

## Is wine the drink of moderation?

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The assumption that different beverages have different effects on health appears to have influenced public policy in a number of countries.<sup>1</sup> Spirits and liqueurs are usually taxed at a higher level than wines, which in turn attract higher taxes than beer — presumably on the principle that higher strength varieties are more prone to misuse. The English “gin epidemic”, made famous by the artist Hogarth, is believed to have been remedied by raising the taxes on spirits to encourage a shift in consumption patterns, particularly towards beer.<sup>2</sup> Similarly, Australians are being given incentives to shift their consumption towards lower alcohol beers through reduction or even abolition of taxes on these products.

The issue of how much tax should be levied on alcoholic drinks has emerged recently with the Commonwealth Government inquiry into the wine industry, which includes in its terms of reference the question of taxation for wines in relation to other beverages. There has been increasing interest in the possibility of using taxation as a means of promoting public health by discouraging excessive consumption.<sup>3,4</sup> Given that the inquiry has a specific brief to examine the contribution of wine consumption to “major social and health problems”,<sup>5</sup> examination of whether wine consumption should be encouraged in preference to that of other alcoholic beverages is timely.

In 1989, a survey commissioned by the Federation of Australian Winemaker Associations reported that 98% of wine drinkers drink at low risk levels according to those advocated by the National Health and Medical Research Council (NHMRC).<sup>6</sup> This finding has been used by the wine industry as an argu-

### Abstract

**Objective:** To examine, in the light of a current national inquiry into taxation for wine, claims that wine drinkers rarely misuse alcohol and that cask wine is more likely to be misused than bottled wine.

**Methods:** 1272 persons aged 16 years and over and resident in metropolitan Perth were interviewed in their homes regarding their use of alcohol.

**Results:** The alcohol consumption of 524 (373 women, 151 men) who had drunk at least one glass of wine on one or more of their last four drinking days was examined in relation to National Health and Medical Research Council guidelines. While only 2.9% of women and 2.6% of men had an average daily intake of wine above low risk levels, 6.9% of women and 13.2% of men had exceeded these levels when considering all alcoholic beverages. When wine intake was examined for the day of highest consumption of the last four drinking days recalled by each respondent, 42.3% of women and 16.6% of men had exceeded low risk levels. There was no significant difference in the amounts of cask and bottled wine consumed in 180 wine drinkers for whom the distinction between cask and bottled varieties could be made and who drank wine on their last drinking occasion.

**Conclusions:** Past estimates of the contribution of wine consumption to excessive alcohol intake are underestimates. Raising the tax on wine should be considered as a public health measure and taxes should be levied in direct relation to alcohol content to encourage the consumption of lower alcohol varieties.

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ment to oppose a proposed increase in the sales tax on wine from 24% to 31%.

A closer analysis suggests that the findings are open to interpretation because:

- Alcohol consumption is reported as average intake over both drinking and non-drinking days whereas the NHMRC guidelines refer also to consumption levels on any one day;<sup>7</sup> and
- It is not clear whether wine was the only alcoholic beverage consumed.

Another relevant question is whether sales tax should be replaced by a tax on the amount of alcohol in a product.

Currently, sales tax is a fixed proportion of the wholesale price of a product, which means that federal taxes on a “standard drink” (containing 10 g ethyl alcohol) of cask wine are just three cents compared with 25 cents for bottled wine and 26 cents for low alcohol beer.<sup>8</sup>

Different positions on these issues are taken by different sections of the Australian wine industry. The Federation of Australian Winemaker Associations is dominated by three companies which, between them, produce 70% of all wine, of which around 90% is in casks. Not unexpectedly, the Federation is opposed to any tax on the volume of wine produced. However, the small producers of quality wines, who make 77% of bottled wine in Australia, tend to oppose any taxes on the price of their product, claiming it to be discriminatory. Some have argued that cheap cask wine is the major source of alcohol abuse in lower socioeconomic and alcohol-addicted subgroups in Australia (Margaret River Wine Producers’ sub-

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mission to the Industry Commission's Winegrape and Wine Industry Inquiry).

To test these claims, we re-analysed data from a representative household survey to identify the proportion of wine drinkers who drink in excess of the NHMRC guidelines and to compare alcohol consumption in drinkers of cask and of bottled wines.

