With the exception of HIV/AIDS, these diseases are more common in middle age and beyond than in younger people. Given the worldwide increase in the proportion of the population aged 65 or above, the prevalence of such diseases in our communities will make increasingly significant demands on health-care systems. To illustrate this point further, approximately 5 per cent of the world population in 1950 were aged over 60; by 2012 this had increased to 11.11 per cent (approximately 810 million worldwide aged over 60, UN Dept of Economic and Social Affairs 2012). It is estimated that the over-60s will account for 20 per cent of the population by 2050 and, within this, those over 80 years old (the 'oldest-old') is likely to increase from 11 per cent in 1940 and 14 per cent in 2012 to 20 per cent by 2050 (United Nations Secretariat 2002). The rates of change vary across different regions of the world: for example, those over *65* has almost doubled in Australia over the past 50 years (from 10 to 20 per cent), whereas in the UK the change is less pronounced (from just over 15 per cent to 20 per cent). The implications of such statistics for health and social care services are clear, as is the need for health promotion directed at the elderly (see Chapter 7 ☛). Figure 3.1 shows the burden of ill health that can be attributed, in the EU at least, to behaviour or behaviour-related conditions. The data relate to DALYs – disability-adjusted life years – i.e. the number of years lost due to ill health or disability as well as due to early death, thus combining mortality and morbidity into one figure.

The next sections examine some of the major risk behaviours of importance in current times to those of all ages.

Smoking, drinking and illicit drug use

Smoking and alcohol consumption are leading risks for global deaths and disease (see also Lim et al, 2013), and along with illicit drug use also have significant addiction potential and social consequences.

Prevalence of smoking, drinking and illicit drug use

Globally the following behaviours contribute to a significant disease burden, including physical **morbidity** and

morbidity
costs associated with illness such as disability, injury.

age-specific mortality
typically presented as the number of deaths per 100,000, per annum, according to certain age groups: for example, comparing rates of death from cancer in 2001 between those aged 45–54 with those aged 55–64.

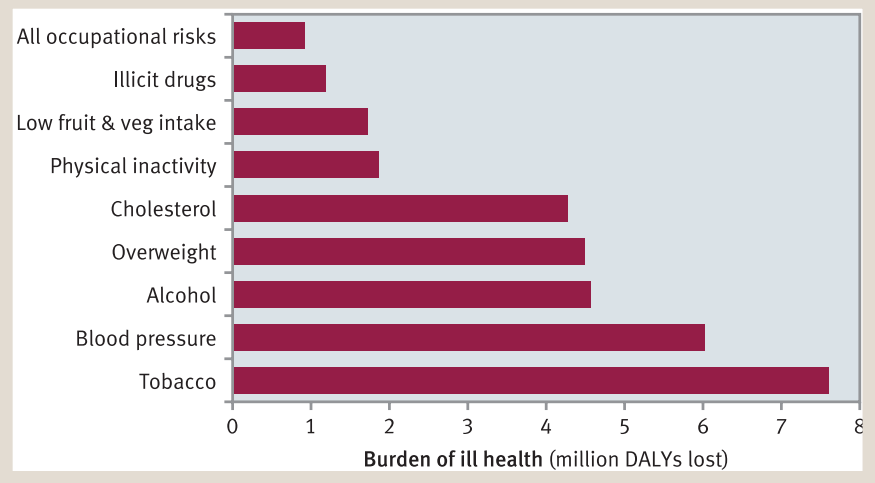

Figure 3.1 The burden of ill health that can be attributed to behaviour or behaviour-related conditions

Source: Anderson and Baumberg (2006).

death. It is perhaps not surprising that so much research attention has put them under scrutiny, and health policy has produced many guidelines and recommendations.

Smoking

After caffeine and alcohol, nicotine is the next most commonly used psychoactive drug in society today. While smoking behaviour receives a vast amount of negative publicity arising from the death toll attached to it, nicotine is a legal drug with sale of nicotine-based substances (cigarettes, e-cigarettes, cigars) providing many tobacco companies and governments with a vast income as a result of tobacco tax. Worldwide, almost 9 per cent of deaths (12 per cent of male deaths, 6 per cent of females; Global Health Risks report, 2009) are attributed to tobacco use, and as shown in Figure 3.2 tobacco creates the largest disease burden in developed countries. There have been some positive signs of a downturn in the prevalence and uptake of smoking over the past 50 years. Approximately 80 per cent of men and 40 per cent of women smoked in the UK during the 1950s, with this reducing significantly to 51 per cent of men but still 41 per cent of women by 1974 (Peto et al. 2000). Jumping forward three decades or so, 26 per cent of the English adult population (aged over 16 years) smoked in 2002 and this has reduced further to just over 20 per cent in 2012 (ONS 2012; British Heart Foundation 2012; Health and Social Care Information Centre 2013). This pattern is reflected in the related figures presented in Figures 3.2 and 3.3 where you can see both gender and age group differences. Overall, these figures meet the target of 21 per cent by 2010 set out in 2004 (Public Service Agreements 2005–2008. Available at: www.hm-treasury.gov.uk/spend_sr04_psaindex.htm).

Currently concerns are growing regarding the burgeoning use of e-cigarettes amongst the under-25s, with as yet unclear evidence regarding long-term consequences (Pisinger and DØssing 2014) (see 'In the spotlight').

