
IAS Factsheet

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CONTENTS

Medical problems	3
Accidents, violence and criminal behaviour	4
Effects of functioning and performance	5
Psychological problems	6
Unwanted/unsafe sexual activity	7
Other drug use	7

Alcohol consumption can have a wide range of adverse effects – medical, personal and social. These depend on both the overall amount of alcohol consumed and on the pattern of consumption.

Binge drinking - the consumption of large quantities of alcohol at a single session resulting in intoxication – is a particularly dangerous pattern of consumption.¹ The nature and severity of the problems it causes depends on how frequently it occurs and over how long a period it is maintained. The social consequences of binge drinking are also affected by the circumstances in which it takes place.

Medical Problems

Brain damage

Alcohol in large doses is neurotoxic and sustained high consumption can destroy brain cells. Studies are continuing into the effects of binge drinking in adolescence, but there is evidence to suggest that adolescent brains are particularly vulnerable to its effects. American studies that compared brain scans and cognitive tests in underage binge drinkers and nondrinkers found that the drinkers had impaired memory and reasoning skills, and their hippocampi - the brain area that handles memory and learning - were about 10 percent smaller than the non-drinkers'. It is not known if these effects are reversible.²

Alcohol Poisoning

The acute toxic effects of alcohol are generally related to blood alcohol concentrations.³

Severe intoxication causes marked muscular inco-ordination; blurred or double vision, sometimes stupor and hypothermia; occasionally hypoglycaemia (low blood sugar concentration); convulsions; depressed reflexes; respiratory depression; hypotension; coma. Death may occur from respiratory or circulatory failure or as the result of aspiration of stomach contents in the absence of a gag reflex.

The severe hypoglycaemia that can accompany alcohol intoxication, and which may result in coma, occurs more commonly in adolescents than in adults. Although adequate statistics are hard to come by, deaths from alcohol poisoning appear to occur most often when relatively inexperienced drinkers consume very large amounts of alcohol in a short time.

Blood alcohol levels of > 300-400mg% carry a high risk of death in the naïve drinker. This much can be obtained by drinking 150-200g of alcohol, equal to 6-8 pints of strong lager or 2/3 bottle of vodka

Gastrointestinal Tract

Repeated binge drinking can cause damage to the oesophagus resulting in acute haemorrhage.

Binge drinking can also cause acute gastritis, resulting in nausea and vomiting and acute pancreatitis which can result in severe abdominal pain, metabolic complications and even death.

Cardiovascular system

Any beneficial effects of alcohol consumption in regard to cardiovascular health arise from a 'little and often' drinking pattern and in any case are restricted to the middle aged and elderly. Binge drinking does not have the same protective effects, and indeed substantially increases the risks of some conditions:⁴

Effects in the longer term

A UK study⁵ found that binge drinking in adolescence was associated with increased risk of health, social, educational and economic adversity continuing into later adult life. The problems included increased risk of alcohol dependence and harmful drinking in adulthood, illicit drug use, poorer educational outcomes, criminal convictions and lower socioeconomic status.

Blood pressure

Alcohol consumption at least in excess of 3-4 units per day appears to increase blood pressure.⁶ Binge drinking can cause a surge in blood pressure not found in those consuming the same quantity spread over a longer period⁷

Strokes

Alcohol intoxication and binge drinking increase the risks of acute haemorrhagic and ischemic strokes by up to ten fold.⁸ The increased risk of haemorrhagic stroke is mediated by acute increases in blood pressure and spasm of the cerebral arteries. The increased risk of ischaemic stroke is mediated by emboli from the heart that are likely to result from cardiac arrhythmias. Subarachnoid haemorrhage particularly affects the young to middle-aged.

Heart Diseases

Alcohol intoxication diminishes myocardial contraction, which can reduce output and increase the risk of acute heart failure.⁹ Alcohol intoxication at least doubles the risk of heart arrhythmias, particularly atrial fibrillation, which can lead to heart failure and sudden death¹⁰. The increased risk of sudden cardiac death occurs in the absence of pre-existing heart disease. Studies have found that 30-60% of all cases of atrial fibrillation, with other causes excluded, are due to alcohol, particularly in younger men. One quarter of sudden cardiac deaths in young men are due to alcohol intoxication.¹¹

Cancer

Breast cancer

Alcohol is a cause of breast cancer, the increase in risk being directly proportional to the amount consumed. It is feared that the increase in binge drinking among young women will lead to a significant increase in breast cancer in the next half century. One drink a day increases a woman's risk of getting the disease by 6 per cent; drinking up to 14 units a week increases the risk by 20 per cent. Most at risk are the increasing number of young binge drinkers who have four or more drinks on a night out. Their risk of breast cancer is estimated to increase by 40 per cent.¹²

Oral cancer

Binge drinking combined with smoking is responsible for a rise in oral cancer in men and women in their twenties and thirties (ref). Tobacco, alcohol and poor diet are major risk factors for mouth cancer, and the younger people start smoking and drinking the greater the risk.*

Skeletal Muscle Damage

Binge drinking can cause acute myopathy, typical symptoms being muscle pain, usually around the hip and shoulder girdles and in the calves; muscle swelling, and progressive weakness, particularly in the legs.