Previous analyses suggest that measures of average alcohol consumption across all days are poor predictors of acute alcohol-related harm<sup>9</sup> as modest average consumption can disguise a pattern of occasional potentially harmful excess. Hence, we present various measures of alcohol consumption, including those predictive of "problems of regular excessive use" (e.g., liver cirrhosis) and those predictive of "problems of intoxication" (e.g., injuries).<sup>10</sup>

## Methods

We conducted a household survey in the Perth metropolitan area between 10 September and 12 December 1990. Ninety-four sample areas were drawn from the 1986 National Census Collectors Districts to provide a representative sample by age, sex and socioeconomic status. Only private dwellings were selected. We used eight experienced market research interviewers who called up to three times, after which a letter was left inviting the target householder to contact the survey team to arrange an interview.

Twenty dwellings were randomly selected within each Census district, and 1860 people aged 16 years and over were contacted on the basis of the person whose birthday fell closest to the day of interview; 1272 (68.4%) agreed to participate.

Based on 1986 Census information, we obtained a highly representative sample. To correct for minor variations from Census data, the sample was weighted on the basis of age, sex and number of people resident in the dwelling who were eligible to participate. Validation checks were conducted by supervisors on 80 completed questionnaires (6.3%).

The interview took approximately 40 minutes and covered topics related to alcohol use, drinking settings, problematic consequences and attitudes towards prevention strategies. Detailed con-

sumption data were collected for the four most recent days on which alcohol had been consumed, including the type and brand of beverage consumed on the most recent occasion subjects could recall.

We present data for the 524 people (373 women, 151 men) who had consumed some wine on at least one of the last four days on which they had consumed alcohol in three ways:

1. Average alcohol consumption for both drinking and non-drinking days;
2. Average daily consumption for the four drinking days only; and
3. Consumption on the day on which the most alcohol was consumed.

"Harmful", "hazardous" and "low risk" consumption levels were based on NHMRC guidelines (see Table), which apply to any given drinking day and not merely to average overall consumption.<sup>7</sup>

Respondents were asked to recall the most recent occasion on which they could remember details of the brand of the beverage they had consumed most. For 201 these details related to wine; 180 (89.5%) provided sufficient detail to allow us to distinguish between bottled and cask wines. We compared consumption levels of cask wine and bottled wine drinkers in a separate analysis.

## Results

The results are shown in the Table. Less than 3% of men and women exceeded NHMRC guidelines for low risk drinking when only their average daily con-

sumption of wine was examined. However, when consumption of all alcoholic drinks was considered, wine contributed to 9.0% of women and 13.2% of men exceeding NHMRC guidelines. The difference in alcohol consumption between men and women was significant across the three consumption categories ( $P < 0.025$ ;  $\chi^2 = 7.57$ ;  $df = 2$ ).

When calculated as average daily consumption for the four drinking days, 18.1% of women and 3.5% of men drank an amount of wine which was above NHMRC guidelines ( $P < 0.001$ ;  $\chi^2 = 30.88$ ;  $df = 2$ ). For total consumption of all alcoholic beverages, 42.5% of women and 32.1% of men exceeded NHMRC guidelines for low risk drinking, and 13.8% of women and 16.3% of men drank at levels considered to be harmful to health ( $P < 0.005$ ;  $\chi^2 = 12.04$ ;  $df = 2$ ).

For the day of highest consumption of the last four drinking days recalled by each respondent, 41.1% of women and 17.0% of men drank an amount of wine which was either hazardous or harmful by NHMRC guidelines ( $P < 0.001$ ;  $\chi^2 = 31.56$ ;  $df = 2$ ). For wine and other beverages, 53.6% of women and 45.8% of men exceeded low risk levels, with 20.9% of women and 24.0% of men drinking harmful amounts. The differences between men and women within the three NHMRC categories is significant ( $P < 0.001$ ;  $\chi^2 = 15.37$ ;  $df = 2$ ).

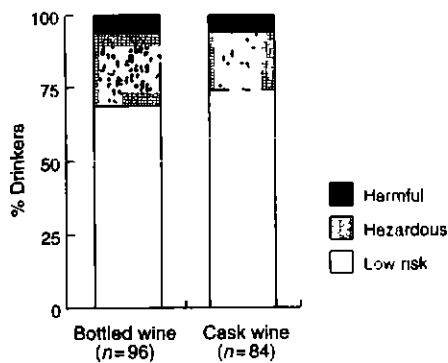
For the 180 wine drinkers who could be identified as bottled or cask wine