In the UK, legislation came into force in 2006 which prohibited smoking in enclosed work or public places, which may have contributed towards this downturn; however, as you will read here and in Chapter 5 ☛, the likely influences are many and varied.

While, overall, this reduced prevalence has been associated with a decrease in lung cancer rates, with the incidence, for example, in England and Wales dropping between 1999 and 2009 by 15 per cent for males and 13 per cent for females, actual female deaths increased by almost 5 per cent between 2004 and 2009 (Office for National Statistics 2010). The full benefits of decreased smoking, or negative consequences of any increase, will

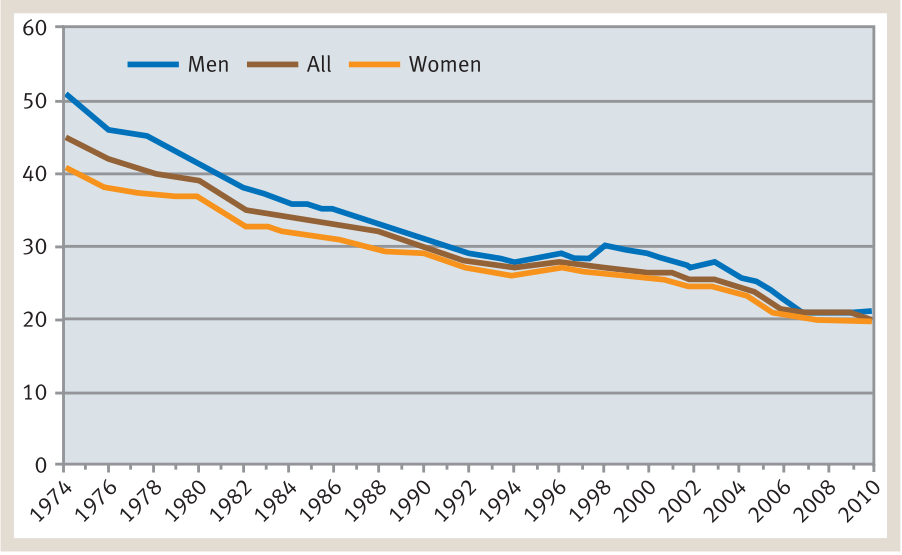

Figure 3.2 Adults smoking in Great Britain, trends for males and females 1974–2010.

1. For 1998 unweighted and weighted data are shown for comparison purposes. Weighted data are not available before this point.
2. The survey was not run in 1997/98 or 1999/00. A linear trend has been drawn between the data point before and after these years.

Source: *General Lifestyle Survey 2010*, Office for National Statistics 2012

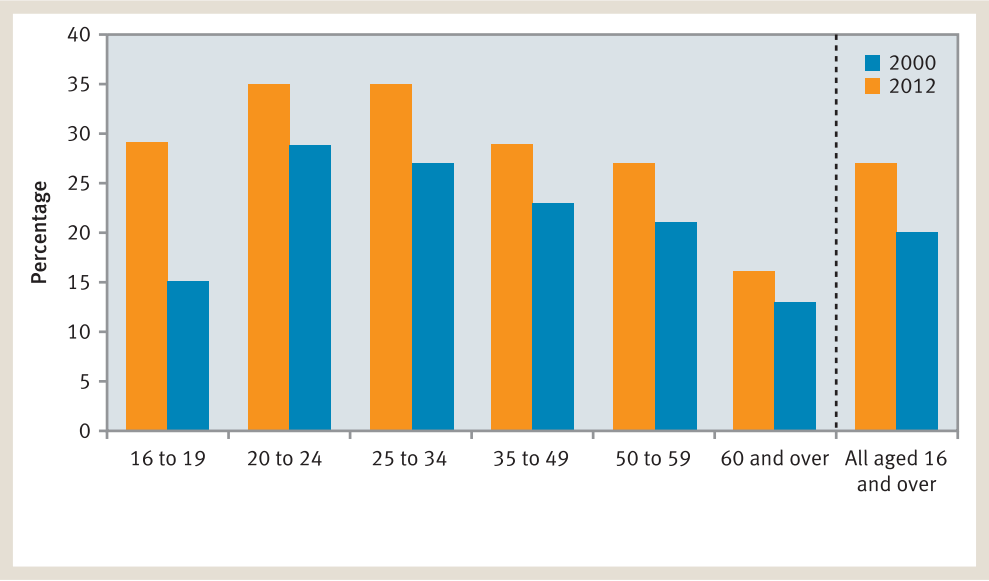

Figure 3.3 Prevalence of cigarette smoking among adults in Great Britain, by age group, 2000 and 2012

Source: *Opinions and Lifestyle Survey, Drinking Habits Amongst Adults, 2012*. Office for National Statistics (2012).

Photo 3.1 Do health warnings make a difference?

