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1. BINGE DRINKING DEFINED

Binge drinking can mean different things to different people. Previously it meant a pattern of heavy drinking that occurred in an extended period set aside for the purpose. However, it is now commonly used in describing a single drinking session intended to or actually leading to intoxication, in other words getting drunk. Sometimes it is also referred to as episodic heavy drinking, which has been defined as a drinking occasion that includes consumption of at least 60g of alcohol, although other definitions (such as 5 or more ‘standard drinks’) have also been used. The US based National Institute of Alcohol and Alcoholism (NIAAA) defines binge drinking as a pattern of drinking alcohol that brings blood alcohol concentration (BAC) to 0.8g/L or above. For the typical adult, this pattern corresponds to consuming 70g alcohol or more (male) or 56g or more (female) in about two hours. Until this is reviewed by an expert group at the European level, it is proposed to use a working definition of binge drinking of a consumption of 60g alcohol (men) and 40g alcohol (women) in a period of two hours.

People who binge drink are at increased risk of a wide range of health and social harms, but the relationship is not categorical (being at risk with binge drinking; being not at risk with no binge drinking). Instead, the risk increases with both the frequency of drinking and the amount drunk per drinking occasion.

It will be shown that one fifth of the adult EU population (80 million people) currently binge drink (defined as five or more drinks on an occasion, 50g alcohol) at least once a week and that binge drinking (defined as six drinks, 60g alcohol, on an occasion) is the average pattern of drinking for 15-16 year olds on their last drinking occasion. Thus, it is inevitable that it is difficult to separate the consequences of binge drinking from the consequences of regular heavy drinking, and it is inevitable that the policy measures that reduce harmful drinking will also reduce binge drinking. In fact, such policy measures are likely to have a greater impact in reducing binge drinking than any prevention programme specifically targeted at reducing binge drinking.

2. HARM DONE BY BINGE DRINKING

Binge drinking has consistently been associated with different forms of violence, although this association varies considerably across countries and cultures. Experimental research suggests that alcohol plays a contributing causal role in aggression. There is an overall relationship between greater alcohol use and criminal and domestic violence, with particularly strong evidence from studies of domestic and sexual violence. In general, the higher the level of alcohol consumption, the more serious is the violence. Binge drinking is most associated with being involved in violence, over and above the relationship between overall volume of alcohol consumption and aggression.
Injury is mainly linked to acute drinking and intoxication. A typical example of the relationship is shown in Figure 1 (a study of Finnish men), in which the risk of dying from an injury increases with both the frequency of drinking and the amount drunk on an occasion. Causal relationships between alcohol and almost all kinds of unintentional as well as intentional injuries, including suicide and homicide, have been established. There is a clear dose response relationship: the higher the level of blood alcohol in the body, the higher the risk for injury. It is important to note that alcohol-attributable injuries are not limited to the drinkers themselves, but to a considerable degree also affect third parties, such as children being the victims of drunk driving.

![Figure 1.: The relationship between frequency of drinking per year and the average number of drinks per drinking occasion and risk of fatal injury amongst Finnish men](image)

Alcohol has a variety of causal relations to cardiovascular disease. Both average volume of alcohol consumption and patterns of drinking determine the extent of these relationships, as well as whether alcohol has a protective or detrimental impact. Binge drinking increases the risk of strokes, ischaemic heart disease and cardiac arrhythmias.

**Prenatal exposure to alcohol** can be associated with a distinctive pattern of intellectual deficits that become apparent later in childhood, including reductions in general intellectual functioning and academic skills as well as deficits in verbal learning, spatial memory and reasoning, reaction time, balance, and other cognitive and motor skills. Although these deficits are most severe and have been documented most extensively in children with Foetal Alcohol Syndrome (FAS), children pre-natally exposed to lower levels of alcohol can exhibit similar problems in a dose dependent manner, particularly when exposed to episodic heavy drinking, without evidence of a threshold below which no harm occurs.

Younger people have greater vulnerability to alcohol than adults. Those with

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heavier consumption in their mid-teens tend to be those with heavier consumption, alcohol dependence and alcohol-related harm, including poorer mental health, poorer education outcome and increased risk of crime in early adulthood. Binge drinking by adolescents and young adults is associated with automobile crash injury and death, suicide and depression, missed classes and decreased academic performance, loss of memory, blackouts, fighting, property damage, peer criticism and broken friendships, date rape, unprotected sexual intercourse that places people at risk for sexually transmitted diseases, HIV infection and unplanned pregnancy.

