Relationship between alcohol outlet density and alcohol-related harm

Frequently Asked Questions

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Why is the relationship between density and harm not statistically significant in every local authority?

In Scotland there is a clear relationship between alcohol outlet density and alcohol harm, which meets the criteria of statistical tests and is termed **statistically significant**.

For the smaller local authority areas it can be difficult to find a relationship between outlet density and alcohol harm if there are **too few neighbourhoods**. Both Clackmannanshire and the Island authorities have less than 100 neighbourhood areas.

When looking at areas smaller than the whole of Scotland other factors can influence if a statistically significant relationship is found. For example, outlet density tells us something about the amount of alcohol available in an area but there are also other factors such as the size of the premises, the opening hours and how far people travel to buy alcohol. These factors are often called "**background noise**". When looking at the relationship between density and harm in the whole of Scotland this "background noise" has less impact on the overall findings because there are lots of data available. However, when looking within small areas, such as local authorities, the "background noise" can mask any real relationship.

Detecting a relationship between numbers of alcohol outlets and alcohol-related deaths or hospitalisations depends on being able to compare areas of high alcohol outlet availability with areas of low availability. At a national level, there is **sufficient variation in the density of alcohol outlets** across the country to be able to make this comparison. However, within some local authorities, where the alcohol outlet density is more evenly spread across the area, there may not be enough variation in exposure to outlet density to enable a comparison. In addition, if the whole area is over-supplied then it will not be possible to detect a difference between one locality and another. Of the six local authorities for which there was no significant positive relationship between outlet density and health harm (for either alcohol-related deaths or hospitalisation, or for either on- or off-sales), five have a low level of variation in outlet density across the local authority

It may be that there is no relationship between outlet density and harm within a local authority.

Does this study show a causal relationship between alcohol outlets and alcohol harm?

This study was cross sectional, this means data was only collected from a single point in time. Although we cannot definitively conclude that there is a causal relationship between alcohol outlets density and alcohol-related harm, we can say that there is an association.

Proving something is "causal" with population level data is virtually impossible because of the ethical and financial constraints in conducting randomised controlled trials with whole populations. We often have to use the best possible population level evidence we have to determine what is **likely, probable or reasonable** in the absence of such trials that would provide "causal" evidence.

These findings agree with findings from other studies in Scotland and beyond showing that there is an association between alcohol outlet availability and many types of health and social harms, such as street violence, domestic violence, hospital attendance, underage drinking, drink driving. See the Appendix in Factsheet 1 of the Licensing Toolkit for more references.

How does higher outlet density affect alcohol harm?

There are two main ways that the alcohol retail environments can affect alcohol consumption locally:

Physical availability: a higher alcohol outlet density leads to more easily available alcohol locally and, like other products, if alcohol is more readily available the amount that the population consumes increases.

Local alcohol pricing: areas with many pubs and restaurants or many off-sales outlets can result in greater local competition; this will reduce the price of the available alcohol. Cheaper alcohol results in higher levels of consumption.

Is alcohol outlet density the only important factor in driving the amount of alcohol drunk and the amount of alcohol harm seen?

Alcohol availability (e.g. outlet density, opening hours) and alcohol affordability (price) are the two main factors affecting how much alcohol is drunk in Scotland and consequently how much alcohol-related harm we see. There are also other factors that will play a role in how much alcohol-related harm is seen in an area, such as ease of access to health services and levels of deprivation.

Is the relationship between outlet density and alcohol harms the same for on- and off-sales outlets?

In Scotland, the relationship between outlet density and harm is slightly stronger for off-sales outlets compared to on-sales outlets. There are many reasons why this might be: off-sales outlets generally sell cheaper alcohol, in larger volumes and underage drinkers may be able to access alcohol more easily in some off-sales outlets compared to in pubs and bars.

Is the relationship between outlet density and alcohol deaths stronger than for alcohol hospitalisations?

Yes, for the whole of Scotland, the increase in alcohol deaths between areas with the highest and lowest alcohol outlets density was greater for alcohol-related deaths than for the alcohol-related hospitalisations.

There are a number of reasons why this might be the case. Alcohol deaths may be a more accurate measure of long standing harmful alcohol use while alcohol hospitalisations will result from both long-standing harmful alcohol use and short-term excessive drinking. Long standing chronic alcohol use may be more sensitive to how easily and readily alcohol can be obtained locally than instances of short-term excessive drinking. Alcohol hospitalisations will also be related to how close the nearest hospital is, local attitudes to seeking medical help, referral practices of local GPs and the different ways hospitals record the reasons for a hospital admission.

Is outlet density a good measure of the amount of alcohol available in communities?

The alcohol outlet density of a locality tells us something about the amount of alcohol available in an area but there other factors that affect how much alcohol is available. For example, the size of the premises (a supermarket will provide a much greater availability that a small corner grocer), the opening hours of the premises and how far people travel to buy alcohol. Currently, the number of alcohol outlets is the only information available for the whole of Scotland. If more detailed information on the alcohol capacity of premises, their opening hours, and the catchment of the customers becomes available it will allow us to provide a better measure of the relationship between alcohol outlet density and alcohol-related harm.

Is a relationship between outlet density and alcohol harm seen in both rural and urban areas?

A significant relationship between density and harm has been seen for both the urban and the rural areas of Scotland. However, in the very rural councils (e.g. Orkney Isles, Shetland Isles and Eilean Siar) no statistically significant relationship between alcohol outlet density and alcohol harm was found. Even when grouped together these councils have among the lowest population and the fewest number of datazones, which will make it difficult to find a statistical relationship between any two factors. In additional to availability, there are also likely to be other factors related to alcohol use in the Scottish Islands.

Details of how the study was carried out

How was alcohol density measured?

The outlet density measure was based on the number of on- or off-sales outlets within an 800m radius of the population centre of each datazone. This means that, for the majority of the population in that datazone, the density figure describes the number of outlets within 800m, which is approximately a 10-minute walk.

For the very rural areas, where the population is widely dispersed across the datazone, this measure might not be a true reflection of the outlet density.

What is a hospitalisation rate ratio?

The alcohol-related hospitalisations that would be *expected* in each local authority if it had the same level of harm as Scotland and the same age and sex distribution was calculated. This was then compared to the *actual* alcohol-related hospitalisations seen in each local authority and a ratio calculated.

If the alcohol-related hospitalisations seen in the local authority was **greater** than in Scotland the ratio was **greater than 100**.

If the alcohol-related hospitalisations seen in the local authority was **lower** than in Scotland the ratio was **less than 100.**

What data were these calculations based on?

Alcohol-related deaths from a ten-year period (2002-2011) and alcohol hospitalisations from a four-year period (2007-2010) were used in the analyses to be able to obtain enough data to accurately determine the relationship between outlet density and alcohol harm. These were the most up-to-date data available at the time of the study.

Why were the Orkney Isles, Shetland Isles and Eilean Siar grouped together?

These analyses used datazones to look for a relationship between alcohol outlet density and alcohol harm. The island local authorities have too few datazones to be able to carry out these analyses accurately, therefore they were grouped together.

How does deprivation affect the relationship between outlet density and alcohol harm?

In determining the relationship between alcohol outlet density and alcohol harm, information on income deprivation was included in the analyses. This means that the relationship seen between alcohol outlets and alcohol harm was not due to different levels of deprivation (as measured by income deprivation).