Source: Photofusion Picture Library/Libby Welch.

continue to be seen in mortality figures of future decades. The increased incidence of lung cancer among women over the past two decades is, in part, traceable to the increased prevalence of women smoking since the Second World War, and this worrying upturn looks likely to continue if recent survey figures are considered. Ethnic differences in smoking prevalence have also been reported and, whilst overall ethnic minority group figures suggest a lower smoking prevalence than among the total UK population, there are some subgroup exceptions (British Heart Foundation 2012, www.heartstats.org). In the 2004 Health Survey for England (these still remain the latest figures for ethnicity and smoking in the UK), 40 per cent of Bangladeshi men and 29 per cent of Pakistani men smoked compared to the then 24 per cent of White males. Bangladeshi men have also been found

IN THE SPOTLIGHT

Electronic cigarettes

Electronic nicotine delivery systems or e-cigarettes have been available since 2003 and are marketed as safe products which provide the sensation of smoking but without the known negative health consequences. However, do we really know yet whether this is a valid selling point? Analysis of the prevalence of use amongst young adult Americans aged 18–25 in three studies conducted over a five-year period, recorded significant increases in self-reported use of e-cigarettes in the past months – from 6 per cent in the 2009–10 study, to 19 per cent in 2010–11 to 41 per cent in the 2013 study, with particular increases amongst males in the first two studies (Ramo et al. 2015). Although, as this study showed, e-cigarettes are often used as an aid to quitting, we simply do not yet know conclusively as to whether these devices succeed in the long term or are better than alternative methods such as nicotine patches or gum (a recent meta-analysis suggests not, Grana et al. 2014).

A recent review of 76 studies (Pisinger and Døssing 2014) reports many findings of potential concern in terms of the content of the vapour (including carcinogenic compounds albeit at lower levels than tobacco cigarettes, and other chemicals and ultrafine harmful metal particles such as nickel). They also found 20 reports of adverse health effects including respiratory problems even after short-term usage, although no reliable conclusions could be drawn in that some study participants report benefits of use to cognitive function and even to breathing. Many of the reviewed studies were methodologically flawed, however, and significant conflicts of interest may be present in those studies conducted by e-cig manufacturers.

Needless to say, this behaviour requires long-term monitoring and evaluation and it may be many years before we know the full benefits (of their efficacy in smoking cessation) and risks. Whilst the health risks are likely to be significantly less than that of conventional tobacco smoking, the review authors conclude that 'Electronic cigarettes can hardly be considered harmless', particularly in those who were not previously smokers, a population which needs urgent further study before conclusions can be drawn as to whether e-cigarettes themselves act as a 'gateway' to conventional smoking behaviour. A story to watch over coming years.

to be at greater risk of coronary heart disease than other groups, and this has been attributed in part to their tendency to exercise less and smoke more than their white counterparts. In contrast, the percentage of Bangladeshi, Indian and Pakistani women smoking is significantly below the general population norm (Joint Health Surveys Unit 2005; BHF 2012). Aboriginal and Torres Strait islanders have been shown to have one of the highest prevalences of smoking recorded – with 51 per cent of these indigenous populations aged over 15 years smoking (Australian Bureau of Statistics 2005).

As well as culture, there are age differences in smoking prevalence: prevalence is highest in men aged 25 to 34 and women aged 20 to 24, with lowest levels seen, in the UK at least, in those over 60 (about 13 per cent). Amongst the more elderly, smoking was initiated before the medical evidence as to the health-damaging effects of smoking was clear and publicly available. Bratzler et al. (2002) review the evidence that smoking in the elderly increases morbidity, disability and death, thus supporting the need for health promotion efforts to target smoking cessation in older people so as to enhance their quality of life and possibly their lifespan. The health gains of smoking cessation have been well documented. For instance, the ongoing American Cancer Society Cancer Prevention Study II, which has followed over a million American adults for over 24 years so far, reports significant decreases in **age-specific mortality** rates for former smokers compared with current smokers. This benefit is present in those aged over 60, and even in those who ceased smoking aged 70–74. Although elderly groups present particular challenges to health educators, due to the consistent finding that they

age-specific mortality
the mortality rate attributed to a specific age group

attribute many health consequences of smoking to general ageing processes, and that they are often highly dependent on the behaviour (psychologically and physically), interventions that combine age-relevant risk information and support are likely to be as effective in achieving smoking cessation as similar interventions in younger populations.

Alcohol consumption

Alcohol (ethanol) is the second most widely used psychoactive substance in the world (after caffeine) and in Westernised cultures at least it is considered an integral part of many life events, such as weddings, birthdays and even funerals. Social use of alcohol is widespread.

A significant increase in both the prevalence of drinking and the amount of alcohol consumed in the 11–15 years age group was seen between 1990 and 2000 (DOH 2000a, NatCen Social Research), although encouragingly, this seems to have changed in the subsequent decade. The 2010 General Lifestyle Survey (ONS 2011) reports a decline in prevalence amongst 11–15-year-olds from 27 per cent (boys) and 26 per cent (girls) in 1996 to 13 per cent of both in 2010. Data from the NatCen Social Research (NatCen) and the National Foundation for Educational Research (NFER) who repeated a survey of over 7,000 school children aged 11–15 in 2012 on behalf of the Health and Social Care Information Centre (2013) confirm this shift. Also, encouragingly, a decrease has been recorded in the prevalence of heavy drinking amongst 16- to 24-year-olds, there does, however, remain concern about adolescent drinking in many European countries due to its association with other behaviours (see also 'Issues').

