



Alcohol outlet density and harm

Reviewing the Evidence




Alcohol control systems

- Licensing to sell alcohol reflects special problems associated with the commodity
 - health problems
 - injuries
 - violence & public order problems
 - social problems – family, workplace, community
- Problems to others, as well as to the drinker
- Licensing as a system for controlling sales to minimize harm
 - who may sell
 - to whom
 - where and when



Alcohol outlet density

- Increasing concerns over the effect of large numbers of premises in local areas
 - “Licensed premises should not be concentrated to the extent that there is an adverse cumulative effect on the area”
(Stonnington City Council Planning Scheme)
 - “Develop a standard statewide framework for inclusion in local planning policies to define licensed premise cumulative impact benchmarks and the criteria by which this can be measured.”
(Inner City Entertainment Precincts Taskforce Discussion Paper)



Alcohol outlet density

- Incorporated into policy in the USA and UK
 - California restricts on- and off-premise licences on a per-capita basis (e.g. one on-sale general licence per 2,000 people living in a county)
 - Violent Crime Reduction Act (2006) in the U.K. includes provisions to make licensees pay the costs of alcohol-related crime in ‘Alcohol Disorder Zones’ where a concentration of premises has led to high rates of problems

■ The research literature on alcohol outlet density



- Studies predominantly in urban U.S.A. settings
- Some Nordic research
- One recent Australian study

■ The research literature on alcohol outlet density



- Links between outlet density and:
 - consumption and drinking patterns,
 - drink-driving and traffic accidents,
 - assault, homicide and other violent crimes,
 - child abuse and neglect,
 - sexually transmitted diseases,
 - drunkenness and neighbourhood disturbances,
 - property damage and vandalism, and
 - personal injury

■ The research literature on alcohol outlet density



- Two main strands:
 - Cross-sectional analyses of outlet density, consumption levels and harm rates using geographical units (e.g. states, neighbourhoods, street blocks)
 - Longitudinal studies examining the relationship between changes in outlet density and alcohol consumption and harms

■ Cross-sectional studies – drinking patterns



- Early studies focussed on aggregate measures of consumption or rates of alcoholism
 - Smart (1977) and Parker, Wolz et al. (1978) found contrasting results in state-level analyses of outlet density and alcoholism rates
 - Colon (1981) and Watts (1981) highlighted problems with analyses based on states including the confounding effects of tourism and state-level patterns of social norms (e.g. 'Bible-belt' states)

■ Cross-sectional studies – drinking patterns



- Multi-level studies using individual measures of consumption and small geographical units have produced mixed results
 - Scribner, Cohen et al. (2000) found residents in New Orleans neighbourhoods with higher outlet densities drank at higher levels
 - Pollack, Cubbin et al. (2005) found no effect of outlet density on consumption in neighbourhoods in California
 - Studies of college student populations have found consistent, positive relationships between outlet density and total consumption and binge drinking (Chaloupka and Wechsler 1996; Wechsler, Lee et al. 2002; Weitzman, Folkman et al. 2005)

■ Cross-sectional studies – drink driving and accidents



- Initial studies suggested higher outlet-density was related to lower rates of motor vehicle crashes due to reduced driving distances (Colon 1983)
- More recent studies have found significant relationships between outlets and crashes (Scribner 1994; Gruenewald and Miller 1996; La Scala, Johnson et al. 2001)
- Results for studies examining the relationship between outlet density and drink-driving at the individual level have been mixed and dependent on outlet type and individual characteristics (Gruenewald, Johnson et al. 2002; Treno, Grube et al. 2003)

■ Cross-sectional studies – violence



- Consistent evidence of a spatial relationship between outlets and violence
 - At street block level (Roncek and Maier 1991; Smith, Frazee 2000)
 - At census tract level (Scribner, Cohen et al 1998; Neilsen and Martinez 2003)
 - At zip code level (Gruenewald, Freisthler et al 2006; Lipton and Gruenewald 2002)

■ Cross-sectional studies – violence



- Studies have found strong associations between outlet density and violence found across urban areas of the USA
- The role of different outlet types has differed across studies, with on-premise (e.g. Lipton and Gruenewald 2002), off-premise (e.g. Costanza, Bankston et al. 2001) or both (e.g. Gruenewald Friesthler et al. 2003) related to violence
- Gyimah-Brempong and Racine (2006) found a non-linear relationship between outlets and violence, with the effect of outlets more pronounced in areas of high outlet density

Cross-sectional studies – child maltreatment



- Some evidence that outlet density is related to child maltreatment
 - Markowitz and Grossman (1998) found relationship at the state level between alcohol control policies, outlet density and severe child abuse
 - Freisthler (2004) found that bar density was related to neglect rates and off-premise density was related to physical abuse at the census tract level in California

Cross-sectional studies – neighbourhood disturbances and property damage



- Donnelly, Poynton et al (2006) found a strong relationship between high outlet density and experience of neighbourhood problems (drunkenness, property damage) in New South Wales
 - This study found that the negative effects only occurred at very high outlet densities. I.e. the relationship between outlets and problems was not linear
- Wechsler and Lee (2002) found that outlet density was positively related to experiences of neighbourhood disturbances around colleges in the US

Cross-sectional studies – strength of findings



- Studies measure spatial association – in some ways, this association is designed in through planning and zoning decisions
- Don't really tell us what will happen if outlet density changes – e.g. will policies to reduce outlet density result in reduced harms?

