No level of alcohol consumption improves health

Image Source/Getty Images

Published Online
August 23, 2018
http://dx.doi.org/10.1016/S0140-6736(18)31571-X

See Articles page 1015

By use of methodological enhancements of previous iterations,[1] the systematic analysis from the Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2016 for 195 countries and territories, 1990–2016,[2] is the most comprehensive estimate of the global burden of alcohol use to date. The GBD 2016 Alcohol Collaborators clearly demonstrate the substantial, and larger than previously estimated, contribution of alcohol to death, disability, and ill health, globally. In 2016, alcohol use was the seventh leading risk factor for both deaths and disability-adjusted life-years (DALYs), accounting for 2·2% (95% uncertainty interval [UI] 1·5–3·0) of female deaths and 6·8% (5·8–8·0) of male deaths. The burden is particularly borne among those aged 15–49 years, for whom alcohol ranks as the leading cause of DALYs. In this population, alcohol use was the leading risk factor globally in 2016, with 3·8% (3·2–4·3) of female deaths and 12·2% (10·8–13·6) of male deaths attributable to alcohol use.

The study considers the extent to which moderate levels of consumption are protective for some health conditions.[3,4] A paucity of estimates from meta-analyses identifying appropriate reference categories, adequately accounting for survival bias and other confounders, has meant previous assessments of the harm of alcohol have been potentially inaccurate.[5–7] However, the emerging literature can account for some of these issues, enabling more reliable estimates of the disease burden attributable to alcohol.[8,9] By implementing a novel method to establish a counterfactual level of exposure across varied relative risks that does not need to assume zero exposure, the authors present tangible evidence for low-risk drinking recommendations. The level of consumption that minimises an individual's risk is 0 g of ethanol per week, largely driven by the fact that the estimated protective effects for ischaemic heart disease and diabetes in women are offset by monotonic associations with cancer.

This latest GBD analysis applies state-of-the-art epidemiology to produce a definitive understanding of alcohol-related harm. More work remains to be done in calculating the impact of unrecorded alcohol consumption and the importance of patterns of drinking and binge drinking, particularly on young people. Furthermore, the harmful impact of alcohol extends beyond health into families, crime and disorder, and the workplace.[10] Evidence demonstrating the range and magnitude of the harm of alcohol to those other than the drinker is increasingly emerging.[11,12] This additional array of harms is a necessary consideration at both national and local levels, when aiming to understand the full range of alcohol-related harm and ensuring adequate provision of public health policy with a wider impact than on health alone.

The conclusions of the study are clear and unambiguous: alcohol is a colossal global health issue and small reductions in health-related harms at low levels of alcohol intake are outweighed by the increased risk of other health-related harms, including cancer. There is strong support here for the guideline published by the Chief Medical Officer of the UK who found that there is "no safe level of alcohol consumption".[13] The findings have further ramifications for public health policy, and suggest that policies that operate by decreasing population-level consumption should be prioritised.

The most effective and cost-effective means to reduce alcohol-related harms are to reduce affordability through taxation or price regulation, including setting a minimum price per unit (MUP), closely followed by marketing regulation, and restrictions on the physical availability of alcohol.[10] These approaches should come as no surprise because these are also the most effective measures for curbing tobacco-related harms, another commercially mediated disease, with an increasing body of evidence showing that controlling obesity will require the same measures.[14] These diseases of unhealthy behaviours, facilitated by unhealthy environments and fuelled by commercial interests putting shareholder value ahead of the tragic human consequences, are the dominant health issue of the 21st century. The solutions are straightforward: increasing taxation creates income for hard-pressed health ministries, and reducing the exposure of children and adolescents to alcohol marketing has no downsides. The outlook is promising: the UK has just embarked on a huge controlled natural experiment with a progressive evidence-based alcohol strategy in place in Scotland, and with similar measures planned in Northern Ireland and Wales, with England as the placebo control. MUP in Scotland was introduced in May, 2018, without so much as a whisper of complaint from the media, the public, and politicians. Mortality and morbidity rates

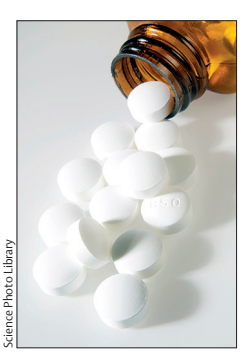
might be expected to diverge dramatically within just a few years, and pressures to extend these measures across Europe and elsewhere will start to rise.

*Robyn Burton, Nick Sheron
Addictions Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, UK (RB); and Clinical Hepatology, Division of Infection, Inflammation and Immunity, Faculty of Medicine, University of Southampton, Southampton, UK (NS)
robyn.burton@kcl.ac.uk

RB is employed full-time at Public Health England (PHE), is a visiting researcher at King's College London, and declares no other competing interests. NS is employed part-time at PHE. NS has received research grants from the British Liver Trust, Alcohol Education Research Council, and various other funding bodies. NS has undertaken paid consultancy work and received travelling expenses from Gilead (who develop drugs for the treatment of inflammatory bowel disease, liver disease, and viral hepatitis), and has been paid for medicolegal work in the area of hepatitis C and alcohol-related liver disease. NS is a clinical adviser to PHE, a scientific adviser to the European Public Health Alliance, and Royal College of Physicians representative on European Union (EU) Alcohol Policies, EU Alcohol Forum, Alcohol Health Alliance UK, UK Department of Health, Home Office, Department of Transport, National Institute for Health and Care Excellence (NICE), Southampton City Council, British Liver Trust, European Association for the Study of the Liver, British Association for the Study of the Liver, and British Society of Gastroenterology. One of the GBD authors (F Greaves) is affiliated with PHE but had no involvement in or knowledge of the Comment.

