

Higher rates of mass shootings in US states with more relaxed gun control laws

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US states with more relaxed gun control laws and higher rates of gun ownership have higher rates of mass shootings, reveals a time trends analysis, published today in *The BMJ*.

And the gap in the rate of [mass shootings](#) between these [states](#) and those with more restrictive laws seems to have widened in recent years, the findings show.

Previous research suggests that more relaxed ('permissive') [state laws](#) and greater numbers of gun owners are linked to higher rates of gun deaths by murder and suicide. But despite the seemingly disproportionate occurrence of mass shootings in some states and not in others, it's not clear how legislation and ownership might influence this.

To try and explore this further, the researchers used the 1998-2015 editions of the Traveler's Guide to the Firearms Laws of the Fifty States.

This guide, which is published annually, scores the firearm laws for each of the 50 US states, from 0 (completely restrictive) to 100 (completely permissive).

The score is derived from 13 different factors, including permit requirements; magazine capacity (for semi-automatics); if and where guns can be carried and kept; and whether the right to self defence is enshrined in the state legislation.

To gauge the level of gun ownership, which is not directly surveyed across all 50 states, the researchers used Centers for Disease Control and Prevention data on the percentage of suicides committed using a firearm, as a proxy measure.

Data on mass shootings in each state, bar Florida, were obtained from the Federal Bureau of Investigation's (FBI's) Uniform Crime Reporting System for the years 1998 to 2015.

Between 1998 and 2014, the average score for each state, irrespective of whether it was 'restrictive' or 'permissive,' shifted towards greater

permissiveness by 0.16 units every year.

Massachusetts had the most restrictive gun laws, while Vermont had the most relaxed ones throughout this period, during which 344 mass shootings occurred.

Around three out of four of these (263; 76.5%) were classified as 'non-domestic' to include acquaintances, employees, employers, friends, neighbours, strangers, and extended family members. The remainder (81; 23.5%) were classified as 'domestic' where the victims were first degree relatives or partners.

Yearly changes in the rates of mass shootings showed that, on average, restrictive states had lower rates of mass shootings than most permissive states, for most years.

And from 2010 onwards, the gap between permissive and restrictive states started to widen, with rates falling in restrictive states and rising in permissive states.

Levels of gun ownership were also significantly associated with mass [shooting](#) rates.

After taking account of key factors, a 10 unit increase in state gun law permissiveness, as defined by the scale, was associated with an 11.5% higher rate of mass shootings.

These findings held true, even when different factors were accounted for and whether or not the mass shootings were perpetrated by someone in a close relationship with the victims.

And a 10% increase in gun ownership was associated with a more than 35% higher rate of mass shootings.

"On the absolute scale, this means that a state like California, which has approximately two mass shootings per year, will have an extra mass shooting for every 10 unit increase in permissiveness over five years," explain the researchers.

"It will also have three to five more mass shootings per five years for every 10 unit increase in gun ownership," they add.

This is an observational study, and as such, can't establish cause, added to which the scoring system used has not been validated, although it was drawn up by lawyers for gun owners. Concerns have been voiced about potential under reporting to the FBI crime reporting system, note the researchers.

Nevertheless, they conclude: "Our analyses show that US state gun laws have become more permissive in recent decades, and that a growing divide in rates of [mass](#) shootings appears to be emerging between restrictive and permissive states.

More information: State gun laws, gun ownership, and mass shootings in the US: cross sectional time series, *BMJ* (2019).

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