3. BINGE DRINKING IN EUROPE

According to the 2006 Eurobarometer survey, 75% of EU25 citizens aged 15+ years consumed alcohol at least once during the previous 12 months, and 65% had consumed alcohol during the previous 30 days. 67% of EU15 citizens had consumed alcohol during the previous 30 days in 2006, compared with 61% in 2003. Twenty eight percent of past year drinkers (80 million people) reported that they consumed five or more drinks (50g alcohol) on one occasion at least once a week on average during the previous 12 months. Of past year drinkers, 37% of men as opposed to 18% of women had binged at least once a week, and 32% of those aged 15-24 years had done so, compared with 17% of those aged 55+ years. Of the two thirds of EU25 citizens aged 15+ years who had drunk alcohol at least once during the previous 30 days, one in ten reported that they usually had 5 or more drinks (50g alcohol) on one occasion when they consumed alcohol. The proportion of EU15 adults who normally drank five or more drinks on a drinking occasion remained the same in 2006 as in 2003 (10%). However, given that 67% of EU15 adults reported alcohol consumption within the past 30 days in 2006 compared with 61% in 2003, the actual number of EU15 adults who normally drank five or more drinks (50g alcohol) on an occasion increased by 10% between 2003 and 2006.

The average amount drunk on a single occasion by 15-16 year olds is over 60g of alcohol, and reaches nearly 40g even in the lower-consuming 15-16 year olds in southern Europe. Over 1 in 8 (13%) of 15-16 year olds have been drunk more than 20 times in their life, and more than 1 in 6 (18%) have ‘binged’ (5+ drinks on a single occasion) three or more times in the last month. Although two countries saw more drunkenness on some measures in girls than boys for the first time in 2003, boys continue to drink more and get drunk more often than girls, with little reduction in the absolute gap between them overall, Figure 2. Most countries show a rise in binge-drinking for boys from 1995/9 to 2003, and nearly all countries show this for girls. This is due

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2 Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom.
4 Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.
to a rise in binge-drinking and drunkenness across most of the EU between 1995 and 1999, with a more mixed trend between 1999 and 2003. A narrowed gap between the EU10 and EU15 is also visible for binge-drinking and drunkenness, due to both the size of the changes and a continued rise in parts of the EU10, particularly for girls. While there is no evidence that young people’s use of alcohol has increased in the last decade, it does appear that there is a trend towards increased risky use, particularly in the EU10.

Each year in the European Union, alcohol, and particularly binge drinking, is related to:

- 2,000 homicides (4 in 10 of all murders)
- 17,000 deaths from road traffic accidents (1 in 3 of all road traffic fatalities), including 10,000 deaths of people other than the drink-driver
- 27,000 accidental deaths
- 10,000 suicides (1 in 6 of all suicides)
- 16% of all child abuse / neglect
- 5-9 million children living in families adversely affected by alcohol.

Figure 2: Trends in binge-drinking in 15-16 year old students, 1995-2003 (5+ drinks on a single occasion 3+ times in last 30 days). A point above the dashed line means that binge-drinking has increased. Countries in red have seen more than a 2% increase; countries in blue have seen more than a 2% decrease. Countries in black have seen less than a 2% change.

4. REGULATING THE AVAILABILITY AND MARKETING OF ALCOHOL TO REDUCE BINGE DRINKING

Price and binge drinking

When it comes to alcohol’s affordability, in general, the way drinkers respond to changes is similar to their responses to other consumer products. When other factors are held constant, the more affordable alcohol is, the more it is consumed; and the less affordable it is, the less it is consumed. Young people are particularly sensitive to the price of alcohol. Policies that increase alcohol prices have been shown to reduce the proportion of young people who are

5 Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.
heavy drinkers, to reduce underage drinking, and to reduce per occasion binge drinking. Higher prices also delay intentions among younger teenagers to start drinking and slow progression towards drinking larger amounts. Further, special taxes for spirit based sweet pre-mixed drinks have been shown to lead to reductions in sales and consumption of the specific drinks, for example, Figure 3.

