbaumer and Reiling 2003). They also report experiencing a high volume of violent and aggressive incidents, compared with other types of establishment staff (Virtanen and Pernanen 2001). The risks encountered in nightclubs have been attributed to long opening hours (Lang et al. 1995) which encourages higher consumption. Stockwell, Somerford and Lang (1992) suggested that this high risk is due to the opening hours and the types of patrons who are attracted to such clubs. It was mainly young adults aged between eighteen and twenty five years who attended music dance events held in clubs (Miller et al. 2005). These were settings for high levels of substance use. Kilfoyle and Bellis (1998) reported that health problems encountered by clubbers were attributable to the amount of alcohol consumed, availability of drugs, lack of free water and "chill out" zones and poor provision of transport. Calafat and Juan (2004) reported that health and safety problems were related to overcrowding, broken glass, lack of first aid, high price of water, heat, obstructed exits, availability of alcohol and drugs and scarcity of contraceptives.

In contrast Borel (1999) argued that rave attendees had replaced the hooliganism associated with football fans and have replaced violence

with a peaceful co-existence. Linz et al. (2004) found that the presence of an adult nightclub did not increase the number of crimes in the surrounding area.

Music type was used to identify club types in Purcell and Graham's (2005) study of Toronto nightclubs. They suggested that these club types approximate different subcultures, who were less interested in drinking to intoxication and more interested in picking up sexual partners. Highly charged sexual atmospheres and aggressive sexual atmospheres were reported for the majority of club types. Also illicit drug use was observed in Rave, Reggae-Rap and Superclubs, those which mostly attract young adults.

### Bars and Pubs

Problems specifically associated with drinking in bars and pubs which are open during normal evening hours were found to include public drunkenness and driving arrests (Rabow and Watts 1989). The assault rate in Sweden was related to the consumption of alcohol in bars and restaurants, but homicides were associated with drinking in private contexts (Norström 1998).

Some bars and pubs may foster intoxication and alcohol-related problems. Williams and Burroughs (1995) found that subjects applied cues to their own level of intoxication differently in different settings. In fraternity parties they rated 61% of the cues as more important than when in a bar. In a bar setting they were less concerned with gauging their sobriety.

The use of bars and restaurants has also been linked with drinking and driving (Gruenewald, Mitchell and Treno 1996). Hawker and Stevenson (1984) report that the majority of offenders of drunkenness, drunk and disorderly and drunk driving usually drank in pubs. The frequency of drunkenness of convicted drunk drivers could be predicted using the frequency of drinking in bars and lounges, compared to other drinking locales (Snow and Landrum 1986).

Chang, Lapham and Barton (1996) reported differences between drink driving offenders. They found that older, educated or employed offenders reported drinking more in bars or lounges whereas younger offenders drank more at private parties. However, Lang and Stockwell (1991) found that most of those arrested for drink driving had been drinking at unlicensed premises, parties or in parks.

The attraction of bars and pubs to certain types of patrons is due to the desire for entertainment, friendship and facilities (Snow and Anderson 1987). This indicates that certain groups of patrons are attracted to different types of bars or pubs. Stockwell et al.'s (1992) research indicates that high risk establishments for drink driving accidents had more patrons with high blood alcohol levels and were rated as being severely intoxicated. Beale et al. (1999) found that very high reoccurrence rates for violent incidents in some bars and pubs.

### Event bars

Bars used for special occasions were found to be associated vandalism, fights, injuries, drink driving and related problems. These were attributed to the over serving of patrons by inexperienced volunteers (Gliksman et al. 1995). The bars at stadiums have also been considered as a danger due to the large number of people who drive to the events (Dram Shop and Alcohol Reporter 1988).

### Beverage Promotion

Many establishments use price reductions and other offers on specific days, times of the day or to specific groups of patron. Promotions such as 'happy hours' tend to increase consumption (Babor, Mendelson, Uhly and Souza 1980, as cited by Graham 1985) and tend to increase alcohol related-problems in bars. Lincoln and Homel (2001) found that major factors related to nightclub violence were drink promotions. These were used to encourage patrons to drink to excess in a short space of time and facilitated violence (Stockwell 1995). Premises offering discounted drinks tended to also permit crowding and intoxication (Stockwell, Lang and Rydon 1993).

Drinks promotions have been found to encourage underage drinking and heavy drinking among young patrons, due to the fact that they have low incomes (U.S. Department of Transportation, National Highway Traffic Safety Administration, 2005). Teenagers were found to approve of happy hour promotions, with the level of approval declining with age (Kara and Hutton 2003). It is likely that underage drinkers, those wishing to drink to intoxication and those predisposed to problem behaviours will be attracted to those establishments which sell cheap drinks.

Drinks promotion controls have been suggested (Nursing Standard 2005). Smart and Adlaf (1986) have reported on the effect of banning happy

hours in Ontario. They found that consumption of alcohol in licensed premises did not alter, but the number of drink driving charges decreased. Alcohol advertising in licensed premises has been associated with increased consumption and alcohol-related problems (Howard et al. 2004). Nespor and Csémy (2001) found that aggressive advertising was related to increased consumption by Czech adolescents.

## Entertainment

The provision of entertainment such as television, music, dancing and games has been shown to increase the length of patrons' visits to bars and to raise alcohol consumption (Single and Pomeroy 1999). Ratcliffe et al. (1980) (cited by Single and Pomeroy 1999) found that those who participated in dancing and games stayed longer and drank more. Music and dancing were associated with intoxication and aggression in Graham et al.'s (1980) study. Bars with no activities had less intoxication and aggression. This may be because noise is considered to be a physiological irritant. However Homel et al. (1992) reported that it was not the noise level of music itself which acted as an irritant but poor quality bands. Better bands were found to interest the patrons and prevent aggression. Bach and Schaefer's (1979) study in Montana indicated that the tempo of country music was inversely associated with drinking speed.

Stockwell, Somerford and Lang (1992) reported that nightclubs, hotels and taverns were considered as high risk for alcohol-related harm, in comparison with clubs and restaurants. This was due to differing types of entertainment, meals, opening hours and patrons. Homel and Clark (1994) reported that music, gambling, games, and dancing appear to attract younger patrons. This may make elevate the risk of alcohol-related problems. Snow and Anderson (1987) reported that young convicted drink drivers selected their drinking places for entertainment and facilities. It has also been suggested that the introduction of activities in a bar may reduce drinking rate by moving the patrons' attention to another activity (Clark 1981).