In older age groups consumption over the past two decades has been relatively stable across Western Europe, although slow declines have been seen in countries where earlier levels were higher than average – including France, Spain, and more recent declines in countries with initially lower national levels, including the UK, Finland and Ireland (OECD Health Statistics 2014). Whilst the lowest prevalence of *heavy* drinking is seen in those over 65 years old (ONS 2011), recent trend data suggests that between 1994 and 2012, consumption in excess of UK recommended daily limits (see below) in those aged 65–74 years increased from 5.3 per cent to 14.0 per cent and from 6.0 per cent to 14.8 per cent in those aged 75 years or more, with this particularly evident among women (Health and Social Care Information Centre 2013). This is causing some public health concern, given physiological changes in older people, the likely presence of comorbidities and potential interactions with other medicines (Knott et al. 2015).

Recommended levels of drinking

Different individuals respond differently to the same amount of alcohol intake, depending on factors such as body weight, food intake and metabolism, the social context in which the drinking occurs, and the individual's cognitions and expectations. It is therefore difficult to determine 'safe' levels of drinking alcohol. While the recommended guidelines on 'safe' levels of alcohol consumption vary from country to country, the UK government's current recommended limit for weekly consumption is 28 units for males, and 21 units of alcohol for females. Some guidelines also recommend one or two alcohol-free days per week. For children, the guidance recommends that remaining alcohol free until 15+ is the healthiest option (Donaldson 2009), given evidence of longer-term consequences as described below.

There is some confusion internationally as to what constitutes a 'standard' measure or 'unit'. Typically, half a pint of normal-strength lager or a standard single measure of spirit (1/6 gill) or wine of average strength (11–12 per cent alcohol) = 1 unit. But what about the strength of the alcohol? For example, a standard drink in Japan is defined by government guidelines as 19.75 g alcohol, whereas in Europe a 'standard' drink would typically contain between 8 and 14 g of pure ethanol. The European Commission refer to safe levels as being under 40 g of alcohol a day for men (about 4 standard drinks) and under 20 g per day for women (about 2 standard drinks).

Many countries have specific national guidelines regarding the 'standard unit' of alcohol (Table 3.2), and guidelines regarding maximum 'gram per day'. The 'unit' size (grams of alcohol) vary as do the recommended weekly limits for males and females. Countries who do not have national guidelines (e.g. Belgium, China, Hungary and Russia) tend to follow WHO guidelines for sensible drinking:

- Women should not drink more than two drinks a day on average
- For men, not more than three drinks a day on average

Table 3.2 International 'Standard Unit' and daily limits where specified (selected countries only, based on 2015 data)

Country(ies)	Unit of alcohol (g)	Daily limits, (ranges where multiple countries)
France, Greece, Ireland, The Netherlands, Poland, Spain	10	Men 20g–30g, women 10–20g
Canada	13.6	Men 40g, women 27g
Denmark, Germany, Italy	12	Men 24g–36g, women 12g-24g
Japan	19.75	Men 19.75g–39.5g; women no guidance
Finland	11.0	Men 18.20g; women 10g
Portugal	14	Men 28–42g, women 14g–28g
United Kingdom, Austria, Malta	8	Men 24g–32g, women 16g–24g
USA	14	Men 28g, women 14g

Source: http://www.drinkingandyou.com/site/pdf/Sensibledrinking.pdf (retrieved: November 2015).

- Try not to exceed four drinks on any one occasion
- Don't drink alcohol in some situations, such as when driving, if pregnant or in certain work situations and
- abstain from drinking at least once a week.

Illicit drug use

While about a third of UK resident individuals aged between 16 and 59 years old (British Crime Survey, Hoare and Flatley 2008) will try an illegal drug at least once in their lifetime, unlike what is seen with alcohol, very few go on to use such substances regularly. Between 3.5 and 7 per cent of the world's population will have used an illicit drug in the past year, with regular drug use tending to relate to cannabis use whereas dependent or problematic use classed as a drug abuse disorder tends to correspond to opiate use. About one-quarter of a per cent will have injected across the global population. Even cannabis, which is 'top' of the list of illicit drugs used, has a relatively low prevalence in terms of use 'in the past year' (7.6 per cent).

Amongst schoolchildren the use of Class A drugs (see Table 3.3) tends to relate to cannabis use, with a continuing downturn in prevalence reported over the past decade. In fact the prevalence in UK schoolchildren aged 11–15 years old was the lowest reported since

Table 3.3 Classification of drugs, UK

Drug	Mode of use	Classification
Amphetamines	Inject	A
Ecstacy	Oral	A
Cocaine	Sniff, inject	A
Crack	Inject, smoke	A
Heroin	Smoke, inject, sniff	A
LSD	Oral	A
Magic Mushrooms	Oral	A
Methadone	Oral	A
Amphetamines	Sniff, oral	B
Cannabis	Smoke, oral	B
Mephedrone	Sniff, inject	B
Tranquillisers	Oral, inject	B/C, depends on drug
Ketamine	Oral, sniff, inject	C
Poppers	Sniff	It is an offence for anyone other than a licensed outlet, such as a pharmacist, to supply amyl nitrite. Other types, e.g. butyl nitrite and isobutyl nitrite, are currently legal to possess and supply
Glue	Sniff	It is an offence to supply these if it is likely that the purpose is abuse
Gas	Sniff	

Source: The 1971 The Misuse of Drugs Act, HMSO, London (http://www.legislation.gov.uk/ukpga/1971/38/contents).
The 2005 Drugs Act amendements: http://www.opsi.gov.uk/acts/acts2005/ukpga_20050017_en_1

2001, with 12 per cent use in the last year, 7.5 per cent of which related to cannabis use and 3.6 per cent to volatile substance use including glue and gases. Less than 1 per cent had used any other illegal drug (Health and Social Care Information Centre 2013). This overall percentage for Class A drug usage other than cannabis is reflected in the adult population.