![12-17 year olds weekly alcohol consumption](image)

**Figure 3:** Impact of specific tax introduced in 2004 on spirits based alcopops on 12-17 year olds weekly consumption, Germany

Heavy drinkers are also sensitive to price, with higher alcohol taxes or prices leading to reductions in deaths from liver cirrhosis, and the consequences of binge drinking, including fatality rates from traffic crashes, and reduced rates of crime, including assault, violence related injury, homicide, family violence, and child abuse and other violence towards children.

**Availability and binge drinking**

The smaller the number of outlets for alcoholic beverages, the greater the difficulty in obtaining alcohol, a situation that is likely to deter alcohol use and problems. Recent years have seen the transformation of the night-time economy, for example, in British cities and towns with an increase in the number of licenses, and with older pubs being replaced by large branded drinking warehouses run by national or international chains. For example, in the city of Manchester, the capacity of licensed premises increased by 240% between 1998 and 2001, whilst the number of assaults reported to the police increased by 225% between 1997 and 2001.

A number of studies have indicated that although changing either hours or days of alcohol sale can redistribute the times at which many alcohol related crashes and violent events related to binge drinking take place, it does so at the cost of an overall increase in problems. Around-the-clock opening in Reykjavik, for instance, produced net increases in police work, in emergency room (ER) admissions and in drink-driving cases, Figure 4.

7 Entwicklung des Alkoholkonsums bei Jugendlichen [link]
There is also evidence that restricting days and hours of sale reduces problems. In the 1980s Sweden re-instituted Saturday closing for spirits and wine off-premise sales after studies showed that Saturday sales were associated with increased rates of domestic violence and public drunkenness, Figure 5. Some 20 years later, when Saturday opening of government alcohol stores was re-instituted, there was a 3.6% increase in alcohol sales.

Almost all countries legally restrict alcohol sales to minors. There is very strong evidence that changes in minimum drinking age laws can substantially effect youth binge drinking and alcohol-related harm, particularly road traffic accidents; however, the full benefits of a higher drinking age are only realized if the law is enforced.

**Advertising and binge drinking**

There is an increasing amount of evidence that shows that the volume of

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advertisements increases the likelihood of young people starting to drink, the amount they drink, and the amount they drink on any one occasion. These findings are similar to the impact of advertising on smoking and eating behaviour.

Amongst Belgian secondary school children, more exposure to television viewing and to music videos in 2003 were both independently associated with more alcohol consumed whilst going out in 2004.10

Amongst seventh grade South Dakota (US) school children, exposure to in-store beer displays predicted drinking onset in the next two years amongst non-drinkers, and exposure to alcohol advertisements in magazines or beer stands at sports or music events predicted greater frequency of drinking amongst drinkers two years later.11

Amongst Los Angeles (US) youth, if a 11-12 year old, compared with the average, watched 60% more alcohol advertisements on TV, one year later, they were 44% more likely to have used beer, 34% more likely to have ever used wine/liquor, and 26% more likely to have had 3 or more drinks on one occasion.12

Amongst American 15-26 year olds (who at baseline, on average, saw 23 advertisements per month, were exposed to $3.4 per adult worth of advertisements per year, and who consumed 38.5 drinks per month), 21 months after baseline, for every 4% more alcohol advertisements seen on TV, radio, billboards and in magazines at baseline, they drank 1% more drinks per month, and for every 15% more exposure in their media market on alcohol advertising, they drank 3% more drinks per month.13

5. CREATING SAFER DRINKING ENVIRONMENTS AND COMMUNITIES

Licensed drinking environments are associated with drunkenness, drink-driving and problem behaviours such as aggression and violence, with some licensed premises being associated with a disproportionate amount of harm. In terms of the effects on customer intoxication, several studies have found that training the servers of alcohol can result in lower blood alcohol levels of customers generally and fewer customers with high levels. Studies of the impact of adhering to bar policies for avoiding intoxication have also found modest effects in reducing heavy consumption and high risk drinking, but were not as successful as originally expected. The impact of responsible beverage service is greatly enhanced when there is active, but ongoing enforcement of laws prohibiting sale of alcohol to intoxicated customers. Since 1996, a multi-component program based on community mobilization, training in responsible beverage

service for servers and stricter enforcement of existing alcohol laws has been conducted in Stockholm, Sweden, leading to a 29% reduction in violent crimes in the intervention area, compared with the control area, Figure 6.

