



RESEARCH SUMMARY
Date Compiled: April 2023

Key takeaways from included research:

- Scotland instituted minimum unit pricing (MUP) in 2018. This study examined whether the effort has led to decreased alcohol-attributable deaths and hospitalizations. Researchers found a 13.4% reduction in deaths and a 4.1% reduction in hospitalizations during the 32 months the policy had been in effect. This study shows that MUP policies result in significant reductions in deaths, as well as hospitalizations, therefore more countries should consider adopting these to reduce alcohol consumption and the associated harms.
- Researchers in New York City examined how alcohol outlets tend to cluster lower income neighborhoods and the history of redlining in the City. They found that with each increase of on- and off-premise outlets, violent crimes also increased. Specifically, increases in on-premise outlets were significantly associated with violent crimes in communities with historical redlining.
- A new study examined the association between amount of alcohol consumed and the probability of utilizing a firearm to complete suicide. The researchers found that individuals who consumed alcohol prior to their death, were more likely to complete suicide with a firearm, and this increased as alcohol consumption increased.
- Less than half of the population are aware of the alcohol and cancer link, therefore researchers in Ireland studied the factors related to awareness of the association between alcohol use and breast cancer risk. They found that factors most strongly associated with awareness were sex (female), middle age (45-54 years), and higher education levels. Researchers called for more public health messaging highlighting the alcohol and cancer link to target individuals with level educational levels.

EVALUATING THE IMPACT OF ALCOHOL MINIMUM UNIT PRICING ON DEATHS AND HOSPITALISATIONS IN SCOTLAND: A CONTROLLED INTERRUPTED TIME SERIES STUDY

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Background: Since May 1, 2018, every alcoholic drink sold in Scotland has had minimum unit pricing (MUP) of £0.50 per unit. Previous studies have indicated that the introduction of this policy reduced alcohol sales by 3%. We aimed to assess whether this has led to reductions in alcohol-attributable deaths and hospitalisations.

Methods: Study outcomes, wholly attributable to alcohol consumption, were defined using routinely collected data on deaths and hospitalisations. Controlled interrupted time series regression was used to assess the legislation's impact in Scotland, and any effect modification across demographic and socioeconomic deprivation groups. The pre-intervention time series ran from Jan 1, 2012, to April 30, 2018, and for 32 months after the policy was implemented (until Dec 31, 2020). Data from England, a part of the UK where the intervention was not implemented, were used to form a control group.

Findings: MUP in Scotland was associated with a significant 13.4% reduction (95% CI –18.4 to –8.3; $p=0.0004$) in deaths wholly attributable to alcohol consumption. Hospitalisations wholly attributable to alcohol consumption decreased by 4.1% (–8.3 to 0.3; $p=0.064$). Effects were driven by significant improvements in chronic outcomes, particularly alcoholic liver disease. Furthermore, MUP legislation was associated with a reduction in deaths and hospitalisations wholly attributable to alcohol consumption in the four most socioeconomically deprived deciles in Scotland.

Interpretation: The implementation of MUP legislation was associated with significant reductions in deaths, and reductions in hospitalisations, wholly attributable to alcohol consumption. The greatest improvements were in the four most socioeconomically deprived deciles, indicating that the policy is positively tackling deprivation-based inequalities in alcohol-attributable health harm.

Source: Wyper, G. M., Mackay, D. F., Fraser, C., Lewsey, J., Robinson, M., Beeston, C., & Giles, L. (2023). Evaluating the impact of alcohol minimum unit pricing on deaths and hospitalisations in Scotland: a controlled interrupted time series study. *The Lancet*. [https://doi.org/10.1016/S0140-6736\(23\)00497-X](https://doi.org/10.1016/S0140-6736(23)00497-X)

NEIGHBORHOOD ALCOHOL OUTLET DENSITY, HISTORICAL REDLINING, AND VIOLENT CRIME IN NYC 2014–2018

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Abstract

Alcohol outlets tend to cluster in lower income neighborhoods and do so disproportionately in areas with more residents of color. This study explores the association between on- and off-premise alcohol outlet density and history of redlining with violent crime in New York City between 2014 and 2018. Alcohol outlet density was calculated using a spatial accessibility index. Multivariable linear regression models assess associations between the history of redlining, on-premise and off-premise alcohol outlet density with serious crime. Each unit increase in on- and off-premise alcohol density was associated with a significant increase in violent crime ($\beta = 3.1$, $p < 0.001$ on-premise and $\beta = 33.5$, $p < 0.001$ off premise). In stratified models (redlined vs not redlined community block groups) the association between off-premise alcohol outlet density and violent crime density was stronger in communities with a history of redlining compared to those without redlining ($\beta = 42.4$, $p < 0.001$ versus $\beta = 30.9$, $p < 0.001$, respectively). However, on-premise alcohol outlet density was only significantly associated with violent crime in communities without a history of redlining ($\beta = 3.6$, $p < 0.001$). The violent crime experienced by formerly redlined communities in New York City is likely related to a legacy of racialized housing policies and may be associated with state policies that allow for high neighborhood alcohol outlet density.

