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Social deprivation as a marker for alcohol harms, and implications for local harm reduction policies in England: an ecological study

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Abstract

Background Cumulative impact policies restricting the award of new licences to sell alcohol have been implemented in many local authorities across England as a means of tackling alcohol harms. Providing evidence linking local harms with availability, however, can present practical challenges for public health teams. We sought to examine the extent to which measures of availability together with local small area characteristics were associated with both acute and chronic alcohol harms in a local authority in north east England.

Methods Routinely available data on all adverse alcohol-related events across crime and disorder, and health, were collated for the years 2012–13 to 2014–15. The area concerned has a relatively dispersed population of over 65,000 with one major urban centre. Analysis was done using rates derived from population estimates at Middle Layer Super Output Area level. Rank correlation estimates were derived for the strength of the association between event rates, density of licensed premises, and Index of Multiple Deprivation (IMD) 2010. Scatterplots and correlation coefficients were examined to determine the statistical strength of any associations. Choropleth maps were constructed using ArcView (Esri) to facilitate visual comparisons of the data.

Findings There was a weak non-significant correlation between outlet density and adverse alcohol-related events ($r=0.21; r^2=0.044; p=0.09$), which was higher and strongly significant when restricted to off-sales only ($r=0.55; r^2=0.304; p<0.0001$). IMD score and the rate of composite alcohol-related events were also significantly correlated ($r=0.68; r^2=0.461; p<0.0001$). Removing police data to rectify double counting arising from its inclusion in IMD determination led to a revised correlation of $r=0.84$ ($r^2=0.704; p<0.0001$) for composite events, and $r=0.79$ ($r^2=0.62; p<0.0001$) when restricted to alcohol-related hospital admissions. Correlations were weakly positive but strongly significant between off-sales outlet density and IMD ($r=0.44; r^2=0.196; p<0.0001$).

Interpretation The strongest predictor of the cumulative harm and health harms from alcohol, in keeping with studies from other regions, was social deprivation, as determined by IMD score. The significant positive correlation between off-license density and alcohol health harms in particular, presents a credible argument for restricting off license density in areas with higher social deprivation.

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Contributors CA designed the wider study, collated all data sources, and performed the original analysis. JDM drafted the abstract on the basis of the agreed most pertinent findings for practice. JL oversaw the write-up and advised on key messages and limitations of the work. All authors read and approved the final abstract.

Declaration of interests We declare no competing interests.