## Staff

The attitudes and behaviour of licensees are stereotypically viewed as confrontational, especially when dealing with conflict situations (Lawrence 1997). Richardson and Budd (2003) suggest that inadequate staffing may facilitate aggression, due to the time spent queuing for service leading to frustration and crowding. Drinking at work by bar staff

was found to be the most influential factor associated with patrons' heavy drinking (Nusbaumer and Reiling 2002). The drinking behaviours of the bar staff and the landlord were also found to predict aggression (Marsh 1980, and Roberts 2003). Workplace homicides (in Chicago) occurred most frequently in taverns. Alcohol consumption by tavern workers had occurred in 48% of homicides (Hewitt, Levin and Misner 2002). Pearson-Woodd (1998) found violence predominately occurred in pubs that employed staff that were rude and unfriendly.

Staff were found to react most aggressively towards patrons if they were behaving highly aggressively or non-aggressively, however they reacted least aggressively when patrons behaved slightly aggressively or non-physically aggressive (Graham et al. 2005). Attacks on and injury to staff were common in the pathway towards violent incidents in bars (Beale et al., 1998). In some cases staff react aggressively to protect themselves. However the highly aggressive reaction to non-aggressive patrons may indicate that intoxicated patrons may be unable to protect themselves and are therefore magnets for aggressive staff (Room 2005).

It has been reported that establishments with all female bar staff had less intoxication and aggression. Moreover, the friendliness of bar staff was related to intoxication levels with extreme friendliness and extreme unfriendliness both increasing intoxication levels (Graham et al. 1980). However Griffiths and Hopkins (2001) found that female staff may be viewed as easy targets and unlikely to be able to control unruly behaviour.

### Serving practices

In the majority of countries it is illegal to serve alcohol to a person who is intoxicated. However many servers do serve intoxicated people (Ryson et al. 1996) and many servers are lenient regarding the degree of intoxication of patrons (Andreasson, Lindewald and Rehnman 2000). The level of overserving does differ between servers, with younger servers being particularly likely to overserve (Toomey et al. 2004). Servers who were in the presence of their managers were less likely to over serve (Wolfson et al. 1996). Over serving intoxicated patrons was found to be a high predictor of problems ranging from violence to drink driving (Stockwell, Lang and Rydon 1993 and Stockwell 1997). However Graham et al. (in press) suggest that patrons served to the highest levels of intoxication were less likely to be involved in severe aggression.

Reviews of prior drinking locations of offenders following assaults, road crashes (Stockwell 1997) and drink driving found that some premises had many citations, indicating that serving practices within some premises were irresponsible (Wood et al. 1995).

Many varied “responsible beverage service” schemes have been used to prevent injury and death associated with drinking (Saltz 1997). Most schemes aim to provide servers with information regarding alcohol and the law, health and safety issues, factors which contribute to intoxication and those that which affect the rate of alcohol absorption (Fox 1985). Some schemes also aim to develop the skills to recognise intoxication, refuse service and to manage an intoxicated patron effectively. The schemes are used to share the responsibility for the amount of alcohol consumed between the server and the patron (Light 1994). The liability of the servers has now been used in a number of compensation cases where by the servers of alcohol were held liable for what and how much the patron consumed and any resulting harm (Norberry 1995). It has been noted that trained servers initiated more interventions than did untrained servers (Wallin, Gripenberg and Andreasson 2002). Patrons had lower blood alcohol concentration levels (Russ and Geller 1987) and reduced intoxication (Saltz 1989). The atmosphere was less rowdy in premises with trained servers (Johnsson and Berglund 2003). Bradbury (1985) reported that owners and managers were found to be familiar with their legal responsibilities but bar staff were not, however, following training. Gehan et al. (1999) found that servers felt greater responsibility than managers for patron behaviour, indicating the need for management training.

These schemes were highly supported by the servers and management (Graham, Jelley and Purcell 2005), the police (who favoured education over enforcement of responsible serving) (Smith et al. 2001) and the public. These findings are in contrast with low public support for availability controls, including higher prices and shorter opening hours (Wallin and Andreasson 2005). It was also suggested that training should be made a condition for any liquor licensee and manager (Lang, Stockwell and White 1995). It has also been reported that the schemes are cost effective due to reduced risks associated with drinking drivers (McKnight and Streff 1994). Differences exist between schemes and between servers. Waring and Sperr (1982) reported that training for female bartenders should emphasise their role in preventing drink driving. Training for male bartenders should emphasise constructive alternatives to ignoring drunk behaviour.

Graham, Jolley and Purcell (2005) found that being male, having more experience, being a manager or bartender and being employed in a city centre bar were all predictors of increased knowledge prior to a brief training session. In contrast, only being a manager and being employed at a city centre bar predicted higher knowledge following training, indicating an increased level of knowledge across staff members.

Nusbaumer and Reiling (2003) also proposed that the type of establishment should affect the training received. Staff in nightclubs and hotel or motel bars have a higher frequency of encounters with intoxicated patrons. Responsible beverage service has also been involved in larger intervention strategies involving underage drinking reduction, drinking and driving strategies, limitation of alcohol and community involvement schemes (Holder 1994).

The differences in the training received by servers may reduce the effectiveness of responsible serving. Burns, Nusbaumer and Reiling (2003) found that servers were more likely to use slurred speech and clumsiness to indicate the level of intoxication of a patron over counting drinks served or disturbing other patrons in the bar. Many staff only use direct refusals of service. Toomey et al. (1999) found the majority (68%) of service refusals were made directly, with either no excuse or with reference to the patron's apparent intoxication level, with 18% of refusals made by offering an alcohol-free beverage. Homel and Clark (1994) found that intervention with intoxicated patrons including offering non-alcoholic alternatives and service refusals increased the chance of physical violence by a factor of 13. This important finding indicates that the way in which intoxication is managed may be as important in the prevention of violence as is the avoidance of intoxication overall. Wyllie (1997) proposed that the schemes are hampered by the patron's lack of awareness of the legal responsibilities of the staff.