Source: Haley, S. J., Jardine, S. J., Kelvin, E. A., Herrmann, C., & Maroko, A. R. (2023). Neighborhood Alcohol Outlet Density, Historical Redlining, and Violent Crime in NYC 2014–2018. *International journal of environmental research and public health*, 20(4), 3212. <https://doi.org/10.3390/ijerph20043212>

ASSOCIATION BETWEEN ACUTE ALCOHOL USE AND FIREARM-INVOLVED SUICIDE IN THE UNITED STATES

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Importance: Firearms are the method of suicide used most often in the US. Acute alcohol use is associated with an increased risk of suicide by firearm. However, the dose-response association between acute alcohol use and the probability of using a firearm as the method of suicide is unknown.

Objective: To evaluate the association between the amount of alcohol consumed and the probability of using a firearm as the method of suicide.

Design, Setting, and Participants: This cross-sectional study used mortality data from the US National Violent Death Reporting System on suicide decedents aged 18 years or older with a positive blood alcohol concentration (BAC; ie, ≥ 0.01 g/dL). Statistical analysis was performed from January 2003 to December 2020.

Exposure: Acute alcohol use, ascertained via postmortem toxicologic examination.

Main Outcomes and Measures: Probability of using a firearm as the method of suicide compared with all other methods of suicide.

Results: The study included 45 959 male suicide decedents (mean [SD] age, 42.6 [14.8] years) and 12 136 female suicide decedents (mean [SD] age, 44.2 [13.8] years) with a positive BAC; of those, 24 720 male decedents (53.8%) and 3599 female decedents (29.7%) used a firearm as the method of suicide. The probability of using a firearm as the method of suicide when alcohol is consumed was higher for male decedents, with the probability starting at just below 0.50 and increasing to approximately 0.75. In contrast, for female decedents, the probability began at just above 0.30 and increased to approximately 0.55. For both male and female decedents, the dose-response curves were an inverted U shape; as BAC increased, the probability of firearm-involved suicide initially increased and then decreased at very high BACs (approximately 0.40 g/dL for male decedents and approximately 0.30 g/dL for female decedents; these BACs were present among only a small percentage of alcohol-involved suicides: male decedents, 589 [1.3%]; female decedents, 754 [6.2%]).

Conclusions and Relevance: This cross-sectional study of suicide decedents who had consumed alcohol prior to their death suggests that, as alcohol consumption increased, the probability of a firearm-involved suicide increased until a certain BAC, at which point the probability started to decrease.

Source: Lange, S., Jiang, H., Kaplan, M. S., Kim, K. V., & Rehm, J. (2023). Association between acute alcohol use and firearm-involved suicide in the United States. *JAMA network open*, 6(3), e235248–e235248. <https://doi.org/10.1001/jamanetworkopen.2023.5248>

FACTORS ASSOCIATED WITH PUBLIC AWARENESS OF THE RELATIONSHIP BETWEEN ALCOHOL USE AND BREAST CANCER RISK

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Background: Public awareness of the carcinogenic effects of alcohol is low, particularly the association between alcohol use and the risk of developing breast cancer. Breast cancer is the third

most common cancer in Ireland and alcohol use remains high. This study examined factors related to awareness of the association between alcohol use and breast cancer risk.

Methods: Using data from Wave 2 of the national Healthy Ireland Survey, a representative sample of 7,498 Irish adults aged 15 + years, descriptive and logistic regression analyses were conducted to investigate relationships between demographic characteristics, type of drinker and awareness of breast cancer risk.

Results: A low level of awareness of the risk of alcohol use (drinking more than the recommended low–risk limit) associated with breast cancer was found, with just 21% of respondents correctly identifying the relationship. Multivariable regression analyses found that factors most strongly associated with awareness were sex (female), middle age (45—54 years) and higher educational levels.

Conclusion: As breast cancer is a prevalent disease among women in Ireland, it is essential that the public, in particular women who drink, are made aware of this association. Public health messages that highlight the health risks associated with alcohol use, and which target individuals with lower educational levels, are warranted.

Source: Doyle, A., O'Dwyer, C., Mongan, D., Millar, S. R., & Galvin, B. (2023). Factors associated with public awareness of the relationship between alcohol use and breast cancer risk. *BMC Public Health*, 23(1), 1-9. <https://doi.org/10.1186/s12889-023-15455-8>