Community based prevention programmes can be effective in reducing drinking and driving, alcohol related traffic fatalities and assault injuries. Community mobilization has been used to raise awareness of problems associated with on-premise drinking, develop specific solutions to problems, and pressure bar owners to recognize that they have a responsibility to the community in terms of such bar-related issues as noise level and customer behaviour. Evaluation results from community mobilization approaches as well as documentation from grassroots projects suggest that community mobilization can be successful at reducing aggression and other problems related to binge drinking in licensed premises. Geographical analysis can be used to identify specific drinking localities and problems related to alcohol, particularly motor vehicle crashes, pedestrian injuries, and violence. This allows targeted public health and law enforcement approaches.

![Figure 6: Police-reported violence in experimental area (filled circles) and in control area (triangles)](image)

6. EDUCATING TO REDUCE BINGE DRINKING

Whilst the provision of information and persuasion to reduce binge drinking and alcohol related harm might seem appealing, particularly in relation to younger people, short term interventions are unlikely to achieve sustained behaviour change in an environment in which many competing messages are received in the form of marketing and social norms supporting drinking, and in which alcohol is readily available. Many careful systematic reviews have evaluated school based education which aimed to reduce alcohol related harm, and found that classroom based education is not an effective intervention to reduce alcohol related harm; although there is evidence of positive effects on increased knowledge about alcohol and in improved attitudes, there is no evi-

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dence for a sustained effect on behaviour. A good example of a well-designed study is the School Health and Alcohol Harm Reduction Project (SHAHRP study) from Australia, which aimed to reduce alcohol-related harm in secondary school students. The study found that the intervention group (which received eight to ten 40 to 60 minute lessons on skill-based activities to minimize harm at age 13 years, and twelve further skills-based activities delivered over 5-7 weeks at age 14 years) consumed significantly less alcohol at 8-month follow-up (31% difference), and were less likely to consume to risky levels (26% difference). However, by 17 months after the intervention, the total amount of alcohol consumed by intervention and comparison groups had lessened to a 9% difference and the difference in risky drinking to 4% Figure 7.

![Figure 7: SHAHRP study. Differences in risky drinking between control and intervention groups](image)

On the other hand, education and public information approaches can be used to inform the public about the harm done by alcohol, to mobilise public support for prevention approaches that have demonstrated effectiveness and media advocacy can also be used to support a shift in public opinion for policy changes.

**7. HEALTH CARE INTERVENTIONS AND BINGE DRINKING**

Health care-based interventions for hazardous and harmful alcohol consumption delivered in primary care and accident and emergency departments have been shown to reduce alcohol consumption, alcohol related problems, and alcohol-related mortality. The community based Malmö study, undertaken during the 1970s, demonstrated that under the right conditions, the effects can be dramatic. An intervention for heavy drinkers resulted in half the deaths that occurred in the control group without

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the intervention at six year follow-up. Although systematic reviews have suggested that primary care based interventions are not effective in specifically reducing the frequency of binge drinking, reviews have suggested that interventions based in accident and emergency departments are effective in reducing the consequences of binge drinking.

8. COST EFFECTIVE APPROACHES TO REDUCING BINGE DRINKING

Throughout Europe, there is widespread public support for a range of alcohol policy measures which would reduce binge drinking or the consequences of binge drinking, including the banning of selling and serving alcohol to people under the age of 18 years, the banning of alcohol advertising targeting young people, a lower blood alcohol level for young and novice drivers of 0.2 g/l, and the use of random police alcohol checks on EU roads17.

No cost effective analyses have been undertaken to specifically model the impact of policy measures to reduce binge drinking. On the other hand, the World Health Organization has modelled the costs and impact of five policy measures (taxation, controls on availability, advertising controls, drink driving measures, and health care based interventions) in reducing harmful alcohol use (defined as more than 40g/alcohol per day for men and more than 20g/day for women). Throughout the European Union, taxation (current tax levels with a 25% increase in tax, compared to no tax) had the greatest impact in reducing the harm done by alcohol, followed by health care interventions delivered by primary providers to 25% of the at risk population. The three regulatory measures, (taxation, restricted sales and advertising controls) were the cheapest in terms of cost to implement, with drink driving measures and health care interventions being the most expensive. Thus, in the European Union, taxation, restricted access, and advertising bans were the most cost-effective policy options in reducing harmful alcohol use, which includes binge drinking.

9. RECOMMENDATIONS

I. DEFINING AND MEASURING BINGE DRINKING

Defining and measuring binge drinking

I.1. A set of flexible but standardised definitions for binge-drinking and episodic heavy drinking needs to be prepared.