Responsible service schemes by themselves may be rendered ineffective due to poor management (Homel, Tomsen and Thommeny 1992) as some cases found no overall significant effect before or after training (Toomey et al. 2001). Homel and Clark (1994) suggest that the primary motivations of many licensed premises are to maximise profitability and avoid trouble with licensing and other authorities, with little sense of a duty of care. Lang et al. (1996) found no differences in checking identification before or after training and Lang et al. (1998) found no reduction in patrons with high blood alcohol levels or the number of drink driving offences. The turnover of managers and staff may also reduce the effectiveness of the programs (Graham et al. 2004). It has been suggested

that schemes have sometimes been adopted simply to reduce insurance premiums. The operation of a scheme can be a successful defence against prosecution (Stockwell 1992). Stockwell (2001) also suggests that schemes are of little benefit because the laws are rarely enforced. In view of this, there is little motivation for a server to lose money by refusing to serve a patron and risk the goodwill of even if they are intoxicated. Saltz (1987) found that absolute consumption and rate of consumption were unaffected by the program.

One further problem with responsible service schemes in reducing alcohol-related problems is obviously only those who drink heavily in licensed premises will be effected (Caetano and Raspberry 2001).

### Door Staff

Many establishments employ staff (sometimes called 'bouncers') to control the doors and maintain the order of the establishment. However some research indicates that that they are ineffective in controlling and may be more likely to increase problem behaviour or the expectations for problem behaviour (Leather and Lawrence, 1995). Door staff were found to often use unreasonable force, too often initiated violence towards patrons and were ineffective in diffusing violent situations (Victorian Community Council against Violence, 1992).

Homel and Clark (1994) found that in three (out of 29) instances of assault the door staff were the perpetrators of assault and in nearly half of the instances (14 assaults) they were found to either inflame the situation or just ignore it. Door staff are predominately male and do tend to be vilified as stereotypically masculine. Clover (2003) interviewed twenty members of door staff and found they had a sexist and predatory attitude to female customers.

High numbers of door staff had been arrested for assault in Maguire and Nettleton's (2003) evaluation of reducing alcohol-related violence and disorder. The relationship between door staff and local police was poor, with door staff resenting the interference in what they considered as their matters. Also, Morris (1998) found that a minority of door staff were involved in drug-dealing. Either by simply turning a blind eye to dealing, receiving payment in return for permitting dealing, or acting as dealers.

However the behaviour of door staff may be due to the type of work they are required to carry out. Security type work may require a masculine tough exterior due to the actual amount of personal risk they are under

(Monaghan 2004 and Wells et al. 1998). It is also likely that the work tasks themselves provide conditions for conflict, largely consisting of requests and demands (Monaghan, 2002). Clearly not all door staff behave in the same manner. Wells et al. (1998) described four categories of responses to incidents; good, neutral, bad and ugly. Although the categories indicate that in some cases security staff encourage or escalate aggression in other cases they manage to discourage and reduce aggression, indicating that some members of staff have either personality, characteristics or training to react to or anticipate incidents in a superior manner.

The style, manner and dress of door staff differs between each establishment if not each member of staff. This is possibly due to opposing schools of thought regarding the work task, with either 'meet and greet' or 'smash and bash' requirements (Leather and Lawrence 1995). Homel and Clark's (1994) observational study carried out in Australia indicated that the presence of Pacific Islander bouncers increased the odds of violence by 20 and of which the incidents tended to be more severe. These findings could reflect the cultural backgrounds of both bouncers and customers as well as racism and a range of issues related to bar type, general context, training and communication.

The differences in the characteristics of the door staff does clearly effect how they react to incidents, however it is likely that these characteristics are the reason that that member of staff was employed to start with. The selection of a specific person or specific ethnicities of people, as in Homel and Clark's (1994) Pacific Islander bouncers is due to the expectation that a physical characteristic will enable them to maintain control. Pacific Islander bouncers were reportedly generally very large and therefore would be able to deal with trouble. This type of selection process means that diplomacy or control skills are not as important as size and therefore inadequate training and management control is likely to equal inadequate reactions.

It is suggested that a simple lack of training or management control is likely to effect the reactions of the door staff (Victorian Community Council against Violence, 1992). A number of schemes have also been established to ensure that all security staff receives training and supervision (Brookes 2003, Maguire and Nettleton 2003). Legal accountability changes have been proposed for security personnel (Lister et al., 2001).

## Policies

Policies have been introduced to effectively control the internal functioning of the establishments to reduce alcohol-related harm, excessive intoxication and underage drinking, with one example being the training of staff to serve alcohol responsibly.

The use of glassware in violent incidents promoted the need for safety or toughened glassware (Coomaraswamy and Shepherd 2003), which breaks into fine particles instead of sharp pieces of glass (Single 1996) and was found to have high impact resistance and so was less likely to break overall (Shepherd, Hugget and Kidner 1993). Shepherd et al. (1994) also found that toughened glassware was favoured among the majority of bar workers on to safety grounds. A pilot study by Plant, Plant and Nichol (1994) showed that accidental and non-accidental glass-related injuries were less common in bars that used safety glasses than in other establishments. Safety glasses also appeared to be stronger and more durable than other glasses (Plant and Mills 1994/1995). In contrast, Warburton and Shepherd (2000) found that toughened glassware increased the number of injuries to staff members as it has a lower impact resistance. Even so, the severity of injuries was found not to differ. The continued importance of regularly collecting empties was emphasised by Harbord (1996).

A review of local opinion towards licensed premises found that establishments which served food and non-alcoholic beverages were generally favoured by local residents (Thomas and Byrne 1980). Less intoxication and aggression is found in bars where full meals and free snacks are available (Graham et al. 1980). Again this effect may be due to the physiological effects of eating on alcohol intoxication and may be also due to the types of patron attracted to food serving establishments. Policies to reduce underage drinking in licensed premises have been included in the responsible service schemes for staff and identification checks are prioritised (Beirness et al. 2000) and is shown by the current trend to require identification if a patron appears to be under the age of twenty one, even though the legal drinking age is eighteen years.

