

Commentary on Shield et al: "Lifetime risk of mortality due to different levels of alcohol consumption in seven European countries: implications for low-risk drinking guidelines"

"The concept of 'acceptable risk' of premature mortality" Annie Britton

How risky is our drinking? Alcohol consumption is a behavior that is voluntarily taken up by the majority of Western populations. We know it carries a long-term health risk, but this is nevertheless a rather vague notion, that typically doesn't enter our cerebral calculations on a night out.

Shield et al, in a heroic number crunching exercise, have calculated the lifetime mortality risk associated with drinking at the top end of guidelines set in seven European countries, chosen to reflect a range of drinking cultures (1). The estimates range from 2.5 deaths per 1000 women (in Finland where the 'recommend maximum' is 10 grams ethanol per day) to 44.8 deaths per 1000 women (in Estonia where it is 20 grams per day). This represents a near twenty-fold increase in risk between two countries only 80 km apart.

The country differences are not all driven by the heterogeneity in country-specific drinking guidelines. Even when drinking exactly the same amount, the authors found country differences that were most appreciable at the higher amounts. As a man, if you were to drink 100g per day, you'd be better to do this in Italy (estimated mortality risk 88.7 per 1000) than in Estonia (237.4 per 1000 risk). What underlies these differences? The authors suggest that a mix of factors is involved, including genetics, interactions with other behaviours (such as smoking and drug use), environmental externalities and competing health risks.

Irrespective of the explanation, it is estimated that over half of the population of Estonia drink alcohol that puts them at a lifetime risk of premature mortality above 'an acceptable' 1 per 1000.

The concepts of 'lifetime risk of (premature) mortality', and 'acceptable risk' warrant further thought. Shield et al consider a mortality risk of 1 per 1000 or less to be acceptable for a *voluntary* behaviour such as alcohol drinking. This can be compared to risks from *involuntary* exposures such as environmental air pollution, contaminated soil and water, where 1 in a one million mortality risk is deemed publically acceptable. Others, such as the Australian government, have used a less cautious 1 per 100 or 1% lifetime risk for alcohol consumption (2).

How do these risks of drinking a particular amount of alcohol compare to other voluntary behaviours? David Spiegelhalter, the Winton Professor of Public Understanding of Risk, at Cambridge University, compared the 2016 UK drinking guidelines of no more than 14 units per week (3), which equate to a little less than 1% lifetime risk, with other common lifestyle factors. He said "an hour TV watching a day or a bacon sandwich a couple of times a week is more dangerous to your long-term health." (4). These observations, far from being flippant, were based on large, reputable epidemiological studies (5, 6). Another common comparator (of the risk of premature mortality) is the likelihood of being killed in a road traffic accident. Again, this clearly will vary from country to country and hopefully decreases over time as road safety measures improve. The lifetime risk of dying in a road traffic accident for someone in the USA who drives 10,000 miles a year has been estimated to be about 1 in 60 (7).

What is an acceptable risk of premature mortality? 1 in 1000? 1 in 100? Perhaps it doesn't matter as long as the public are told the risk, in order that we can make a slightly more informed decision. But how meaningful are these crude broad-brush estimates? These are average effects that mask a far more complex interplay of individual factors. Age, sex, ethnicity, nationality, body size, socio-economic position...etc. - all these factors will affect the roll of alcohol-related mortality dice. Such calculations are beyond even sober minds.

In this paper, Shield et al. demonstrate how the concept of lifetime risk of premature mortality can be used to help set guidelines for population alcohol consumption. As the authors admit such a notion may not be forceful enough in

terms of a public health message. Perhaps we need something akin to the calculation that, on average, each cigarette shorts life by 11 minutes (8). One such estimate suggests that chronic drinkers lose 6.6 hours of their life with every alcoholic drink, losing 23 years overall (9). This may be a more powerful message in terms of motivating change to an individual's drinking.

References:

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