

Enhanced labelling on alcoholic drinks: reviewing the evidence to guide alcohol policy

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Background: Consumer and public health organizations have called for better labelling on alcoholic drinks. However, there is a lack of consensus about the best elements to include. This review summarizes alcohol labelling policy worldwide and examines available evidence to support enhanced labelling. **Methods:** A literature review was carried out in June–July 2012 on Scopus using the key word ‘alcohol’ combined with ‘allergens’, ‘labels’, ‘nutrition information’, ‘ingredients’, ‘consumer information’ and/or ‘warning’. Articles discussing advertising and promotion of alcohol were excluded. A search through Google and the System for Grey Literature in Europe (SIGLE) identified additional sources on alcohol labelling policies, mainly from governmental and organizational websites. **Results:** Five elements were identified as potentially useful to consumers: (i) a list of ingredients, (ii) nutritional information, (iii) serving size and servings per container, (iv) a definition of ‘moderate’ intake and (v) a health warning. Alcohol labelling policy with regard to these aspects is quite rudimentary in most countries, with few requiring a list of ingredients or health warnings, and none requiring basic nutritional information. Only one country (Australia) requires serving size and servings per container to be displayed. Our study suggests that there are both potential advantages and disadvantages to providing consumers with more information about alcohol products. **Conclusions:** Current evidence seems to support prompt inclusion of a list of ingredients, nutritional information (usually only kcal) and health warnings on labels. Standard drink and serving size is useful only when combined with other health education efforts. A definition of ‘moderate intake’ and recommended drinking guidelines are best suited to other contexts.

Introduction

Every year, citizens in the European Region consume 9.24 l of pure alcohol per capita—more than in any other WHO Region.¹ A large, diverse and persuasive body of evidence identifies alcohol as one of the world’s top three priority public health areas. Even though only half the world’s population drinks, alcohol is the world’s third leading cause of ill health and premature death, after low birth weight and unsafe sex (for which alcohol is also a risk factor). Harmful use of alcohol is associated with a wide range of devastating physical pathologies as well as mental illness, traffic crashes, suicide, violence and other harmful consequences for both individuals and communities. Indeed, Nutt *et al.*² found that alcohol’s impact on society is larger and more negative than any other drug, including heroin, crack cocaine and tobacco. WHO data confirm that morbidity attributable to alcohol comes second only to that of tobacco, and 70% of mortality owing to liver disease is associated with it.³

These figures are astonishing, given that hazardous and harmful drinkers only constitute a minority (albeit a significant minority) of those who drink. In England, hazardous or harmful drinkers comprised 24% of the adult population in 2007⁴; however, this sub-population was responsible for consuming three-quarters of all alcohol sold in the country.³ On the other hand, studies have shown that middle-aged and older people who drink lightly or in moderation are less likely to die from ischaemic events (coronary heart disease, ischaemic stroke and type 2 diabetes) than abstainers. Yet, despite the unarguable importance of choosing what, when, and

how much to drink, consumers have less access to health and nutritional information about these beverages than they do about a glass of milk, a bowl of cereal or a soft drink.

To address this information gap, several initiatives in Europe, the USA and the world have called for better labelling of alcoholic drinks. In June 2012, the European Alcohol Policy Alliance (Eurocare) released recommendations for a comprehensive European Alcohol Strategy (currently under consideration by the European Commission), including better labelling for alcoholic beverages, with a list of ingredients, allergens with their potential effect, nutritional information (kcal), alcoholic strength and rotating health warnings.⁵ In the US, recommendations from the Center for Science in the Public Interest (CSPI) date back to 2003, when the coalition of public health and consumer organizations first called for an ‘Alcohol Facts’ label to include serving size, servings per container, calories, ingredients, alcohol content (both percentage of volume and quantity of pure alcohol per serving) and a definition of ‘moderate consumption’.⁶ The British government, in collaboration with the alcohol industry, has also taken some steps to provide drinkers with more consumer information, developing a label to be included on packaging voluntarily, with information on standard units, recommendations on daily intake and a health warning.⁷ In Australia, the Preventative Health Taskforce called for health warnings on alcoholic drinks to be modelled after those on tobacco packages, arguing that the small text-only warning labels on American products have not had a dissuasive effect on unsafe drinking.⁸