Policies to reduce patrons driving whilst intoxicated have again been involved in responsible service programs and other methods have included the availability of breath testers and advertisements. McLean et al. (1994) reported on the use of anti drink driving promotional material in licensed premises. They found no differences in the average blood alcohol concentration of the patrons or of the proportion that were going

to drive whilst intoxicated. However McLean et al. (1995) report over the year of 1990-91 there was a decrease in patronage as well as the proportion of patrons with high blood alcohol concentrations and those who chose to drive whilst intoxicated.

Designated driver and safe ride schemes have also been introduced. Caudill, Harding and Moore (2000a) found that users of the services were at heavier drinkers and were at high risk for driving while intoxicated. Also Caudill, Harding and Moore (2000b) found that those who serve as designated drivers tend to be at risk, heavy drinkers and reported high levels of driving whilst intoxicated and riding with intoxicated driver. It has also been suggested that male patrons are less likely to utilise the schemes (Boots and Midford 1999). Table 4 presents a summary of studies related to organizational factors.

### **Patron Characteristics**

Drinking patterns vary enormously amongst different groups of people. These variations reflect age, gender, ethnicity, social class and nationality. The drinking levels and related behaviours amongst bar patrons reflect these differences and some bars attract specific types of people that other establishments do not. The effects of the patrons entering into the establishment can be regarded as affecting the atmosphere of the establishment as well as the behaviour of the staff and other patrons. Different patrons may choose to visit specific types of establishment and may behave differently depending on their personal characteristics. Individuals may also behave differently when they drink with varying groups of people on different occasions.

The relationship between alcohol and aggressive behaviour was investigated by Graham, West and Wells (2000). They suggest that the relationship between alcohol consumption and aggressive behaviour is mediated not only by the effects of alcohol on the patron but also by the drinking environment, the expectations of the culture and society, and the personality, attitudes, expectations and values of the patron.

#### **Age**

The age of the patron may indicate how likely they are to experience negative consequences of drinking. Young patrons may be considered to be naïve to the risks which alcohol and the bar environment may place

them in and may make them more susceptible to the influence of other patrons.

**Table 4:** Risk factors associated with the organisation of the establishment.

Study	Date	Location	Methodology	Size of study group	Type of study group	Type of problems	Type of risk factors
Babor, Mendelson and Uhly	1980	USA	Experiment	34 Males	Males who described themselves as casual or heavy drinkers	Alcohol consumption	Happy hours
Bach and Schaefer	1979	Montana, USA	Observation	3 bars	3 bars visited on 3 Friday evenings	Rate of drinking	Tempo of country and western music
Fox and Sobol	2000	USA	Observation	2 Bars	Urban bars and residential neighbourhoods	Sexual offending and bar disorder	Employ effective bouncers
Graham	1985	Vancouver, Canada	Observation	185 bars	303 observations in 185 bars	Aggression and intoxication	Having a band, jukebox and disco entertainment. Bar worker extreme friendliness or extreme unfriendliness
Graham et al	2005	Toronto, Canada	Observation	809 Staff members	Staff members involved in 417 incidents at 74 different bars or clubs.	Aggressive reactions and behaviours of staff	Patrons are non-aggressive or highly aggressive
Hawker and Stevenson	1984	London, UK	Survey	104 young people	Young people aged between 17 and 25 years, who appeared in court charged with alcohol related crimes	Drunkenness, drunk and disorderly and driving whilst intoxicated	Pub and club patronage
Hamel and Clark	1994	Sydney, Australia	Observations	147 visits to 47 sites	Within 36 premises	Violence	Staff intervention with intoxicated patrons, door staff
Purcell and Graham	2005	Toronto, Canada	Observations	1056 nights of observations	Observations in 75 high capacity nightclubs	Illicit Drug use	Being a Rave, Reggae-Rap or Super-club patron
Richardson and Budd	2003	UK	Interviews	27 18-24 year olds	Young adult binge drinkers	Aggression and Violence	Insufficient numbers of serving staff causing queuing for drinks

Nusbaumer, Mauss and Pearson (1982) report that the young, male, unattached, non-religious and sociable patrons were most at risk from heavy drinking due to the reinforcing effect of the bar setting and bar environment to heavy drinking. Casswell and Zhang (1997) found that access to licensed premises at age 15 years is shown to predict the quantities of alcohol consumed then and in subsequent years and the quantities consumed were predictive of negative alcohol-related consequences. Snow and Cunningham (1985) report that younger males, who had been convicted for driving whilst intoxicated, tended to drink in away from home locations, including bars, lounges and restaurants to demonstrate their masculinity. After the age of twenty five the frequency of drinking away from home decreased.

It may however be the case that some young patrons are predisposed to heavy drinking and this attracts them to bars. Plant, Bagnall and Foster (1990) report that teenage heavy drinkers were more likely to drink illegally (underage) in bars and to drink in mixed sex groups compared to light or non drinking teenagers.

The drinking in licensed premises of some young patrons has also been linked to other sometimes risky behaviours, Van den Akker and Lees (2001) found that in a group of adolescent's aged 11-19, visiting bars was predictive of sexual behaviour. The use of illicit drugs by young patrons was also linked with spending more time in bars (Hartnagel 1992). Bell, Wechsler and Johnston (1997) suggest that cannabis (marijuana) use was higher among American college students if they had a bar on campus.

### Border Crossers

Patrons who cross national borders to drink outside their immediate home areas appear to be at risk of drinking heavily. Lange, Voas and Johnson (2002) found that half of 18-20 year olds and a third of 21-30 year olds from San Diego reported travelling to Tijuana bars and nightclubs, due to the attractiveness of the low cost, liberal availability of alcohol, lack of controls and presence of heavy drinkers. The problem of alcohol-related car accidents caused by this type of behaviour is reported by Dunkley (2004) who investigated similar behaviours of teenagers living in Vermont and travelling to Quebec to socialise in bars.

## Social Networks

Patronage in licensed premises at a young age can be attributed to part of growing up and in many instances may not result in negative consequences. Engels, Knibbe and Drop (1999) report that adolescents aged 17-18 years, who went to pubs and discos, had more friends, had closer friends, spent more time and had better contact with friends, experienced less loneliness, were likely to be romantically involved and have a job. However they were also found to place less emphasis on educational aspirations.

