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PREVENTING ALCOHOL-RELATED HARM

RESEARCH SUMMARY
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Key Takeaways from Included Research

- An editorial from leading public health researchers states that cheap alcohol has a number of harmful health consequences, including drink-driving, decreases in life expectancy, increases in road traffic injuries, violence, and alcohol poisonings, and long-term increases in deaths from infectious diseases, circulatory diseases, and digestive diseases. The authors advocate for increasing – rather than lessening – the price of alcohol to protect public health.
- An analysis of liver disease related mortality in the U.S. during 1999-2016 found increasing cirrhosis death rates, mostly driven by alcoholic cirrhosis among young adults aged 25-34. The researchers identified increased alcohol taxes as a state level policy instrument which could help reverse this trend.
- An analysis of leading liver doctors identifies a comprehensive public health approach to reducing the burden of alcohol-related liver disease, focusing on population-level policy solutions. One especially effective solution is increasing alcohol excise taxes, since they both raise revenue for governments and reduce the associated health, social and economic costs of alcohol-related harm.
- A study of 5,755 young Swiss men across jurisdictions found that stricter alcohol policy environments were associated with a global shift towards lighter drinking, consistent with the basic tenet behind the universal prevention approach.
- A study looked at the length of *telomeres* (compound structures at the end of chromosomes) in relation to drinking patterns among 2,000 subjects. (Shorter telomere length has been found to be a good predictor of a person's chances of dying.) The researchers found that, using telomere length as a marker of age and health: 1) Binge drinking may reduce telomere length. 2) No benefits were found for alcohol consumption, even in moderation. This adds to the doubt that the moderate use of alcohol has health benefits.

A "BUCK A BEER," BUT AT WHAT COST TO PUBLIC HEALTH?

February 2019

Abstract

Alcohol use leads to a substantial number of hospitalizations, and to increased health and social harms as well as economic costs in Ontario and across Canada. The effects of alcohol price changes on consumption and resulting harms have been firmly established; changes in the minimum price of alcohol have the greatest effect on consumption among people who for reasons of affordability consume low-priced alcoholic beverages, typically adolescents, people with lower socio-economic status, and people with harmful alcohol use. Decreases in inflation-adjusted minimum pricing in British Columbia from 2002 to 2006 have been associated with increases in deaths wholly attributable to alcohol. Furthermore, decreases in alcohol prices have been previously associated with increases in drink-driving, decreases in life expectancy, increases in road traffic injuries, violence, and alcohol poisonings, and long-term increases in deaths from infectious diseases, circulatory diseases, and digestive diseases. Based on the findings of previous studies, lowering the cost of alcohol will negatively impact the health of Ontarians and further strain a healthcare system with limited resources. Accordingly, Ontario should be strengthening alcohol policies to improve public health, including raising the minimum price of alcohol, rather than weakening alcohol policies.

Source:

Shield, K.D., Probst, C. & Rehm, J. (2019). A "buck a beer," but at what cost to public health? *Canadian Journal of Public Health*. https://doi.org/10.17269/s41997-019-00184-6

MORTALITY DUE TO CIRRHOSIS AND LIVER CANCER IN THE UNITED STATES, 1999-2016: OBSERVATIONAL STUDY

January 2019

Abstract

Objective: To describe liver disease related mortality in the United States during 1999-2016 by age group, sex, race, cause of liver disease, and geographic region.

Design: Observational cohort study.

Setting: Death certificate data from the Vital Statistics Cooperative, and population data from the US Census Bureau compiled by the Center for Disease Control and Prevention's Wide-ranging Online Data for Epidemiologic Research (1999-2016).

Participants: US residents.

Main outcome measure: Deaths from cirrhosis and hepatocellular carcinoma, with trends evaluated using joinpoint regression.

Results: From 1999 to 2016 in the US annual deaths from cirrhosis increased by 65%, to 34 174, while annual deaths from hepatocellular carcinoma doubled to 11 073. Only one subgroup—Asians and Pacific Islanders—experienced an improvement in mortality from hepatocellular carcinoma: the death rate decreased by 2.7% (95% confidence interval 2.2% to 3.3%, P<0.001) per year. Annual increases in cirrhosis related mortality were most pronounced for Native Americans (designated as "American Indians" in the census database) (4.0%, 2.2% to 5.7%, P=0.002). The age adjusted death rate due to hepatocellular carcinoma increased annually by 2.1% (1.9% to 2.3%, P<0.001); deaths

due to cirrhosis began increasing in 2009 through 2016 by 3.4% (3.1% to 3.8%, P<0.001). During 2009-16 people aged 25-34 years experienced the highest average annual increase in cirrhosis related mortality (10.5%, 8.9% to 12.2%, P<0.001), driven entirely by alcohol related liver disease. During this period, mortality due to peritonitis and sepsis in the setting of cirrhosis increased substantially, with respective annual increases of 6.1% (3.9% to 8.2%) and 7.1% (6.1% to 8.4%). Only one state, Maryland, showed improvements in mortality (−1.2%, −1.7% to −0.7% per year), while many, concentrated in the south and west, observed disproportionate annual increases: Kentucky 6.8% (5.1% to 8.5%), New Mexico 6.0% (4.1% to 7.9%), Arkansas 5.7% (3.9% to 7.6%), Indiana 5.0% (3.8% to 6.1%), and Alabama 5.0% (3.2% to 6.8%). No state showed improvements in hepatocellular carcinoma related mortality, while Arizona (5.1%, 3.7% to 6.5%) and Kansas (4.3%, 2.8% to 5.8%) experienced the most severe annual increases.