All of these recommendations share certain characteristics, but their heterogeneity raises doubt as to the best elements to include on a

Table 1 Selected labelling requirements for alcoholic drinks in 26 countries and the European Union

	Alcohol content as % of total volume	Mandatory health warning	List of ingredients	List of allergens and/or additives	Calories per serving	Standard drinks per container	Other nutritional information
Australia	X			X		X	
Belize		n/a	X				
Brazil	X	X	X	X			
Canada	X		X ^a				
Chile	X						
China	X		X				
Colombia	X	X					
Costa Rica	X (spirits)	X	X				
Dominican Republic		n/a	X		X		
European Union	X			X			
France	X	X		X			
Germany	X	X (for sweet alcoholic drinks)		X			
Guatemala		X	X	X			
Hong Kong		n/a	X	X			
India		n/a	X				
Japan	X		X	X			
Mexico	X	X	X ^a	X (aspartame)			
New Zealand	X		X ^a				
Peru		n/a	X	X			
Phillipines	X	n/a	X	X			
Russian Federation	X	X	X	X			X (sugars)
Singapore		n/a	X				
South Africa		X	X	X			
South Korea	X	n/a	X	X			
Sweden	X	n/a		X ^b			
Switzerland	X	n/a	X	X			
Taiwan	X	X					
Thailand	X	X					
Turkey	X	n/a	X	X			
United Kingdom	X		X ^b	X			
USA	X	X	X	X (selected)			X (carbs)

n/a = not available.

a: For mixed or non-standardised drinks only.

b: Regulations in addition to EU standards.

Source^{9,10}: International Center for Alcohol Policies: Informing consumers about beverage alcohol. Available at: <http://www.fas.usda.gov/posthome/useu/label.html>; International Center for Alcohol Policies: Health Warning Labels. Available at: <http://www.icap.org/table/HealthWarningLabels>.

potential label and how to do so. What information would have the most positive influence on drinking behaviour? How should this be presented? What do consumers have the right to know? To independently contribute to the evidence base that informs national and European alcohol policy, this literature review will summarize existing labelling requirements throughout the world (table 1) and examine the evidence on additional elements to be potentially included, focusing on two facets of consumer information: dietary aspects of alcohol intake (ingredients, nutritional information, calories, serving size) and potentially harmful effects (health warnings and recommendations on intake). We will then weigh the known advantages and disadvantages of including each element, making evidence-based recommendations to guide policy (table 2).

Methods

A literature review was carried out in June–July 2012 on Scopus using the key word ‘alcohol’ and one or more of the following: ‘allergens’, ‘labels’, ‘nutrition information’, ‘ingredients’, ‘consumer information’ or ‘warning’. Articles discussing advertising and promotion of alcohol (including requirements to include health warnings on these) were excluded. Because alcohol content is already generally required on labels (although presentation can vary), we did not investigate this aspect. Additional articles of interest were identified through examination of the bibliographies from the identified sources. Nineteen articles were finally included.

There were no peer-reviewed articles synthesizing governmental requirements for labelling, so a search was subsequently undertaken on Google and the System for Grey Literature in Europe (SIGLE) to complement the above and identify grey literature and additional information on alcohol policies pertaining to labelling. Fifteen additional references of interest were identified, mainly from governmental and organizational websites.

Results

In terms of consumer information, five elements in addition to alcohol content were identified as potentially useful to drinkers: (i) a list of ingredients, (ii) nutritional information, (iii) serving size and servings per container, (iv) a definition of ‘moderate intake’ and (v) a health warning about the consequences of unhealthy consumption. While some countries require disclosure of certain elements on the labelling of alcoholic beverages (table 1),^{9,10} nutritional information on foodstuffs is invariably more complete, while the kind of health warnings that have become commonplace on tobacco products are notably absent in all but a handful of countries.