Alcohol consumption relative to NHMRC guidelines for men and women\*

	Women (n=373) <sup>†</sup>		Men (n=151) <sup>†</sup>	
	Wine only	Wine, beer and spirits	Wine only	Wine, beer and spirits
Average daily consumption				
Low risk	97.1%	93.1%	97.4%	86.8%
Hazardous	1.9%	3.9%	0.5%	5.6%
Harmful	1.0%	3.0%	2.1%	7.6%
Average drinking-day consumption				
Low risk	81.9%	57.5%	96.5%	67.9%
Hazardous	15.4%	28.7%	0.7%	15.8%
Harmful	2.7%	13.8%	2.8%	16.3%
Consumption on the highest of the last four drinking days				
Low risk	58.9%	46.4%	83.0%	54.2%
Hazardous	30.5%	32.7%	10.2%	21.8%
Harmful	10.6%	20.9%	6.8%	24.0%

\*Harmful consumption, > 6 drinks for men and > 4 for women. Hazardous consumption, > 4 drinks for men and > 2 for women. Low risk is consumption below these levels.<sup>7</sup>

<sup>†</sup>Numbers are weighted.



Wine consumption by 96 bottled wine and 84 cask wine drinkers on a recent drinking occasion.

drinkers there was no significant difference in the amounts of wine consumed, with 68.7% of the former and 73.8% of the latter drinking at low risk levels (see Figure).

## Discussion

Our findings suggest that there is a significant public health problem associated with the consumption of wine in urban Australia.

Holman and Armstrong calculate that about one-third of the 6000 alcohol-related deaths per year in Australia are associated with acute intoxication (e.g., injuries) and the remainder with chronic excessive consumption (e.g., liver cirrhosis, breast cancer).<sup>11</sup> However, because alcohol-related injuries claim the lives of younger people, they also found that acute intoxication accounted for two-thirds of "person years of life lost".

Our findings strongly suggest that wine consumption makes a significant contribution to such alcohol-related mortality and morbidity. We estimate that the number of wine drinkers whose consumption exceeds low risk levels recommended by the NHMRC varies between 2.6% (for the average daily consumption of wine alone by men) and 53.6% (for highest amount of wine plus other alcoholic drinks consumed on a recent drinking day by women).

While the former is a restricted estimate of regular excessive consumption by wine drinkers, because many more (9.0% of women and 13% of men) drink above low risk levels when other beverages are taken into account, the

research by the wine industry reports consumption for particular kinds of wine (sparkling, red, white, etc.), which provides still lower estimates.<sup>5</sup>

Our higher figure (53.6%) is an inflated estimate of the contribution of wine consumption to problems caused by acute intoxication. It is the level of consumption deemed "harmful" (i.e., more than four drinks for women and six for men) which is predictive of such problems.<sup>12</sup> A more appropriate estimate, then, is that 20.9% of wine-drinking women (and 24.0% of men) have drunk at a high risk level on a recent drinking occasion in relation to problems of intoxication.

It must be concluded that excessive wine consumption involves more than a minority of people, and it is thus harder to argue against proposed tax increases for public health purposes as an attempt to "punish the many for the sins of the few". There is evidence from economic analyses that alcohol behaves like almost all commodities in that consumption levels are inversely correlated with price.<sup>12</sup> Furthermore, there is evidence from a variety of sources that price rises can be linked to reductions in both problems of regular consumption and intoxication.<sup>13</sup> Contrary to popular belief, heavy drinkers and alcohol-dependent drinkers tend to be particularly affected by price changes.<sup>14</sup>

There are, therefore, compelling reasons for supposing that raising the price of wine through raising tax levels would contribute to a reduction in alcohol-related mortality and morbidity. Would the voting public accept such an attempt to control its use of alcohol? Opinion polls indicate that most Australians would support an additional tax on alcohol provided that the additional revenue was channelled directly into treatment and prevention activities.<sup>15</sup>

In addition, drinks should be taxed according to the amount of alcohol they contain and not by other criteria currently applied, such as the cost of manufacturing the beverage (e.g., the federal wholesale sales tax on wine) or the volume of fluid in the container (e.g., federal excise and State licence fees).

Inequities — such as cask wine attracting, per unit of alcohol, less than one-eighth of the federal tax on either bottled wine or low alcohol beer<sup>8</sup> — are

a serious public health concern, particularly as our findings suggest that both bottled and cask wine are misused to a similar degree by urban drinkers. Other data suggest that in some rural Aboriginal communities cask wine is greatly favoured by excessive drinkers,<sup>16</sup> presumably because of its low price.

Our data suggest that statistics put forward by the wine industry underestimate the contribution by wine to excess alcohol consumption in Australia. We recommend that consumption can be lowered by raising taxes on wine and by taxing beverages according to alcohol content.

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