## Gender

Males are widely reported to be more likely than females to drink heavily and to experience alcohol-related problems (e.g. Plant 1997, Plant and Plant in press). Single and Pomeroy (1999) state that male, high income, well educated consume a high proportion of their total intake in bars. Female, low income and less well educated respondents consume a high proportion of their drinking at home. Traeen and Rossow (1994) found that men, people living with others, people with poor economic resources and the unemployed or uneducated reported spending most time in bars and reported heavy drinking. Drinking within a licensed premise may be used by these patrons to structure or fill the day. A frequent tavern patron and alcohol abusers profile was suggested to be a young man, single, employed, non-religious, disorganised and sociable (Pearson 1979). However it has been suggested that it has become less acceptable for a man to drink enough for the effects to be felt at a bar but it has become more acceptable at his home (Greenfield and Room 1997).

Male patrons are reported to be responsible for the majority of violent incidents which occur in and around licensed premises. Graham and Wells (2001) report on the differences between incidents of physical aggression reported by males and females. Males tended to report incidents with other males, friends or strangers in bars or public places and involved four or more participants who had been drinking. Females tended to report incidents with a male opponent, usually known to the female and did not involve alcohol consumption. Also Graham, Wells and Jelley (2002) report that incidents occurring in bars are more likely to involve males, drinking by both parties, more than two participants and low emotional impact. Macdonald, Wells, Giesbrecht and Cherpitel (1999) found that 37% of violent injuries investigated occurred at a bar or restaurant and the group was more likely to be intoxicated, male and with lower incomes and Roche et al. (2001) reported that those injured after

drinking heavily in licensed premises were single males, under thirty and were regular heavy drinkers.

The behaviour of male patrons may be due to the perceived need to prove their masculinity and the importance of physical aggression in gaining status and in responding to a challenge or insult (Benson and Archer 2002). Graham, West and Wells (2000) found that incidents of aggression between male patrons which occurred in bars were more likely to be attributable to expectations (that violence would be permitted), acceptance of aggression, power concerns, male honour and macho values as well as the effects of alcohol including focusing on the here-and-now, reduced anxiety regarding danger and increased emotionality. In addition, Graham and Wells (2003) analysed incidents of aggression described by males aged 20-24 years. They report that alcohol played a role in making participants less aware of risk, willing to take more risks, more stimulated, emotional and aggressive. Male honour, face-saving, group loyalty and fighting for fun were the main motivations for barroom aggression, which itself was generally accepted or encouraged.

The sexual aggression of male patrons at bars and college parties has been attributed to the masculine principles of the settings in which men are encouraged to be assertive, self-reliant and, if necessary, violent. Bars are also common settings for enabling men to meet women (Thompson 2004).

Male patrons are also generally more likely to experience alcohol-related harm. Stockwell, Lang and Rydon (1993) found that such adverse effects were most common among drinkers who were male, under 25, drank heavily and drank in licensed premises. Fothergill and Hashemi (1990) report that the majority of assault victims attending hospital accident and emergency departments who had been assaulted in pubs and clubs were employed single young men. They also found that 66% of these males had been drinking prior to admission. Macdonald et al. (1999) found that injuries caused by violence compared with those caused by accident or illness, occurred mostly in males and those with lower incomes. Langley, Chalmers and Fanslow (1996) have reported that homicides and hospitalisation events occurring in licensed premises in New Zealand were more likely to involve males, Maoris, unarmed fights and brawls, unknown assailants, alcohol consumption, to occur in the evening at the end of the week and result in head injury. They also found that 17% of all incidents occurring in licensed premises involved people less than twenty years of age. This was then the legal age for consumption of alcohol on licensed premises.

The drinking behaviours, aggression and victimisation of female patrons have also been investigated. An increase in alcohol consumption in women in public houses is reported (Davies 1986). This has been attributed to the need for equal status with men (Pala 2004). Female aggression in pubs and clubs is considered as important in the construction of modern working class femininities (Day, Gough and McFadden 2003). Exposure to a bar environment due to a higher frequency of visits and drinking in bars as well as young age and a history of victimisation was found to increase a female patron's risk of victimisation (Parks and Miller 1997 and Parks and Zetes-Zanatta 1999). The experiences of aggression of female patrons in licensed premises are reported to be associated with the environmental characteristics of the bar. These include the presence of young patrons and pool playing, and social behaviours they engage in, such as drinking and leaving the bar with strangers (Buddie and Parks 2003). The possible effects of alcohol consumption on a female patron's likelihood of victimisation may be due to behaviours including intoxication, sexual provocation, aggression and calling attention to herself (Parks et al. 1998). Parks (2000) found that at the times that women reported aggressive experiences they had spent less time in the bar, consumed more alcohol and reported feeling more intoxicated. The rise of alcohol consumption by young women in Britain has been elaborated elsewhere (Plant and Plant in press).

### Sexual Orientation

Gay, lesbian, bisexual and transgender bar patrons may be more prone to alcohol-related risks and harm due to the reported reliance on licensed premises as social settings and as places to meet partners. There is compelling evidence suggesting that such people are at particular risk of violent hate crimes in areas known to feature 'gay' bars (Hughes and Wilsnack 1994, Plant et al. 1999).

Heffernan (1998) reported that if lesbians were found to rely on bars as a primary social settings, they were more likely to use alcohol and avoidant coping was associated with drinking excessively. Glaus (1988) states that lesbians with heavy reliance on bars for socialisation are at risk from "alcoholism." Greenwood et al. (2001) found that frequent gay bar attendance and multiple sex partners were related to heavy alcohol and polydrug use. However Israelstam (1988) has reported that alcohol intervention workers thought that both covert and bar-going gay men were at equal risk of alcohol abuse. They further concluded that gay men were more likely to abuse alcohol than were heterosexuals. In contrast,

Bloomfield (1993) found no differences in alcohol consumption or drinking patterns between heterosexual or homosexual men and women.