Ingredients

The most basic element of labelling for consumer goods is a list of ingredients, including allergens, additives and preservatives. However, of the 53 countries for which labelling information was

Table 2 Summary of evidence regarding inclusion of dietary information and health warnings on alcohol labels, with recommendations

	Pros	Cons	Recommendations
List of ingredients	<ul style="list-style-type: none"> Protects consumer right to information Consumers with allergies can better choose products 	<ul style="list-style-type: none"> Producers must assume costs 	Should be included on drinks labelling without delay
Nutritional information	<ul style="list-style-type: none"> Facilitates health decisions through accurate caloric and nutritional content Could influence drinking behaviour of populations concerned with overweight 	<ul style="list-style-type: none"> Consumers who had overestimated caloric, fat or carbohydrate content could increase consumption Producers could propound health claims such as 'fat free' or 'no/low carbs' 	Kilocalories should be included on all labels. Fat, carbohydrate and protein content should not be included unless present. More research should be carried out to determine how nutritional information is interpreted among different groups
Standard drink size and servings per container	<ul style="list-style-type: none"> Consumers can accurately track alcohol intake Allows better interpretation of drinking guidelines 	<ul style="list-style-type: none"> Need for some harmonization among countries Container and pour size often do not correspond to standard drink size Consumers may decide to buy drinks based on strongest alcohol content for the money Lack of awareness among consumers about the significance of a standard drink 	Inclusion of standard drink size and servings per container should be coupled with measures to counteract negative consequences, such as health education and regulations to tie pricing with standard drink sizes.
Drinking guidelines/ definition of 'moderate intake'	<ul style="list-style-type: none"> Consumers would be more knowledgeable about generally safe levels of consumption 	<ul style="list-style-type: none"> Difficult to define; safe consumption levels depend on individual risk profiles Recommendations would vary according to drinking patterns 'Moderation' is a subjective, not scientific term Uniform guidelines cannot easily influence large populations 	No uniform guideline should be included on labels, but tailored health communication should be undertaken outside of a drinking context
Health warnings	<ul style="list-style-type: none"> Effective way to inform all consumers of risks associated with alcohol Could potentially reduce dangerous drinking behaviour Consumers overwhelmingly support health warnings on alcoholic products 	<ul style="list-style-type: none"> Warnings will face strong resistance from industry Little existing evidence or policy experience Messages must be tailored to drink type and audience 	Health warnings should be included and modelled after those that have worked against tobacco (i.e., large-print, simple, rotating warnings occupying a large area of label and including graphic images)

available, just 22 currently require this (only two are European—Switzerland and the UK) (table 1). Moreover, in the cases of Canada, Mexico and New Zealand, an ingredients list is only required for mixed or non-standardized drinks.

Yet, common ingredients of even standard alcoholic beverages include wheat, barley, corn, rye, grapes, hops, histamine, sulphites and *Saccharomyces cerevisiae* (brewer's yeast), substances known to produce allergic reactions in a minority of individuals, ranging from a runny nose to anaphylaxis.^{11,12} EU legislation requires disclosure of many common allergens on labels, but people with uncommon allergens depend on ingredients lists to know whether a product is safe to ingest. Moreover, food safety authorities have long defended the basic consumer right to know what is contained in a given product; it is unclear why this logic has not also been applied to alcoholic beverages, as there is no apparent downside for consumers or producers, apart from the initial cost of changing labels (table 2).

Nutritional information

Nutritional information is another aspect to potentially include on labels. One gram of alcohol contains seven calories, second only to the number of calories found in a gram of fat, and heavy intake can significantly contribute to overweight and obesity.^{13,14} Given the considerable public health problem that obesity presents in most developed, and many developing, countries, caloric information is extremely relevant to consumers, and so it is striking that no country

in the world currently requires disclosure of this information on packaging.