Negative health effects

Smoking

By 2008, smoking-attributable deaths had risen from approximately 3 million people worldwide in the late 1980s to approximately 5 million per year worldwide. It is predicted that over 1 billion people this century will die from tobacco-related causes (World Health Organization 2008). Such figures are staggering.

Tobacco products contain carcinogenic tars and carbon monoxide, which are thought to be responsible for approximately 30 per cent of cases of coronary heart disease, 70 per cent of lung cancer and 80 per cent of cases of **chronic obstructive airways disease**.

Carbon monoxide reduces circulating oxygen in the blood, which effectively reduces the amount of oxygen feeding the heart muscles; nicotine makes the heart work harder by increasing blood pressure and heart rate; and together these substances cause narrowing of the arteries and increase the likelihood of thrombosis (clot formation). Tars impair the respiratory system by congesting the lungs, and this is a major contributor to the highly prevalent chronic obstructive pulmonary disease (COPD: e.g. emphysema) (see also Chapter 8 ☛). Overall, the evidence as to the negative health effects of smoking tobacco is indisputable. Furthermore, the evidence as to the negative effects of passive smoking has grown over the past decade or so, with associations being shown between occupational exposure to smoke and significantly increased risk of developing a range of illnesses, including lung cancer and cardiovascular disease (US DHHS 2006). Passive smoking is considered to account for 25 per cent of lung cancer deaths among non-smokers. Passive smoking also carries risks to unborn babies; although many women will give up smoking during pregnancy, many do not.

Drinking alcohol

Although alcohol is commonly perceived as a stimulant, it is in fact a central nervous system depressant. Low doses cause behavioural disinhibition, while high levels of intoxication lead to a 25-fold increase in the likelihood of an accident, and extremely high doses severely affect respiratory rate, which can cause coma and even death. It is generally accepted that there is a linear relationship between the amount of alcohol consumed over time and the accumulation of alcohol-related illness, including diseases such as liver cirrhosis, liver and oesophageal cancer, stroke and epilepsy.

There is significant variation across Europe and elsewhere in terms of the volumes of alcohol consumed (World Health Organization 2002), and in the percentage of total liver cirrhosis mortality that is attributed to alcoholic liver cirrhosis. For example, between 1987 and 1995, a massive 90 per cent of Finnish male cirrhosis deaths were attributed to alcohol-related liver cirrhosis, as opposed to 56 per cent among French males, 45 per cent among UK males, and 10 per cent among Spanish males. Sadly for those of us based in the UK, in a comparison of 35 European countries, children in the UK still show the highest rates of alcohol consumption, and binge drinking (Hibell et al. 2012).

Liver cirrhosis is not the only cause of death attributed to alcohol. The European Commission estimates that 195,000 deaths across the EU each year are due to alcohol-related liver disease, accidents or violence, and in fact 1 in 4 deaths for young men aged 15–29 and 1 in 10 deaths for young women in this age range are attributed to alcohol (EC 2006). The WHO describe a selection of alcohol-related causes including: cancer of oesophagus and larynx, alcohol dependence syndrome, chronic liver disease and cirrhosis. The gradual increase in alcohol-related deaths seen in annual figures collated in the UK since the early 1990s reflects a doubling in deaths between 1991 and 2007 (ONS 2010). Males are twice as likely to die from alcohol-related causes generally defined than are females. It appears from national surveys that approximately a third of men and a quarter of women exceed national drinking guidelines.

Amongst young people, heavy or regular drinking has been associated with subsequent physical or mental

chronic obstructive airways disease
a persistent airway obstruction associated with combinations of chronic bronchitis, small airways disease, asthma and emphysema.

Photo 3.2 The increase in teenage binge drinking is of concern, particularly amongst females

Source: Alamy Limited/Ace Stock Limited.

health problems as well as being associated with behaviour problems or school performance (Viner and Taylor 2007). Rarely does a day go by in the media without reports of an association between antisocial behaviour and binge drinking. While the under-25s do tend to 'binge' drink more than older individuals, the social problems caused by drinking are by no means confined to this age group. A YouGov poll of 2,221 adults, commissioned by the British Society of Gastroenterology in 2010 and reported in the media in February 2011, points to a high degree of negative social consequences of drinking behaviour (loss of relationships, aggression, domestic violence, work absenteeism) and of personal injury: for example 27 per cent of 18–24-year-olds, and 31 per cent of 25–34-year-olds reported injuring themselves (including while driving or operating machinery) while drunk.

Also of concern is evidence of a relationship between alcohol consumption, and impaired judgements regarding (early) sexual activity and unprotected sexual intercourse (Wellings et al. 2001; Conner et al. 2008) which may result in teenage pregnancy or sexually transmitted disease (Hingson et al. 2003). Being 'drunk' is a commonly cited reason for first having sex when a teenager (e.g. Wellings et al. 2001). Apart from the risk of STDs or pregnancy, teenage substance use has the potential to create other significant long-term problems for the individual, in relation to substance use escalation and associated problem behaviours (Collado et al. 2014). Changing adolescent risk behaviour is often challenging, given the complexity of influences thereon, as we describe in the subsequent section. There is, however, some evidence that interventions which address self-esteem issues before addressing 'behaviour' problems, including under-age sex, smoking and drinking alcohol, seem to meet with greater success than those which do not (e.g. Health Development Agency Magazine 2005). (See also Chapters 6 and 7 ☛).