### Personality Characteristics

The personality of the patron may affect how alcohol affects them and how they react to incidents occurring within the establishment. Alcohol may increase aggressive behaviour. However the expectancy that alcohol increases aggression may itself increase aggression and the social setting itself may also do this. (Leonard, Collins and Quigley (2003b) found that individuals with high dependence scores and alcohol aggression expectancies also scored higher on angry temperament, impulsivity, and neuroticism and scored lower on agreeableness, conscientiousness and openness to experience. Quigley, Corbett and Tedeschi (2002) also found that the belief that intoxication causes aggressiveness was related to experiencing alcohol-related violence, moderated by the need to appear to be powerful. Wall, Thrussell and Lalonde (2003), reported that those with alcohol outcome expectancies were more aggressive and risk-related before intoxication. Other people's behaviour was perceived as having aggressive intent if the patron expects that alcohol increases aggression (Lange 1997).

The possibility that the bar characteristics attract certain patron characteristics was investigated by Leonard, Quigley and Collins (2003). They investigated the effect of aggression-facilitating traits in attracting individuals to high risk venues and to determine if once in those venues the aggression-facilitating traits were associated with experiencing aggression. Anger, impulsivity or any other personality measures of the patrons did not differ between those who had observed violence and those who had not done so. However, aggression-facilitating traits differentiated patrons who had experienced bar violence from those who had only observed it. Male patrons were mainly distinguished by agreeableness and openness to experience. Female patrons were mainly distinguished by anger and alcohol expectancies. Quigley, Leonard and Collins (2003), report that the patrons' age, alcohol dependence and anger expression differentiates those who frequented violent and non-violent bars.

The bar may be considered as attracting similar types of patrons due to modelling or imitation effects. Caudill and Kong (2001) found that patrons with high need for social approval and those who drink heavily in social contexts were more vulnerable to imitating the behaviours of other drinkers.

## Culture

There is evidence to suggest that the different cultures of drinking in licensed premises affects the drinking behaviours of the patrons. Nunes-Dinis and Lowe (1992) report that too many bars and feasts in Spain and Portugal contribute to alcohol-related problems. White collar workers in Japan are associated with problem drinking due to the requirement of getting drunk in bars with clients and co-workers and as part of company loyalty (Milne 2002).

A survey of establishments in London and Dublin indicated that Irish drinkers in England have high levels of morbidity and mortality compared to the general population due to the Irish drinking style of high consumption per episode and the English pattern of more frequent drinking (McCambridge et al. 2004).

Manual workers consumed more than non-manual workers in Plant et al's (1977) observation of bars in Edinburgh. The manual workers were found to drink more beer, whereas non-manual workers drank more spirits.

High rates of violence in bars catering to working class patrons in the south of the USA was attributed to the culture of becoming loud and boisterous whilst drinking (Mizell 1979).

## Patrons and Social Worlds

Licensed premises are not purely used as places to consume alcohol; they also have a highly sociable side allowing patrons to meet old as well as newly acquired friends and acquaintances. Clinard (1962) indicated that drinking establishments are important parts of society and allow patrons to socialise, relax and talk over problems with others and Storm and Cutler (1985) suggested that the social functions of taverns are seen as desirable. However the use of establishments as a social resource have been considered as increasing the risk of alcohol related problems (McKirnan and Peterson 1988 and 1989), as indicated by the research on sexuality differences.

## Group Drinking

The effect of drinking as part of a group further indicates the possibility that some patrons may be vulnerable to imitating behaviours. Caudill and Marlatt (1975) (cited by Single and Pomeroy 1999) found that the

drinking rate of confederates was a strong influence on consumption especially of high rate drinking companions. Also patrons may conform to the group norm, so that patterns of behaviour and drinking rates consistent with the rest of the group (Barbara, Usher and Barnes 1978). Sommer (1965) found that isolated drinkers consumed less than people in groups, due to the extended length of stay in group settings. Harford et al. (1983) found that group drinking was related to the duration of stay in a bar among males, which is related to level of consumption. An association between drinking group size, level of consumption and alcohol-related incident seriousness was reported by Graves et al. (1982). However Sykes, Rowley, and Schaefer (1993) found the proportion of a group drinking heavily was not affected by group size but was affected by average alcohol consumption, group gender composition and average duration of stay in bar. It has also been concluded that it was permissible for a group member to drink more than other members but not less (Bruun 1959 (cited by Single and Pomeroy 1999)). It has also been reported that all drinking groups have higher levels of consumption than solitary drinkers do (Single and Pomeroy 1999). However, Marczynski et al. (1999) have reported that drinking alone in bars is a predictor of alcohol-related problems.

### Frequent Patrons

Those patrons who regularly visit a licensed premise have been found to be at risk of alcohol-related harm and other health problems. Tanioka (1986) reported that bar patrons and smokers were more likely to be assaulted, possibly because those who smoke and drink take more risks. There is certainly extensive evidence to support the latter view (e.g. Jessor, Donovan and Costa 1991, Room and Collins 1983, Plant and Plant 1992).

It has also been reported that hazardous drinkers tend to drink alone, in bars, have poorer physical and mental health. They also appeared to have high a high risk of “adverse social outcomes” (Gaunekar, Patel and Rane 2005). Ericksen and Trocki (1992) report that frequent bar going, drunkenness, high volume drinking and feeling uninhibited increased the risk for sexually transmitted infections. This is possibly due to an increased rate of changing sexual partners. However it may be found that those with other problems may be attracted to regularly visiting a licensed establishment. Mustane and Tewksbury (2004) found that heavy users of illicit drug were often bar ‘regulars.’ Table 5 summarises the studies that have related to risk factors associated with patron characteristics.