Carbohydrate, fat and protein content complete a standard nutritional label for food products, but this is not the case for alcohol. The Russian Federation and the USA do mandate inclusion of sugar or carbohydrate content, but the fact that most alcoholic drinks (with the exception of beers, which have carbohydrates) have no nutritional value introduces some uncertainty as to the utility of including this data. Indeed, it could even be counterproductive to health objectives. Preliminary research from a pilot study with a sample population of 230 university students found that drinkers had been consistently overestimating the amount of calories, fat and carbohydrates contained in all drink types; upon exposure to accurate nutritional information, their intentions to consume increased rather than decreased.¹⁵ No studies were identified to evaluate how consumers of different profiles would interpret this information.

Serving size and servings per container

Serving size (understood as a standard drink) and servings per container are also absent on beer, wine and spirits labels in all countries except Australia. In part, this may be because the standard drink concept is somewhat problematic: The definition varies across countries worldwide, from 8 g of ethanol in the UK to nearly 20 in Japan¹⁶ (the European Commission defines it as

10 g), and objective pour sizes both at home and in drinking establishments usually exceed standard measurements, especially for spirits drinks.¹⁷ Although containers are generally the same size (for example, 33 cl for a bottled beer in many countries), alcohol content can differ greatly, both between the three beverage groups (beer, wine, spirits) as well as among different brands of the same beverage—vodka alone can have an alcohol content ranging from 35 to 50% of its volume. Thus, it is unsurprising that drinkers have little notion of how much alcohol they consume; self-reported alcohol intake is significantly and consistently underestimated.¹⁷ In Australia, where the government has launched a public health initiative to rectify this lack of awareness by educating consumers about standard drink size, young drinkers are more knowledgeable about their intake. However, they did not use the information to comply with health recommendations, but rather to buy the strongest drinks at the lowest cost.¹⁸ Moreover, standard drink labelling is of limited use unless combined with measures to educate consumers on what it means. A European study using focus groups in six EU Member States found that there was little understanding of what a standard drink was nor what it meant; participants speculated that it was aimed to help people know how much they could drink before driving, that it was only applicable to beer drinkers or that it was useful as a scale to know how many drinks it took to get drunk.¹⁹

Recommendations on 'moderate intake'

Complementary to standard drink size, a definition of 'moderate intake' was also identified as of potential interest to consumers, as defended by the American CSPI⁶ and the British government.⁷ No country currently requires this; however, the concept runs into some of the same pitfalls as that of standard drink size: inconsistency between countries and health organizations, lack of correlation with serving sizes and poor understanding among consumers. Although international recommendations on what constitutes 'moderate' consumption usually set the bar at one daily drink for women and two for men, British guidelines allow up to four daily drinks for men and three for women.²⁰ Likewise, serving size may vary greatly; in Spain, beer is often sold in bottles of just 20 cl, while in the UK or Ireland it is generally consumed in Imperial pints, nearly 57 cl. Consumer awareness is low as well; an NHS survey showed that although most drinkers are aware of the existence of recommended units, over a third are incapable of defining them.²¹

However, even if these obstacles could somehow be overcome (for example, through a broad international public health campaign that harmonized terminology while educating consumers), the idea of 'moderate intake', like 'responsible drinking', remains extremely problematic because it is inherently subjective. Harding and Stockley explore these problems,²² signalling that optimal drinking guidelines would have to be tailored not only to the specific risk profiles of individuals (age, ethnicity, family history, body mass index, mental and physical health, use of medications), but also to target audiences. After all, health recommendations attempt to use behavioural psychology to change behaviours (usually of those at higher risk), and these vary tremendously between, for example, a healthy university student who drinks excessively on weekends and a middle-aged woman with high blood pressure who rarely drinks at all. The former should be encouraged to reduce intake on weekends and abstain on weekdays, while the latter could benefit from increasing intake to one drink a day with meals.

With these complexities in mind, current evidence does not support inclusion of this sort of health advice on labels (table 2).

