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Changing the legal drink-driving limit alone does not improve road traffic accident outcomes

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Researchers say that changing the legal drink-driving limit without enhancing enforcement and sufficiently publicising the change does not reduce road traffic accidents.

Reducing the blood alcohol concentration limit for driving was not associated with a reduction in road traffic accidents in Scotland, according to an observational study published in *The Lancet* comparing road traffic accident rates in Scotland and in England and Wales before and after the new limit was introduced.

The reduced limit was introduced in Scotland on 5 December 2014. The researchers found that whilst there was substantial initial Scottish Government investment in materials and campaigns to build public awareness of the limit change, this was not maintained in 2015 and 2016.

The study measured rates of all road traffic accidents, not just alcohol-related accidents.

"Our negative findings for road traffic accidents are unexpected given that previous evidence generally demonstrates a reduction in accidents after reducing blood alcohol limits for drivers. The most plausible explanation of our finding is that the new blood alcohol limit was insufficiently enforced, publicised, or both," says Professor Jim Lewsey, University of Glasgow, UK.

He adds: "Previous research supports an association between increased enforcement and decreased road traffic accidents. To properly enforce drink-drive legislation, frequent and systematic random breath testing, public education, publicity, and awareness campaigns are needed."

Road traffic accidents are a major public health problem, with 1.25 million road traffic deaths globally in 2013.

In the UK, there have been large reductions in road traffic accidents over recent decades. However, there were still 170,993 casualties from road traffic accidents reported in 2017. In 2016 in the UK, there were at least 6,070 road traffic accidents involving a driver who had been drinking.

Driving under the influence of alcohol is a major risk factor for road traffic accidents, and a dose-response relation is observed between blood alcohol concentration and accidents. In addition, previous studies in a number of countries (including Australia, France, Austria and Serbia) have shown that reducing blood alcohol concentration limits in general is effective in reducing road traffic accidents.

In Europe, only England, Wales, and Malta have a 0.08 g/dL blood alcohol limit for drivers. This limit is the norm in many other regions, including many states in the USA despite longstanding calls for reductions in the blood alcohol limit for drivers.

On 5 December 2014, Scotland introduced new legislation reducing the blood alcohol concentration for drivers from 0.08 grams of alcohol per decilitre of blood (g/dL) to 0.05 g/dL.

England and Wales have maintained a level of 0.08g/dL, but are considering the change alongside many other countries worldwide, and it has previously been estimated that reducing limits to 0.05 g/dL in England could save about 25 lives and prevent 100 serious traffic

injuries per year.

The new study compared weekly rates of all road traffic accidents in Scotland and in England and Wales from police accident records between January 2013 to December 2016—before and after the new blood alcohol concentration limit was introduced in Scotland. The authors controlled for season, underlying trends in accident rates, and driver age, gender and socioeconomic status.

The study also included alcohol sales from bars and restaurants (on-trade sales) and supermarkets and convenience stores (off-trade sales) to determine whether the new limits reduced alcohol drinking.

The authors found that there was no significant change in total road traffic accident rates in Scotland after the new limit was introduced, compared with before it was introduced.

There was also no effect on serious, fatal or single vehicle night-time road traffic accidents.

Compared to England and Wales, they found a found a 7% increase in weekly road traffic accident rates in Scotland after the reduced blood alcohol limit for drivers was introduced.

Explaining why the results were not what they had expected, the authors note that people who ignored the previous blood alcohol limit may be continuing to ignore the new limit, especially if they think their risk of being caught has not changed.

They note that large changes have been seen historically with reduced blood alcohol limits, and that similar reductions may be more difficult to achieve as road safety improves, and drink-driving is increasingly seen as socially unacceptable.

The change in legislation in Scotland was associated with no significant change in per-capita off-trade sales, but a 0.7% decrease in per-capita on-trade sales.

The authors note some limitations, including that it was not possible to specifically look at alcohol-related road traffic accidents as drivers' blood alcohol concentrations are often unavailable or unreliable. This is because drivers are often not breath tested at the scene of an accident and there can be a delay between when the accident occurred and when the blood alcohol concentration is recorded.

They also note that not all road traffic accidents are registered with the police, so their study may miss some cases.

Writing in a linked Comment, Professor Etienne Blais, Université de Montréal, Canada, says: "Inadequate enforcement and publicity might explain the failure of the law in Scotland seen in Haghpanahan and colleagues' study, but information on such activities is not provided in the Article. A parallel study is underway to explore Scotland's blood alcohol concentration limit change from the perspective of the public, police, and alcohol retailers. This upcoming study will also examine the magnitude of enforcement efforts (eg, indicators on sobriety checkpoints, arrests, and drivers tested) and public campaigning to better understand these results... The best evidence indicates that new blood alcohol concentration laws prevent road traffic accidents when they are effectively enforced (meaning that resources are required to conduct highly visible enforcement activities) and are supported by public communication campaigns. Other legal initiatives (eg, random breath testing) and public education initiatives generally enhance the safety effects of blood alcohol concentration laws. The Scottish experiment, however, shows that additional research is needed to identify essential components of effective blood alcohol concentration laws according to different contexts."

More information: *The Lancet* (2018). www.thelancet.com/journals/lan … (18)32850-2/fulltext

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