**Table 5:** Risk factors associated with the patrons characteristics.

Study	Date	Location	Method	Size of study group	Type of study group	Type of problems	Type of risk factors
Bell, Wechsler and Johnston	1997	USA	Survey	17,592 students	Students at American colleges	Cannabis use	Colleges with pubs and bars on campus
Boscarino et al	1995	San Francisco	Interview	921 adults	Alcoholics entering alcoholism treatment	HIV infection	Gay men with high bar socialising expectations
Casswell and Zhang	1997	New Zealand	Longitudinal - survey	750 adolescents	Adolescents aged 15 and 18 years.	Quantities consumed	Access to establishments at 15 years.
Caudill and Marlatt	1975	USA	Experiment	48 males	College students classified a heavy social drinkers	Heavy alcohol consumption	Other patrons drinking heavily
Caudill and Kong	2001	Rockville, Maryland, USA	Experiment	202 adults	Heavy social drinkers	Modelling of other patrons drinking	High need for social approval
Erickson and Trocki	1992	San Francisco Bay, USA	Survey	968 adults	46% men and 54% women	Sexually transmitted disease carriage	Frequent bar going, drunkenness and high volume drinking
Gaunekar, Patel and Rane	2005	Goa, India	Interview	234 males	75 hazardous drinkers, 78 casual drinkers and 81 abstinent workers selected form an industrial worker population	Hazardous Drinking	Drinking alone in bars, preference for non-commercial alcohol beverages with high alcohol concentration
Graham, West and Wells	2000	Ontario, Canada	Observation	105 incidents of aggression	High risk bars frequented by young adults	Aggression in bars	Males, expectations of aggression acceptance, power concerns, male honour, macho values
Graham and Wells	2001	Ontario, Canada	Interviews	1753 adults	Adults aged 18-60 years.	Aggression in bars	Males, intoxication.
Graham and Wells	2003	Canada	Interviews	21 Males	Males aged 20-24 years reporting incidents of aggression in bars	Aggression	Alcohol making patron less aware of risks and more willing to take risks, more stimulated, emotional and aggressive. Acceptance and endorsement of aggression in bars
Graves et al	1982	Auckland, New Zealand	Observation	216 males	Maori, Pacific Islander and European patrons in 12 public bars	Heavy alcohol consumption	Group drinking increases length of stay which increases amount of beer consumed
Greenwood et al	2001	San Francisco	Survey	428 young males	Homo or bisexual	Heavy alcohol and polydrug use	Frequent gay bar attendance
Harford et al	1983	Boston, USA	Observation	329 patrons	Within 3 bars	Heavy alcohol consumption in Males	Group drinking increasing length of stay
Marczynski et al	1999	New York, USA	Survey	1076 adults	Adults who have consumed alcohol in last 30 days	Alcohol related problems	Drinking alone in bars
McKirnan and Peterson	1989	Michigan, USA	Survey	3400 adults	Homosexual	Heavy alcohol and drug use	Use of bars a social resource
Mustane and Tewksbury	2004	Southern USA	Survey	1218 students	College students	Hard drug use	Being a bar 'regular'
Plant et al	1977	Edinburgh, Scotland	Observation	1,398 patrons	Patrons of 6 Public Bars	Consumption of alcohol	Being a manual worker
Sykes, Rowley, and Schaefer	1993	USA	Observation	1996 patrons	Groups and individuals in 565 bars	Heavy alcohol consumption	Increased group consumption and length of stay in bar

## **External Characteristics**

There is some evidence that 'external' factors are associated with 'risks' related to bars. Such factors include the geographical position of an establishment and its surrounding neighbourhood and the density of establishments in an area.

### **Location**

Where an establishment is located will affect the types of risks associated with it. City centre establishments may be at higher risk for problems, Ingemann-Hansen and Brink (2004) found that 46% of assault victims from Aarhus (Denmark) city centre were assaulted in public houses or the streets nearby compared to 5% of victims in the district outside the city centre. Establishments near to colleges may be likely to attract college students which can lead to problematic behaviour due to heavy drinking. Levels of drinking of college students drinking at off campus bars were related to disruptive behaviours and becoming involved in arguments (Harford, Wechsler and Muthen 2003) and Wechsler et al (2002) found that residents near colleges, especially those with high levels of binge drinking among students, reported higher numbers of alcohol outlets within a mile. The neighbourhoods had lower socioeconomic status and a lower quality of neighbourhood life due to alcohol related disturbances, including vandalism, noise, disturbances, drunkenness, vomiting and urination.

The location of some establishments or patrons in relation to the establishments has led to safety issues due to lack of transport (Kilfoyle and Bellis 1998) and Gallaher et al. (1992) reported on the large proportions of mortalities of Native Americans in New Mexico due to hypothermia and pedestrian-motor vehicle accidents when highly intoxicated. Because possession or sale of alcohol was illegal in many reservations the mortalities were due to American's travelling long distances to obtain alcohol.

However Stevenson, Brewer and Lee (1998) found no relation between location of an establishment and the number of car accidents. There was no association with crashes which occurred in close proximity to a licensed establishment.

## Density

The concentration of bars in a specific area has been linked to increased crime, violence, social problems and alcohol-related car accidents. This type of link is not new. Temperance maps from 1899 (Rowntree and Sherwell, as cited by Kneale 2001) indicated the geographic association between the number of public houses and the distribution of drunkenness offences. The effect of establishment's concentration on increasing crime levels was reported by Roncek and Maier (1991) who found that bars on residential city blocks had an increasing effect on the amount of crime. Conversely, Roncek and Pravatiner (1989) reported that most residential city blocks with a tavern in San Diego were not associated with serious crime and the most crime-ridden block did not have a tavern.

The relationship between density of establishments and violence was reported by Scribner, MacKinnon and Dwyer (1995). They found that higher levels of alcohol outlet density were associated with assaults. Zhu, Gorman and Horel (2004) found a clear association between outlet density and violence. Norström (2000) found that increases in the number of drinking places in Norway between 1960 and 1995 were associated with increases in criminal violence. However Lipton and Gruenewald (2002) reported that although the density of bars was found to be strongly associated with greater rates of assault, the density of restaurants was associated with less violence.

The relationship between establishment density and social disorder was reported by DiIulio (1995) who found that the concentration of outlets in Milwaukee's inner city neighbourhoods was due to a loose control system. This was a major factor in social disorder and high crime victimisation. The high concentration of outlets was regarded as driving community breakdown.

The relationship between establishment density and alcohol-related car accidents and driving whilst intoxicated was reported by Gruenewald, Johnson and Treno (2002). They found that restaurant densities were directly related to greater drinking frequency and driving whilst intoxicated. Even so, bar densities were inversely related to driving whilst intoxicated. Scribner, MacKinnon and Dwyer (1994) reported that alcohol-related crashes resulting in property damage were positively associated with outlet densities. Van Oers and Garretsen (1993) found associations between the numbers of bars and traffic injuries per neighbourhood.