I.2. Measures of binge-drinking and drunkenness and their link to outcomes should be investigated further to determine their cross-cultural validity within Europe.

I.3. Further repeated and comparative surveys are required across Europe for binge-drinking, episodic heavy drinking, and drunkenness.

II. REGULATING THE AVAILABILITY AND MARKETING OF ALCOHOL

Price and binge drinking

II.1. Minimum tax rates for all alcoholic beverages should be increased in line with inflation; should be at least proportional to the alcoholic content of all beverages that contain alcohol; and should at least cover the external costs of alcohol as determined by an agreed and standardized methodology.

II.2. Member States should retain the flexibility to use taxes to deal with specific problems that may arise with specific alcoholic beverages, such as those that prove to be appealing to young people.

Availability and binge drinking

II.3. A minimum system of licensing for the sale of alcoholic products should be implemented throughout Europe, respecting existing licensing systems, where these are stronger.

II.4. The sales of alcoholic products to persons under the age set by domestic law, national law or eighteen years, whichever is the higher, should be prohibited and enforced.

II.5. Jurisdictions that manage outlets through number and density, location and hours and days of sale should consider not relaxing their regulations; jurisdictions without such regulations or with very limited regulations should analyze the impact of introducing or strengthening them.

II.6. A range of increasingly severe penalties against sellers and distributors, such as withdrawal of license or temporary and permanent closures, should be implemented in order to ensure compliance with relevant measures.
Advertising and binge drinking

II.7. Agreements and mechanisms should be explored to restrict or ban the marketing of alcoholic beverages at the European level, ensuring a level playing field across Europe.

II.8. Standards should be developed to reduce exposure to advertisements and to ensure that content does not influence the drinking expectancies and behaviour of young people.

II.9. Technologies and other means necessary to regulate cross-border marketing, including the internet and mobile phone use should be developed.

II.10. Countries which have a ban on certain forms of alcohol marketing should have the right to maintain such a ban.

III. CREATING SAFER DRINKING ENVIRONMENTS AND COMMUNITIES

Safer drinking environments and communities

III.1. Urban planning, community strategies, licensing regulations and restrictions, transport policies and management of the drinking and surrounding environments should work to minimize the negative effects that result from alcohol intoxication, particularly for local residents.

III.2. Effective and appropriate training should be implemented for the hospitality industry and servers of alcohol to reduce the harmful consequences of intoxication and harmful patterns of drinking.

III.3. Adequate policing and enforcement of alcohol sales and licensing laws should be implemented, targeted at premises associated with a higher level of harm.

III.4. Well-resourced community mobilization and intervention projects, involving different sectors and partners should be implemented to create safer drinking environments and to reduce binge drinking.

IV. EDUCATING TO REDUCE BINGE DRINKING

Education and binge drinking

IV.1. Educational programmes should not be implemented in isolation as an alcohol policy measure, or with the sole purpose of reducing binge drinking, but rather as a measure to reinforce awareness of the problems created by binge drinking and to prepare the ground for specific interventions and policy changes.

IV.2. Educational type programmes to reduce binge drinking imported from another country or culture should first be evaluated in the new setting before being widely implemented.
### V. HEALTH CARE INTERVENTIONS AND BINGE DRINKING

**Health care interventions and binge drinking**

| V.1. | Integrated evidence-based guidelines for brief advice to reduce harmful drinking should be developed and implemented in different settings upwardly to harmonize the quality and accessibility of care. |
| V.2. | Training and support programmes to deliver brief advice to reduce harmful drinking should be developed and implemented in different settings upwardly to harmonize the skills of health care providers. |
| V.3. | Resources should be made available to ensure the widespread availability and accessibility of identification and advice programmes to reduce harmful drinking. |

### VI. CREATING THE EVIDENCE BASE TO REDUCE BINGE DRINKING

**Evidence and knowledge to reduce binge drinking**

| VI.1. | European infrastructures should be established and financed to undertake collaborative cross country research to reduce binge drinking. |
| VI.2. | European infrastructures should be created and financed to review and disseminate all major research outcomes to reduce binge drinking, for example, registries and databases; the evidence base should be translated into easily understood policies and practices through practical toolkits and guidelines. |
| VI.3. | A European database of laws and regulations and of effective polices and programmes to reduce binge drinking at European, Member State and municipal level should be established and maintained. |
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