Amongst young adults of college or university age, drinking is primarily a social behaviour, which in excess has also been associated with poor academic performance, relationship breakdowns, unplanned and/or unprotected sexual activity. Heffernan and colleagues, speaking at the BPS annual conference in May 2014, concluded from their research that many undergraduate students drink at hazardous levels. At the same conference, Conroy reported findings that students held less favourable attitudes towards prototypical non-drinkers than protypical drinkers, including judgements that non-drinkers would be less sociable (personal communications). Such findings suggest that drinking alcohol is still 'normalised' in student culture, whereas developing more positive attitudes to healthy behaviours may well be beneficial. Drinking excessively in one context does not inevitably mean, however, that one 'progresses' to alcohol dependence or indeed to the use of other substances.

There is now also evidence that moderate alcohol consumption may be health-protective, with a J-shaped relationship found between alcohol consumption and CHD risk, i.e. abstinence confers a higher risk than moderate drinking, although not as high as risk conferred by heavy drinking (Doll et al. 1994; BHF 2012),

This surprising finding has emerged from both cross-sectional and prospective studies. It appears that light to moderate alcohol intake reduces circulating low-density lipoprotein (LDL, 'bad fat") levels (high levels are a known risk factor for CHD). If the amounts of alcohol consumed are low to moderate and the pattern of drinking does not include binges, the World Health Report states that alcohol's relationship to CHD, stroke and diabetes mellitus, is in fact a beneficial one (WHO 2002a), possibly even to reduced mortality (Klatsky 2008). There is some evidence also that moderate drinking amongst females may be more protective (of CHD) than amongst males (WHO 2002a).

Caution is advised before concluding from these reports, and from studies of non-drinkers where risk of CHD was higher than average, that not drinking conferred the increased risk. Non-drinkers may choose not to consume alcohol because they are already in poor health, or because they are members of particular religious or ethnic groups that forbid such use: these factors may hide some other 'cause' of CHD. It is safer to conclude only that heavy drinking has negative effects on health that increase in line with consumption; that moderate levels of drinking may not increase risk and may in fact be protective against CHD (although any protective effects are lost on people who smoke); and that the effects of not drinking at all need further exploration.

Continuing the theme of less negative aspects of drinking, moderate intake of red wine has been associated with reduced cardiovascular deaths, due to it being derived from red grapes which contain many different polyphenolic compounds including flavonol (e.g. German and Walzem 2000; Wollin and Jones 2001). It appears that by reducing oxidation these substances (derived from fruits, vegetables, but also from tea and ginger) protect arteries from the damaging effects of high levels of circulating serum cholesterol and can protect therefore against CHD (Engler and Engler 2006). More recently, it has been proposed that red wine polyphenols may also be beneficial by inhibiting the initiation of **carcinogenesis** due to their antioxidative or anti-inflammatory properties. Additionally, polyphenols may act as suppressing agents by inhibiting the growth of mutated cells or by inducing apoptosis, i.e. cell death. Laboratory and animal studies (e.g. Briviba et al. 2002) have shown that polyphenols isolated from red wine did in fact inhibit the growth of different colon carcinoma cells, but not breast cancer cells. Results of this nature naturally need to be carefully checked and double-checked before health recommendations follow. Individuals presenting to their GPs with health concerns around a family history of heart disease are unlikely to be told to increase their light alcohol consumption to moderate, and will probably be advised to follow a low-fat diet, yet the protection offered is similar. There does, however, remain a need for further research among human samples, with tight controls over other contributory factors. It will be some years before the evidence as to the effects of red wine drinking on people already with cancer becomes clear, whereas in relation to coronary heart disease, the evidence is of longer standing, and it would appear that moderate ingestion of alcohol, and not solely red wine, has health-protective effects.

The key term in experiencing any benefits from drinking is 'moderate ingestion of alcohol'. Heavy alcohol consumption in contrast is implicated in the above health effects and also in a range of social consequences as described.

Substance/illicit drug use

As Figure 3.1 shows, the 'burden' of disability-adjusted life years attributed to the use of **illicit drugs** is significantly less than that attributed to alcohol, smoking, or even to physical inactivity (see Chapter 4 ☛). Approximately 40 deaths per million of the population aged between 15 and 64 were attributed to illicit drug use in 2012, which was lower than in 2011 (United Nations 2014). The figures in terms of prevalence of use, as presented earlier, are small in comparison to

Carcinogenesis
the process by which normal cells become cancer cells (i.e. carcinoma).

Illicit drugs
includes illegal substances, but also legal substances that are used in ways other than intended e.g. sniffing glue, injecting valium.

alcohol or tobacco prevalence; however, the mere mention of illicit use of drugs (some legally obtained e.g. valium, some not e.g. heroin) can cause anxiety in teachers, parents, the police, the government, and in young people themselves. The statistics, however, at least for health and disease consequences perhaps do not support this.