Health warnings

With regard to health warnings, and despite the effectiveness of prominent and graphic warnings on tobacco products,²³ this tool has remained relatively unused on alcoholic beverages, with only

12 countries requiring some kind of health message. Countries in the Americas (both north and south) tend to mandate these more than European countries, while South Africa and Thailand stand out for the strength of the required messages (e.g., 'Alcohol abuse is dangerous to your health' in South Africa or 'Liquor drinking is harmful to you and destroys your family' in Thailand) and the prominence that these messages have on packaging. The EU does not require any health warning (or even weakly worded advice) on the possible consequences of alcoholic intake, and among Member States, only France and Germany have taken some kind of measure in this direction; the former requires either a message or pictogram directed towards pregnant women, and the latter simply requires sweet alcoholic drinks to include a warning against consumption by minors.

Some soft measures have been taken in cooperation with industry to provide consumers with more information. The UK attempted to improve labelling through voluntary agreements with producers in 2007, including serving size and health warnings related to unsafe consumption but not nutritional information. However, 3 years later, the first report evaluating the voluntary programme was published, finding that just 15% of commercially available drinks were properly labelled.²⁴ Upon the report's publication, the incoming Tory government pledged to mandate inclusion of clearer labelling on alcoholic products, decrying the units system as 'confusing' and also proposing to include caloric information. Since then, a public consultation, including population surveys, has been carried out, and the Department of Health affirms that specific policies to revamp the voluntary programme are under development.²⁵

Voluntary labelling by producers has also taken place to some extent.²⁶ These messages are often couched around the somewhat amorphous concept of 'responsible drinking', which is basically portrayed by drinks manufacturers to mean abstaining if driving, pregnant, or underage. Importantly, however, the primary aim is not to reduce alcohol consumption or binge drinking in other collectives, nor to educate consumers about the health risks associated with alcohol intake.²⁷ Indeed, industry efforts to 'help' governments in shaping alcohol education and policies have been repeatedly criticized as quite cynical attempts to placate public health advocates without actually hurting sales.^{28,29}

Despite the effectiveness of prominent and graphic warnings on tobacco products,²³ this tool is relatively undeveloped for alcoholic drinks. The long small-print health warning required on alcohol labels in the US since 1989—upon which most studies of the effectiveness of warning labels on alcohol products are based—has not been updated or enhanced in the same way that health warnings on tobacco products have, leading to the rather unfair conclusion that labels on alcoholic drinks are inherently ineffective.³⁰ In fact, these text-only warnings have been shown to raise awareness of the dangers of alcohol consumption during pregnancy and to reduce drunk driving.^{31,32}

Several studies have been carried out to explore consumer reactions to alternative formats. An Australian study used focus groups to gauge reactions to varying tones, presentations and informational messages on warning prototypes; researchers found that messages should be serious in tone and matched to target audiences and beverage types.³³ Another study compared the American warning to pregnant women and drivers with a shorter (but more impactful) New Zealand warning ('Alcohol is a drug'), finding that risk perception among all drinkers—including risks associated with driving and pregnancy—were higher after being exposed to the second message.³⁴ The Protect study found that pictures had more impact than words, that messages viewed as relevant were better received than those that did not immediately pertain to the consumer, and that rotating messages were more likely to retain the attention of drinkers.¹⁹ All studies called for labelling to be part of a broader alcohol policy.

Discussion

As public health professionals search for effective policies to address alcohol misuse and abuse, labels stand out as an underused and undertried way to empower consumers to make healthy decisions about alcohol intake. This is true both globally and in Europe. The European Union establishes certain minimums for labelling but stops short of requiring full disclosure of ingredients and nutritional information; labels must only display alcoholic strength and the presence of any common allergens, such as sulphites in wine. No EU country has, thus far, complemented these regulations with any other mandatory requirements on standard drink size, calories or nutrition, and just two require any kind of health warning. This dearth of consumer information on alcohol packaging puts Europe behind other countries, although it is also true that few countries stand out as having taken rigorous action in this respect, and none require full nutritional disclosure. Upon even a perfunctory objective reflection on the matter, it is surprising that just one country (Australia) requires information on serving size, and baffling that none currently require disclosure of the number of calories.