Longitudinal studies



- Need to study the changes in outlet densities and harms *over time*
- Two broad styles:
 - Natural experiments (one off changes in outlet density)
 - Time-series cross-correlation (gradual changes in outlet density)

Longitudinal studies – natural experiments



- Mostly in the Nordic countries (Mäkelä, Rossow et al. 2002).
 - Studies examined the opening of outlets in rural villages and the introduction/removal of beer from supermarket shelves
 - Generally found relationships between increased access and consumption/harms (although not always)
- Studies in the USA and Canada have examined what happens when monopolies are privatised (Her, Giesbrecht et al. 1999)
 - Consumption generally increases (again, not always)
 - Hard to determine whether outlet density or other changes resulting from privatization were significant

Longitudinal studies – natural experiments



- Cohen, Ghosh-Dastidar (2006) examined the impact of changes in outlet-density on rates of gonorrhoea following liquor store closures in Los Angeles
 - Analysis of changes over ~1400 census tracts across 10 years
 - Found that a unit decrease in outlet density was associated with 21 fewer gonorrhoea cases per 100,000 population per year

Longitudinal studies – time series/cross correlation



- Time-series studies comparing outlet density and measures of consumption have produced mixed results
 - Trollidal (2005) found only limited evidence linking changes in outlet density with changes in consumption over 50 years in four Canadian provinces
 - Gruenewald and Ponicki (1993) found evidence over 38 U.S. states and ~10 years, but a similar study at the neighbourhood level over 6 years (Gruenewald, Millar et al.) did not replicate these findings

Longitudinal studies – time series/cross correlation



- Time-series studies focussing on violence have been more consistent
 - Norström (2000) examined outlet density and assault rates in Norway over 25 years, finding a significant association between changes in outlet density and changes in the assault rate
 - Gruenewald and Remer (2006) examined a similar problem across 581 census tracts and over six years, finding assault rates changed with outlet density.
 - There was a particularly strong effect for bar density both locally and in neighbouring tracts.



Interpreting the literature



- Studies have generally found relationships between outlets and harms, but these relationships vary across different settings, different outlet types and different harms
- Studies that have explored interactions have sometimes found neighbourhood characteristics that exacerbate the effect of outlets (e.g. poverty) and sometimes not
- It is reasonable to expect alcohol outlets to have different relationships with problems in different cities, states, countries



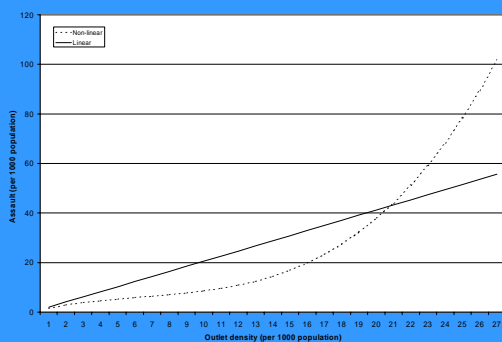
Interpreting the literature



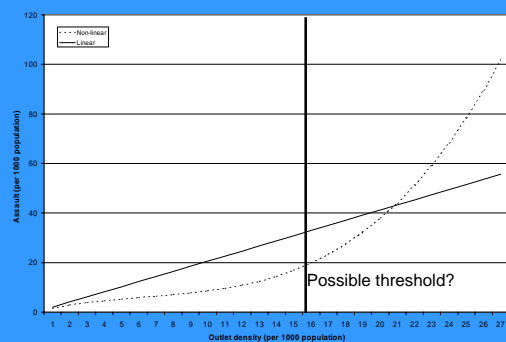
- There has been little examination of threshold effects for outlet density, despite the general policy mechanism proposed being per capita/per area limits on licence numbers
- Non-linear effects for outlets would provide some indication of appropriate thresholds





Non-linear relationships between density and harms





Non-linear relationships between density and harms





 **Links between outlet density and harms** 



- Availability theory
- Routine activities theory
- Social disorganisation theory

 **Links between outlet density and harms** 

- Availability theory
 - More outlets -> easier access to alcohol
 - Easier access to alcohol -> increased levels of consumption
 - Increased levels of consumption -> increased rates of harms

 **Links between outlet density and harms** 

- Social disorganisation theory
 - Neighbourhoods with high outlet densities may be lacking in informal social control and political influence
 - Outlets may be interpreted as signs that a community is more accepting of problematic behaviours

 **Links between outlet density and harms** 

- Routine activities theory
 - Outlets may produce situations conducive to problems, particularly violence:
 - Attracting potential offenders
 - Increasing vulnerable (intoxicated) victims
 - Removing the presence of responsible guardians and handlers



Where to from here?



- Alcohol outlets are spatially associated with problems. Why?
 - Type of neighbourhoods that end up with high outlet density?
 - Causal role of outlets in harms?
- How can control policies influence density?
 - Gradual changes in densities through planning/licensing decisions
 - Limits on outlet numbers by area



Victorian study



- Postcode level data for ~15 years on:
 - Liquor licences (by type)
 - Police recorded assaults
 - Police recorded domestic incidents
 - Hospital admissions for assault
 - Serious road accidents (VicRoads)
 - Ambulance attendances
- Cross-sectional and longitudinal studies examining outlet density and harms, while controlling for demographic and socio-economic characteristics
- Examining interactions between outlets and other neighbourhood characteristics
- Exploring possible non-linear effects of outlet density