1 Forouzanfar MH, Alexander L, Anderson HR, et al. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2015; **386:** 2287–323.
2 GBD 2016 Alcohol Collaborators. Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 2018; published online Aug 23. http://dx.doi.org/10.1016/S0140-6736(18)31310-2.
3 Ronksley PE, Brien SE, Turner BJ, Mukamal KJ, Ghali WA. Association of alcohol consumption with selected cardiovascular disease outcomes: a systematic review and meta-analysis. *BMJ* 2011; **342:** d671.
4 Di Castelnuovo A, Costanzo S, Bagnardi V, Donati MB, Iacoviello L, De Gaetano G. Alcohol dosing and total mortality in men and women: an updated meta-analysis of 34 prospective studies. *Arch Intern Med* 2006; **166:** 2437–45.
5 Fillmore KM, Kerr WC, Stockwell T, Chikritzhs T, Bostrom A. Moderate alcohol use and reduced mortality risk: systematic error in prospective studies. *Addict Res Theory* 2006; **14:** 101–32.
6 Britton A, Bell S. The protective effects of moderate drinking: lies, damned lies, and … selection biases? *Addiction* 2017; **112:** 218–19.
7 Naimi TS, Stockwell T, Zhao J, et al. Selection biases in observational studies affect associations between 'moderate'alcohol consumption and mortality. *Addiction* 2017; **112:** 207–14.
8 Holmes MV, Dale CE, Zuccolo L, et al. Association between alcohol and cardiovascular disease: Mendelian randomisation analysis based on individual participant data. *BMJ* 2014; **349:** g4164.
9 Stockwell T, Zhao J, Panwar S, Roemer A, Naimi T, Chikritzhs T. Do "moderate" drinkers have reduced mortality risk? A systematic review and meta-analysis of alcohol consumption and all-cause mortality. *J Stud Alcohol Drugs* 2016; **77:** 185–98.
10 Burton R, Henn C, Lavoie D, et al. A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective. *Lancet* 2017; **389:** 1558–80.
11 Laslett, Room R, Ferris J, Wilkinson C, Livingston M, Mugavin J. Surveying the range and magnitude of alcohol's harm to others in Australia. *Addiction* 2011; **106:** 1603–11.
12 Ferris JA, Laslett A-M, Livingston M, Room R, Wilkinson C. The impacts of others' drinking on mental health. *Med J Aust* 2011; **195:** 22.
13 UK Department of Health. UK Chief Medical Officers' Low Risk Drinking Guidelines. August, 2016. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/545937/UK_CMOs__report.pdf (accessed March 16, 2018).
14 Kickbusch I, Allen L, Franz C. The commercial determinants of health. *Lancet Glob Health* 2016; **4:** e895–96.

Aspirin for primary prevention of cardiovascular disease


Science Photo Library

Published Online
August 26, 2018
http://dx.doi.org/10.1016/S0140-6736(18)31990-1

See Articles page 1036

See Online for appendix

The benefit of aspirin for patients with established cardiovascular disease outweighs the risk of bleeding, but the role of aspirin for individuals with no overt cardiovascular disease is more controversial.[1,2] In a meta-analysis[3,4] of 118 445 individuals from 11 trials of aspirin for primary cardiovascular disease prevention, aspirin reduced the relative risk of non-fatal myocardial infarction by 22% and death by 6%, at the cost of a 59% increase in gastrointestinal bleeding and a 33% increase in haemorrhagic stroke. This compromise in bleeding complications has called into question the level of baseline cardiovascular disease risk for which use of aspirin in primary prevention is clinically acceptable. Indeed, in patients at low cardiovascular disease risk, the relative benefit of aspirin translates into marginal absolute benefit, making its use largely unjustifiable. To better define the net benefit of aspirin for primary prevention, four more trials were designed to include individuals at higher cardiovascular disease risk: two of patients with diabetes (ASCEND and ACCEPT-D), one of patients of advanced age (ASPREE), and one of patients at moderate cardiovascular disease risk (ARRIVE; appendix).[2] J Michael Gaziano and colleagues[5] now report the results of ARRIVE in *The Lancet*.

In ARRIVE, 12 546 patients were randomly assigned to receive either low-dose (100 mg) aspirin or placebo tablets once daily, at 501 sites in seven countries. Inclusion criteria included several major cardiovascular disease risk factors, to target a final population at moderate (ie, 20–30%) risk of 10-year cardiovascular disease. Patients with a history of a vascular event or diabetes were excluded. The primary endpoint was a composite outcome of time to first occurrence of cardiovascular death, myocardial infarction, stroke, unstable angina, or transient ischaemic attack, with