The method of ingestion, perhaps more than the substance itself, has led people to associate some forms of drug use – injecting drug use – with serious diseases including HIV and Hepatitis C. It is estimated that, worldwide, approximately 12.7 million people (range 8.9 to 22.4 million depending on report) inject drugs, of whom approximately 13 per cent have an HIV diagnosis (range 0.9 to 4.8 million) and more than half have Hepatitis C (Aceijas and Rhodes 2007; Mathers et al. 2008; United Nations Office on Drugs Crime 2014). According to a report from the Centre for Social Justice in 2013, the UK is the 'addiction capital of Europe', in part due to increases in young people taking 'legal highs'. The health burden of addiction predominates amongst younger people, of whom 75 per cent are males (WHO 2009).

Why do people initiate potentially addictive substance use behaviours?

Smoking, drinking and substance use is generally adopted in youth. For example, the Norwegian Longitudinal Health Behaviour Study of over 1,000 participants followed from age 13 to age 30, found that smoking rates increased from 3 per cent to 31 per cent between age 13 and 18 (Tjora et al. 2011). There are a significant number of young people smoking and accumulating lung and airway damage, or drinking and promoting liver damage that will, for many, create significant health and social problems in the future. It has long been known that there is an increased risk of lung cancer in those that initiate smoking in childhood (about 66 per cent of smokers start before aged 18 years, 40 per cent before aged 16, (ONS 2012)) as opposed to in adulthood (about a third of smokers actually start smoking in early adulthood (19+ years)).

Culture and social policy are extremely important in predicting individual behaviour, including the use of alcohol, tobacco and illicit drugs. Consider, for example, Finland, where their previous strict legislation on alcohol sales and consumption was liberalised in the mid-1970s and where cirrhosis deaths showed subsequent increases in the 1980s and 1990s. In the UK the effects of the smoking ban in 2006 on smoking cessation and initiation is also being examined over time, and recent evidence of a downturn in prevalence partly ascribed to this legislative change.

As we have seen in Chapter 2 ☛, socio-economic correlates and predictors of initiating risky health behaviour exist, which some refer to as 'distal' or more 'macro' factors (e.g. Tjora et al. 2011). The reasons why generally young people start to smoke, drink alcohol, or take illicit drugs are, as with most social behaviours, many and varied, and reasons given for each of these behaviours show a significant degree of overlap, as you will see. We cover here only the key known factors:

- *Genetics*. With regards to smoking, there is some evidence of genetic factors and the reception and transport of the neurotransmitter dopamine being involved in initiation and possibly smoking maintenance, but it is unlikely that any genetic influences function in isolation (Munaf and Johnstone 2008).
- *Curiosity*. A commonly cited reason for having that first drink of alcohol, first cigarette, or first joint of cannabis is curiosity (Morrison and Plant 1991; Hecimovic et al. 2014). Wanting to know what 'it tastes like', 'how it feels', usually occurs when others have talked about the behaviour or been seen doing it.
- *Modelling, social learning and reinforcement.* Family behaviour and dynamics are important socialisation processes, with suggestions that observing such behaviour in parents increase the 'preparedness' of their children towards the behaviour by establishing positive attitudes towards it and by possibly reducing perceptions of risk (Tjora et al. 2011). Add to that the presence of smoking or drinking peers and this preparedness is more likely to turn into action. Children with peers (actual friends or even simply desired friends, elder siblings or parents who smoke or drink alcohol around them are more likely to imitate such behaviour than children not exposed to such

models (e.g. Mercken et al. 2007, 2011; Johnston et al. 2009). Siblings who engage in such behaviours are perhaps even more influential than peers, although peer effects are also fairly robust, whether through modelling, or through perceived or actual peer pressure.

- *Social pressure*. Social or peer pressure, where smoking or drinking behaviour is positively encouraged (including portrayal in the media/TV) and reinforced by the responses of significant others, has commonly been cited as a reason for initiation of health risk behaviours, reflecting either social contagion or influence that a person conforms to. Interestingly, however, Denscombe (2001) reported that young people aged 15–16 years rejected the idea of 'peer pressure' being responsible for smoking initiation, preferring to see the behaviour as something they selected to do themselves. This fits with the notion of smoking initiation being tied up with seeking reputation and status. Motives given for cannabis use often include reasons of socialisation, with or without overt pressure (e.g. Hecimovic et al. 2014).
- *Image and reputation* is important during adolescence, and wanting to 'fit' in, be seen to be sociable (for drinking behaviour perhaps more so than smoking) and have status within one's social group is considered important to social functioning (Snow and Bruce 2003; Stewart-Knox et al. 2005). Gender differences may exist here. Michell and Amos (1997), for example, found that young males were more ambivalent than females about smoking, with their 'status' in the pecking order being conferred by fitness, whereas for girls high status was attached to appearing cool and sophisticated or rebellious, and for some, this may be achieved through smoking. Low family cohesion has also been associated with higher levels of smoking and drinking among adolescents and young adults aged 12 to 22 (Bourdeaudhuij 1997; Bourdeaudhuij and van Oost 1998), and although further longitudinal evidence is required, it may be that where parental or familial relationships are weaker, peers gain a stronger influence.
- *Self concept and self-esteem.* Studies of adolescent girls have pointed to the importance of self-concept (i.e. concept of what one 'is') and self-esteem (i.e. concept of one's 'value' or 'worth') in determining involvement or non-involvement in risk behaviours. Some theorists further suggest that a significant amount of adolescent behaviour is motivated by the need to present oneself to others (primarily peers) in a way that enhances the individual's reputation, their social identity (Emler 1984). In some social groups the 'reputation' that will help the individual 'fit' with that social group will involve risk-taking behaviours (Odgers et al. 1996; Snow and Bruce 2003). Snow and Bruce (2003) found female smokers to have less self-confidence, to feel less liked by their families, and to have lower physical and social self-concepts, while their peer self-concept, i.e. what they thought their peers thought of them did not differ from that of non-smokers. Similarly, in relation to becoming pregnant as a teenager, low self-esteem and a negative self-concept may be implicated, as teenage mothers often show a history of dysfunctional relationships and social and financial strain.
- *Weight control.* Weight control has been identified as a motive for smoking initiation and maintenance more often among young girls than among young males (e.g. French et al. 1994; Crisp et al. 1999), although males are not immune from this strategy (Fulkerson and French 2003). In this American study, Native American and Asian American males cited weight control as a reason for smoking more often than males from other ethnic groups, highlighting the need to consider cultural and gender variation when examining or comparing national statistics. In contrast, alcohol is calorie dense and could contribute to weight gain and so this is not a factor cited for initiation, but could usefully be argued as a reason for cessation (see below!)
- *Risk-taking propensity.* Smoking, under-age drinking, and the first use of an illicit drug, typically cannabis, has been found to be a common feature of those engaged in a larger array of 'risk-taking' or problem behaviour, including truancy and petty theft (Johnston et al. 2009). Several disinhibitory-based traits have been associated with risk-taking in terms of substance use behaviours (e.g. Stautz and Cooper 2013, and see 'Research focus')

