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Alcohol attributable fractions for England

A detailed paper, commissioned by the UK Department of Health and carried out by Professor Mark Bellis and colleagues at the North West Public Health Observatory was released in July.

The authors make clear that there are limitations to the methods used to calculate alcohol attributable fractions (AAF's) - that is where alcohol consumption is responsible for a proportion of deaths from causes not wholly attributable to alcohol consumption - deaths from breast cancer, haemorrhagic stroke, etc. - which are 'caused' by a number of factors.

The calculations made by the report rely heavily on research carried out by Corrao and colleagues (2000 and 2004), and make clear that accuracy depends on the reported unit intake of the population and the availability and quality of the relative risk estimates reported in the epidemiological literature. 'There is, therefore, a degree of uncertainty surrounding the estimates presented'.

After careful analysis, we find the report analyses the adverse effects of excessive drinking among the young, and males specifically well, but its placing a burden of alcohol attributable fractions in females at levels of consumption at between 1-19g a day (with the exception of breast cancer) appears unsubstantiated, similarly, it fails to account for the protective effects of moderate consumption against the diseases of ageing that have been repeatedly demonstrated by a substantial body of evidence for men over 40 and post menopausal women, such as CHD, ischaemic stroke and late onset diabetes.

The authors believe that the English population underestimate their alcohol consumption - reported in the 2005 data drawn from the General Household Survey (GHS) to be an average weekly alcohol intake of 15.8 units for men and 6.5 units for women respectively (Goddard 2006). As, for the same year, estimates based on clearance data from the HMRC estimated that weekly alcohol consumption among adults was 21.9 units (HMRC 2007). The authors corrected data recorded by GHS to better reflect increases in the number of units in glasses of wine and stronger beers

that have occurred in recent years; such changes now having been adopted nationally (Goddard 2007). The authors state that 'Our corrected data derived from the GHS suggests that an average adult consumes around 15 units (8g) per week' - this average is well within the UK sensible daily drinking guidelines for both men and women.

The authors calculate that there were an estimated 14,982 deaths related to alcohol in 2005 in England. The alcohol attributable conditions - 11 fully attributed to alcohol and 42 where alcohol is believed to be a contributory factor - include malignant neoplasms of the liver and intrahepatic bile ducts, larynx, breast, colon, oesophagus, and rectum. They also imply that adult-onset diabetes, epilepsy, hypertensive diseases, ischaemic heart disease, cardiac arrhythmias, unspecified liver disease and pancreatitis may be associated with alcohol (even though most recent studies clearly show that moderate alcohol intake is associated with a considerable reduction in the risk of diabetes and ischemic heart disease).

AAFs were calculated with abstinence as the reference category in an attempt to determine both the risks and the benefits of alcohol consumption at all levels of consumption. The report estimates that men were more affected by their alcohol consumption than women; 4.4% of male deaths were attributable to alcohol, compared with 2.0% of female deaths.

Alcohol-attributable deaths varied markedly by age, as young people were disproportionately affected by their alcohol use (primarily associated with extreme drinking leading to accidents and assaults). For example, among 16-24 year old males, 26.6% of all deaths (that is approximately 500 a year in England) were estimated to be attributable, in some degree, alcohol consumption compared to 1.4% of all deaths among those aged 75 and over. For females aged 16-24, the estimate was that alcohol was associated with 14.7% of all deaths.

The calculations made for men, attributing most AAFs to consumption levels of 40g of alcohol per day and above, seem well founded. On the other hand, since the

large majority of women consumed an average of less than 20 grams/day, the majority of deaths attributable to alcohol were necessarily in this lowest consumption group (as there were few women in the higher categories). Deaths among young women that were attributed (at least partly) to alcohol were intentional self-harm, road traffic accidents, and epilepsy. These conditions, however, are related to acute excessive intake of alcohol, rather than 1-19g. On the other hand, for older women, breast cancer became a leading alcohol-attributable cause of death; data suggest that a slight increase in breast cancer may occur even at average levels of one drink per day for some women.

A key problem in using available data for providing meaningful estimates from such analyses for setting policy is that data are very limited on the 'pattern of drinking.' Hence, individuals reporting an average of 20 grams of alcohol per day may be consuming that amount regularly each day or consuming most of their 140 grams per week on one or two binges. The health effects are poles apart. While the lowest alcohol intake (1-19 g/day) in the present analyses showed some increase in the risk of certain diseases, Rehm et al have demonstrated (Ann. Epidemiol. 2007;17:S81–S86) that when binge drinkers are excluded from the list of 'moderate' drinkers, the increase in risk of total mortality essentially goes away, even for the young.

Excluding those over the age of 75 from the protective effects of moderation

The report accepts the findings of Corrao et al. (2000) where a meta-analysis of 28 high-quality studies finds the greatest protective effect of moderate alcohol consumption for men at an average of 20 g/day, with a significantly increased risk of death at about 89 g/day. In women, the largest protective effect appeared to occur at about 10 g/day, with significant evidence of harmful effects at 52 g/day.

The report then states: *'As described above, alcohol has been shown to potentially reduce the risk of ischaemic heart disease (IHD), ischaemic stroke, type II diabetes and cholelithiasis. Our original analyses showed that overall an estimated 8,838 deaths may have been prevented in England (5,030 in males and 3,808 in females; 2005). However, the vast majority of deaths prevented were from IHD occurred among individuals aged over 75 years.'*

Based primarily on one paper from Hawaii, the authors have chosen to exclude from their analyses the majority of coronary disease deaths potentially 'prevented' by

alcohol drinking among subjects aged 75 and older. It states *'Studies that have examined how the risks of heart disease change with increasing age have noted that in general, relative risks for risk factors for IHD converge towards 1, and Abbott et al. (2002) found that there was no evidence for a protective effect of alcohol in men aged 75 years or older. Consequently, we excluded data on IHD deaths in males and females over 75 years old from our subsequent analyses. This resulted in the number of deaths prevented falling to 3,813 (0.8% of all deaths), comprising 2,084 deaths in men and 1,729 deaths in women'*. The authors, therefore, discounted the potentially protective effect of alcohol on IHD for the first 74 years of life, which may have 'permitted' death to not occur until after age 75 for many subjects. Similarly, while the authors quote a 2001 article by Gutjahr et al to provide estimates for the association of alcohol with many conditions (including diabetes and cholelithiasis), they do not quote a later paper by him on the net effects of alcohol (Gutjahr & Gmel, Eur. J. Epidemiol. 2005;20:37-47) which concluded: *'Public health policies should not concentrate on the promotion of abstinence . . . Given its positive effect on overall mortality, clearly regular low-level drinking, not abstention, should be the objective of public health policy in many countries.'*

Reports concluding remarks:

The report concludes: *'For ischaemic and haemorrhagic stroke, and unspecified liver cirrhosis the majority of alcohol-related deaths were attributable to consumption exceeding 40 g/day'* and then continues *'These findings suggest that there is a requirement for harm reduction strategies to target the general population, and not just high-risk drinkers'* - as, even with the reports adjusted consumption figures rising to 15 units a week (that is an average of 17g intake a day) it is surprising that this statement is made. Reference is then made to a single Finnish study by Poikolainen et al., (2007) which found that among men, 70% of alcohol-related hospital admissions and 64% of alcohol related deaths occurred in the 90% of light to moderate drinkers compared with the 10% of heavy drinkers. (The definition of 'light-to-moderate drinkers' varies markedly in different parts of the world. In Finland, it would take a huge amount of drinking to reach the top 10%).

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