Lascala, Gerber and Gruenewald (2000) found that availability of alcohol through bars was directly related to pedestrian injuries due to collisions in which the pedestrian had been drinking. LaScala, Johnson and Gruenewald (2001) found that pedestrian injuries due to collisions occurred more in areas with greater bar densities and greater populations, and where the local population reported drinking more per occasion. Treno, Gruenewald and Johnson (2001) found an association between both on and off premise outlet densities and self reported injuries. Borges (1989) found that the prevalence of heavy drinkers and population density were the best predictors of alcohol-related problems compared to prevalence of abstainers, per capita bars, illiteracy, unemployment and population density.

It is also suggested that disadvantaged neighbourhoods, possibly predisposed to increased problems, may have difficulty attracting other businesses and institutions over licensed premises (Peterson, Krivo and Harris 2000) and Morland, Wing and Diez Roux (2002) found that liquor stores were disproportionately located in predominantly low income, African American neighbourhoods in Mississippi and North Carolina. They found that increases in prevalence of bars was not associated with an increase in heavy drinking. Findings related to the association between external characteristics and bar risks are summarised in Table 6:

## **Conclusions & Discussion**

There is an extensive literature in which aggression, violence, public disorder and injuries inside and in the proximity of bars is discussed. Much of this discussion often plausible, has been impressionistic or anecdotal. This paper has set out to examine empirical evidence related to the existence of possible “risk factors” associated with bars. Current evidence supports the conclusion that a number of factors are associated with elevated risks that a bar will be a focus for problematic behaviour. These factors have been considered under the following main headings: internal physical characteristics and atmosphere, organisational factors, patron characteristics and external characteristics. The empirical findings of the studies considered under these headings are illustrated in tables 3-6. As these tables show, the risks that were most often noted related to aggression, intoxication and violence.

**Table 6:** Risk factors associated with the external characteristics of the establishment

Study	Date	Location	Methodology	Size of study group	Type of Study Group	Type of problems	Type of risk factors
Freisthler, Needell and Gruenewald	2005	Northern California, USA	Data analysis of child abuse and neglect reports	304 blocks	Blocks in Northern California.	Child abuse and neglect incidences	Higher levels of alcohol outlet density
Gallaher et al	1991	New Mexico, USA	Data analysis of fatality rates	347 residents	New Mexico residents who died of unintentional injuries between 1980 and 1990	Death due to hypothermia and pedestrian-motor vehicle crashes	Travelling to off reservation bars to obtain alcohol
Gruenewald, Johnson and Treno	2002	California, USA	Survey	7826 Drinkers	Drinkers obtained from a population survey	Driving whilst intoxicated following bar patronage	Density of restaurants in residential area
Harford, Wechsler and Muthen	2003	Boston, USA	Survey	8426 students	Students aged 18-24 years in 1997-1999, who reported attendance at off campus parties and bars in the last month	Disruptive behaviours and victimisation	Drinking at off campus bars
Ingemann-Hansen and Brink	2004	Aarhus, Denmark	Data analysis of emergency room register	1106 assault victims	Assault victims registered at Emergency rooms in 1999 and 2000	Assault in Public houses	City centre establishments
LaScala, Gerber and Gruenewald	2000	San Francisco, California, USA	Data analysis of census tracts	149 census tracts	Census tracts for San Francisco	Pedestrian Injury collision	Higher levels of alcohol outlet density
Scribner, MacKinnon and Dwyer	1995	Los Angeles, USA	Data analysis of assaultive violence rates	74 cities	Cities in 1990	Assaultive violence rates	Higher levels of alcohol outlet density
Zhu, Gorman and Horel	2004	Austin and San Antonio, Texas, USA	Data analysis of census tracts	451 census tracts	188 tracts from the City of Austin and 263 tracts from the City of San Antonio	Violent crime rates	Higher levels of alcohol outlet density

The risk factors associated with internal bar environment and atmosphere included the following: aggression, violence and expectations of violence. The characteristics associated with these risks were crowding, “permissive decorum,” unpleasant surroundings, an expectation that violence would be tolerated, smoky, poorly ventilated conditions, untidiness, dull lighting, high noise levels and contaminated drinking glasses (see Table 3). The organisation of an establishment was found to be associated with the rate of level of drinking, sexual; offending, aggression and intoxication, disorderly behaviour and driving while intoxicated. The associated factors were the type and speed of music, the nature of staff interventions and behaviour, and the behaviour of bouncers (see Table 4). Several studies have indicated that there are risks (such as heavy drinking, aggression illicit drug use, and the spread of sexually transmitted diseases) associated with patron characteristics. Such studies have highlighted heavy and problematic drinking in some student bars, gay bars, bars that admit young people, bars where people drink in groups (and, conversely, two studies suggesting that solitary drinking is a risk factor) (see Table 5). Finally, risks such as child abuse and neglect, death from hyperthermia, road traffic accidents, driving while intoxicated, public disorder and assault were associated with “external bar characteristics.” These included the density of bars (including restaurants), and travel to bars (such as those away from college, in an urban centre or away from a Native American reservation) where a more permissive atmosphere prevailed (see Table 6).

Some of the findings reported above may be applicable to other settings, but some may not be. This review was confined to English language reports. Moreover most of the studies cited were carried out in Australia, Canada and the USA. Only a few were carried out in Western Europe and none originated from elsewhere. There are marked cultural variations between drinking cultures and drinking patterns in different countries, and even between the regions of single countries (Pitman and Raskin-White 1991, Heath 1995). In spite it is clear that several studies have found that variables, in particular, intoxication, aggression and violence, were associated with both the internal and external characteristics of a bar. Other factors included the rate and volume of alcohol consumed, public disorder, sexual offending, driving while intoxicated, illicit drug use, child abuse and neglect and road traffic injuries. There is scope for studies in this area to be replicated and for new research in different settings. More detailed studies could usefully investigate the possible importance of a wide array of risk factors and adverse outcomes. The policy implications of current evidence are considered in an editorial (Plant and Green in press).

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