Accidents, Violence and Criminal Behaviour

Alcohol affects cognitive, perceptual and motor functions and there is a causal role of alcohol intoxication for almost all types of accidents and violent behaviours.¹³

Alcohol intoxication and accidents

Consumption patterns are reflected in hospital casualty statistics and hospital emergency room data¹⁴ In emergency rooms, self-reported alcohol consumption within six hours of admission is higher for injured than uninjured attendees. 20-40% of emergency admissions are intoxicated; the night-time rate is higher at 80%.¹⁵ In general population surveys, dose-response relationships between the frequency of heavy drinking and non-fatal injuries have been observed.¹⁶

High-quantity drinking has been clearly associated with drinking and driving.¹⁷ Driving after having "had perhaps too much to drink" during the past month is 30 times more likely among survey respondents who consumed five or more drinks in a day at least once during the previous month.¹⁷ Similarly,¹⁸ drivers who had been stopped at roadside sobriety checkpoints and had a BAC above 0.5g/l reported typically consuming a larger number of drinks at one sitting and more frequent intoxication than other drivers.¹⁸ Among teenage males and females, the risk of self-reported impaired driving rises significantly with the frequency of binge drinking.¹⁹

Dose-response relationships between blood alcohol concentrations and the risk of road traffic accidents are strong. Summaries of findings from the United States show that at a blood alcohol concentration of 0.8g/l the risk of vehicular crashes increases two-fold; at 1.0g/l, seven-fold; at 1.5g/l, ten-fold; and at 2.0g/l, twenty-fold¹¹. Further, the greater the level of alcohol intoxication, the greater is the severity of the accident.

Alcohol intoxication has also been shown to be a factor in deaths from drowning, and by fire.

Violence and Crime

The prevalence of offending is substantially higher among binge drinkers than among non-binge drinkers. Young binge drinkers are almost three times more likely to report committing an offence than those who drink but do not normally get drunk, and five times more likely than non-drinkers of the same age. The differences are particularly marked for fights and other violent offences.

Effects on functioning and performance

Hangover resulting from binge drinking has been shown to have adverse effects in regard to a number of aspects of human performance:

A single episode of binge drinking has been shown to cause significant impairment of memory during hangover in healthy subjects²⁰

Physical performance of healthy subjects and athletes is significantly reduced during hangover²¹

Hangover related absenteeism and poor job performance was estimated to cost the US economy \$148 billion in 1998.²²

In the USA teenage binge drinking has been linked to impaired mental and social development, reduced school performance and attainment and increased likelihood of school drop-out.²³

Offending in the last 12 months among 18-to-24-year-olds, by binge drinking and drug use²⁴

Percentages	Drugs and binge	Drugs not binge	Binge not drugs	Not binge not drugs
Any offence in last twelve months	49	28	23	6
Violent crime	19	6	13	2
Taken part in a group fight in public place	17	5	12	2
Theft	14	14	7	2
Criminal Damage	6	1	1	>1
Base N	204	150	146	406

Notes:

- 1 Source – 1998/1999 Youth Lifestyles Survey
- 2 Drugs – any drug use in the last twelve months. Binge – those reporting getting drunk at least once a month. Not binge includes other regular drinkers and occasional/never drinkers

Consequences in the last 12 months among 18-to-24-year-olds, by binge drinking and drug use²⁴

Percentages	Drugs and binge	Drugs not binge	Binge not drugs	Not binge not drugs
In the past 12 months has during or after drinking...				
...got into a heated argument	56	31	41	15
...got into a fight	31	12	17	4
...broken, destroyed or damaged something belonging to someone else	23	6	7	2
...taken something belonging to someone else	11	1	4	1
...done any of the above	66	34	49	17
Base N (those who had drunk last 12 mths)	288	210	212	529

Notes:

- 1 Source: 1998/1999 Youth Lifestyle Survey
- 2 Drugs – any drug use in the last twelve months. Binge – those reporting getting drunk at least once a month. Not binge includes other regular drinkers and occasional drinkers

Offending among 18-24-year-olds, by binge drinking status²⁴

Percentages	Binge Other regular drinkers	Occasionally drinker	or never drinks
Any offence in the last 12 months	39	14	8
Violent crime	17	4	2
Taken part in a group fight in public place	15	3	2
Theft	11	6	3
Criminal damage	4	<1	1
Base N	355	381	181

Notes: Source; 1998/1999 Youth Lifestyles Survey

See also IAS Fact Sheets Alcohol and Crime and Alcohol-Related Crime

Psychological Problems

Binge drinking causes a higher level of psychological morbidity, particularly anxiety and neurosis, than the same amount of alcohol consumed more steadily over a longer period.

American studies have suggested that binge drinking and other forms of substance abuse during adolescence increase the likelihood of experiencing psychological problems later in life.

There is also evidence that binge drinking in adolescence increases the risk of alcohol dependence later in life.

Unwanted/unsafe sexual activity

40 per cent of 13 and 14 year olds reported being 'drunk or stoned' when they experienced first sexual intercourse²⁵

After binge drinking, one in seven 16 – 24 year olds have had unprotected sex, one in five have had sex they later regretted and one in ten have been unable to remember if they had sex the night before.²⁶

Other Drug Use

Young binge drinkers are substantially more likely than non-binge drinkers to take illegal drugs. Frequency of drunkenness is associated with taking the most commonly used illegal drugs, particularly amphetamine and cocaine.

Illicit drug use in the last 12 months among 18-24-year-olds, by binge drinking status²⁴

Percentages	Binge drinker	Other regular drinker	Occasionally/never drinks
Cannabis	55	30	21
Amphetamine	29	9	10
Ecstasy	16	6	5
Cocaine	15	6	1
Amyl nitrate	9	3	3
Magic mushrooms	8	2	1
LSD/acid	4	3	2
Crack	1	<1	0
Heroin	1	1	0
Any drug	59	33	24
Base N ²	500	546	271

Notes:

1 Source: 1998/1999 Youth Lifestyles Survey

2. The base number varied slightly for the different drug types – that shown for any drug category

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