Given the potential benefits and relatively low cost of such measures, the scarcity of existing research and policy on the topic is noteworthy, constituting an inevitable limitation to the policy recommendations made in this article. The area of alcohol labelling merits more work, particularly through studies using focus groups, to understand how labelling information is interpreted. Our study identified a few noteworthy examples focusing on young people,^{18,19,33,34} but none dealing with other populations or risk groups. In particular, there is ample synergy to be developed between the fields of addiction and nutrition, with overweight and obese populations standing out as among the specific groups with the most to benefit from more nutritional information on labels. Likewise, health warnings similar to those found on cigarette products (and combined with other policy and health education measures) have the potential to replicate the success achieved in the public health campaign against tobacco; given the harmful impact that alcohol exerts on society as a whole, this area of work is critical.

Based on existing evidence, labels that borrow elements from both foodstuffs (nutritional information) and tobacco (health warnings) seem to constitute the best approach to deal with the dual nature of alcohol, which is both a dietary element and a drug. These types of labels enjoy wide support from drinkers and non-drinkers alike.^{35–37} However, specific considerations based on evidence should be made before implementing any policy (table 2).

This literature review has found that some consumers, instead of using labelling to make healthy choices, would use it to buy the strongest drinks at the lowest price, and others who had previously overestimated fat, carbohydrate and caloric content could feel empowered to increase their intake. Should health professionals desist from advocating for accurate content labelling on alcoholic drinks because consumers may use the information to facilitate or justify unsafe drinking behaviour?

History and policy have tended to favour consumers' right to information over health authority concerns regarding how that information is used. An illustrative case comes from the USA, where until 1995, beer manufacturers were forbidden from displaying alcohol content on labels in an attempt to protect consumers from themselves, by averting 'strength wars' between competitors. The Supreme Court overturned the law on the basis of free speech, denouncing the 'supposed state interests that seek to keep people in the dark for what the government believes to be their own good.'³⁸ In Europe, debate around so-called 'nudge' policies touch on the same themes; individual freedom of choice is consistently defended even when this may be detrimental to health.³⁹

Thus, from an ethical standpoint, the potential harm that may arise from displaying content information on alcohol labels is not

enough to preclude the provision of that information to consumers. However, it does constitute a strong argument in favour of *also* including a health warning, and of integrating alcohol labelling into a comprehensive set of policies—including strengthened alcohol education—to protect consumers from the health risks of unsafe intake. Furthermore, the large body of research available on the decades-long public health campaign against smoking confirms that each measure undertaken (warning labels, smoke-free legislation, health education, advertising bans, price controls...) reinforces the effectiveness of the others. Labelling alone, even with a health warning, would likely be of limited use in absence of a comprehensive programme targeting harmful alcohol intake.

Health warnings on labels must consider the target audience, drink type, possible drinking venue and patterns of consumption. Although this endeavour presents certain methodological challenges, rotating prominent warnings, adjusted for beverage type, could ensure that relevant messages reach all consumer profiles. On the other hand, drinking guidelines or recommendations on what constitutes 'moderate consumption' must be tailored to individual risk profiles, which is mostly independent of drink type; this type of message may be more suited to a health education context rather than a product label.

In conclusion, both public health organizations and consumers worldwide strongly support enhanced labelling of alcoholic drinks, but from a public health perspective, it is imperative that consumer information be coupled with health education and other policy tools to reduce harmful drinking behaviours.

Conflicts of interest: None declared.

Key points

- Public health and consumer organizations support better labelling for alcohol, but heterogeneous recommendations reveal a lack of consensus on what elements to include.
- Consumers may benefit from labels that include a list of ingredients, nutritional information, serving size and health warnings.
- Alcohol labels stand out as a potentially effective strategy to inform all consumer risk groups about the risks of drinking, but they are insufficient (and possibly even counterproductive) in achieving health objectives unless combined with a comprehensive alcohol strategy.

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