Conclusions: Mortality due to cirrhosis has been increasing in the US since 2009. Driven by deaths due to alcoholic cirrhosis, people aged 25-34 have experienced the greatest relative increase in mortality. White Americans, Native Americans, and Hispanic Americans experienced the greatest increase in deaths from cirrhosis. Mortality due to cirrhosis is improving in Maryland but worst in Kentucky, New Mexico, and Arkansas. The rapid increase in death rates among young people due to alcohol highlight new challenges for optimal care of patients with preventable liver disease.

Source:

Tapper, E. B., & Parikh, N. D. (2018). Mortality due to cirrhosis and liver cancer in the United States, 1999-2016: Observational study. *BMJ, 362*, k2817.

Free full text: https://www.bmj.com/content/bmj/362/bmj.k2817.full.pdf

Additional Media Coverage:

The Fix: Alcohol-Related Liver Disease Is Affecting New Demographics

TREATING ALCOHOL-RELATED LIVER DISEASE FROM A PUBLIC HEALTH PERSPECTIVE

January 2019

Summary

Herein, we describe the evolving landscape of alcohol-related liver disease (ALD) including the current global burden of disease and cost to working-aged people in terms of death and disability, in addition to the larger spectrum of alcohol-related heath complications and its wider impact on society. We further review the most effective and cost-effective public health policies at both a population and individual level. Currently, abstinence is the only effective treatment for ALD, and yet because the majority of ALD remains undetected in the community abstinence is initiated too late to prevent premature death in the majority of cases. We therefore hope that this review will help inform clinicians of the “public health treatment options” for ALD to encourage engagement with policy makers and promote community-based hepatology as a speciality, expanding our patient cohort to allow early detection, and thereby a reduction in the enormous morbidity and mortality associated with this disease.

Source:

Schwartz, N., Nishri, D., Chin Cheong, S., Giesbrecht, N., & Klein-Geltink, J. (2019). Is there an association between trends in alcohol consumption and cancer mortality? Findings from a multicountry analysis. *European Journal of Cancer Prevention, 28*(1), 45-53.

Free full text: https://www.sciencedirect.com/science/article/pii/S0168827818325200

LIGHT AND HEAVY DRINKING IN JURISDICTIONS WITH DIFFERENT ALCOHOL POLICY ENVIRONMENTS

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Abstract

Background: A basic, yet untested tenet underlying alcohol control policies is that they should affect both light and heavy drinking, thereby shifting the entire population in a favourable direction. The aim of this study was to test this assumption in young Swiss men.

Methods: Cross-sectional self-reported data — from 5755 young Swiss men participating in the Cohort Study on Substance Use Risk Factors (C-SURF), a large cohort study on young men living within 21 jurisdictions across Switzerland — were analysed via nested logistic regression. With this approach, a set of increasingly-heavy drinking patterns was broken down into a set of nested regression models, each one estimating the probability of heavier drinking, conditional on the lighter drinking pattern. Drinking patterns relating to heavy episodic drinking (HED), heavy volume drinking (HVD) on weekends, and workweek drinking, as well as alcohol use disorder (AUD) were examined. The explanatory variable was a previously-used alcohol policy environment index (APEI) reflecting the number of alcohol control policies implemented in each jurisdiction. Conventional and multilevel logistic regression models were tested, adjusted for age, education, linguistic region, urban/rural status, attention-deficit/hyperactivity disorder, depression, sensation seeking, antisocial personality disorder, and unobserved heterogeneity between jurisdictions.

Results: For HED, weekend HVD, and AUD, negative relationships with the APEI were found, such that with a higher APEI the probability of lighter drinking patterns was increased while the probability of heavier patterns was reduced, including a reduced probability of the heaviest patterns. These relationships were non-linear, however, and tapered off towards the heavy end of the drinking spectrum. No relationship was identified between the APEI and workweek drinking patterns.

Conclusion:
Among young Swiss men, stricter alcohol policy environments were associated with a global shift towards lighter drinking, consistent with the basic tenet behind the universal prevention approach.

Source:

Foster, S., Gmel, G., & Mohler-Kuo, M. (2019). Light and heavy drinking in jurisdictions with different alcohol policy environments. *International Journal of Drug Policy, 65*, 86-96.

ALCOHOL CONSUMPTION AND LEUKOCYTE TELOMERE LENGTH

February 2019

Abstract

The relationship between alcohol consumption and mortality generally exhibits a U-shaped curve. The longevity observed with moderate alcohol consumption may be explained by other confounding factors, and, if such a relationship is present, the mechanism is not well understood. Indeed, the optimal amount of alcohol consumption for health has yet to be determined. Leukocyte telomere length is an emerging quantifiable marker of biological age and health, and a shorter telomere length is a predictor of increased mortality. Because leukocyte telomere length is a quantifiable and

objectively measurable biomarker of aging, we sought to identify the amount of alcohol consumption associated with the longest telomere length and least telomere length attrition. Among over 2,000 participants from two distinct cohort studies, we found no pattern of alcohol consumption that was associated with longer telomere length or less telomere length attrition over time. Binge drinking may reduce telomere length. Using telomere length as a marker of age and health, these data fail to demonstrate any benefits of alcohol consumption, even when consumed in moderation.

Source:

Dixit, S., Whooley, M. A., Vittinghoff, E., Roberts, J. D., Heckbert, S. R., Fitzpatrick, A. L., et al (2019). Alcohol consumption and leukocyte telomere length. *Scientific Reports, 9*(1), 1404.

Free full text: https://www.nature.com/articles/s41598-019-38904-0