- *Health cognitions.* Many smokers, drinkers or substance users report expectancies of stress relief, anxiety reduction or other benefits to the behaviour. Users also often hold 'unrealistically optimistic' beliefs regarding the potential for controlling their behaviour and avoiding any negative health consequences: e.g. 'drinking will give me confidence', 'cannabis use will reduce my anxiety' or 'I won't smoke (tobacco, cannabis) as heavily as other people, so it won't affect my health' (see Chapter 5 for full coverage of health cognitions ☛).
- *Stress.* Stress is often cited as a factor which maintains both legal and illegal substance use behaviour (see below), and there is some evidence of a role for stress in smoking initiation. For example, in a longitudinal study of 2,600 Australian adolescents, Byrne and Mazanov (2003) confirmed their hypothesis that adolescent non-smokers at baseline who experienced stress in an intervening year would be more likely to become smokers than non-stressed non-smokers. Interestingly for boys, smoking uptake was only weakly associated with higher stress of attending school, but for girls smoking uptake was associated with higher stress from attending school, family conflict, parental control, and perceived educational irrelevance. These perceived stressors also distinguished those girls who started smoking from those who remained non-smokers. The National Longitudinal Study of Adolescent Health has also pointed to a role of depressive symptomatology in smoking onset (McCaffery et al. 2008).

The direction of effects of economic hardship on substance use amongst long-term unemployed has been a subject of much research, with some longitudinal studies reporting reduced smoking and alcohol consumption where finances are limited, but with most reporting the converse (see review by Henkel 2011). Low parental socio-economic status has also been positively associated with smoking initiation in their adolescent offspring (Tjora et al. 2011). Adding to the complexity of influences on alcohol use, a recent American study using the large Framingham Heart Study Offspring Cohort datasets of 1971–2008 found that unemployment affected consumption levels of women more than men, even when the unemployment was in the male spouse and not themselves (Arcaya et al. 2014).

Continuing unhealthy behaviour and developing dependency

While it has been reported (EC 2006) that 55 million adults drink at harmful levels in the EU, only a small number of people will become dependent on alcohol (perhaps one in ten). This challenges the dominant theory in this domain, which is that of a dependence model. It is not the case that all alcohol-related problems arise from situations of dependency: in fact the majority do not. In addition, the reasons for continuing to smoke, drink or take other drugs are not necessarily the same as reasons given for initiation. Patterns of the behaviour itself may change over time and thus the influences upon it may also change. Whilst some of the original reasons for a behaviour may persist, e.g. smoking or drinking for relaxation, other factors, including dependence, may emerge to maintain it. Unlike with tobacco smoking, for most people drinking alcohol does not become a daily occurrence and research has sought to distinguish individuals who maintain safe levels of drinking from those who develop problem drinking. The main aspects considered are:

- Genetics and family history: children of problem drinkers are more likely to develop problem drinking than children of non-problem drinkers (e.g. Heather and Robertson 1997). Evidence is inconclusive as parent–child drinking tendencies could also be socialised (see below), although adoptee studies support evidence of heredity to an extent.
- The pre-existence of certain psychopathology e.g. mood disorders, or personality risk factors, e.g. anxious **predisposition**, sensation-seeking or risk-taking propensities (e.g. Hittner and Swickert 2006; Khantzian 2003; Woicik et al. 2009; Zuckerman et al. 1978; Zuckerman and Kuhlman 2000), although personality's influence is not total and does change over time (Morrison 2003, and see Research focus).
- The social learning experience: social learning theory considers alcohol abuse or dependence to be a socially acquired and learned behaviour that has

predisposition
predisposing factors increase the likelihood of a person engaging in a particular behaviour, such as genetic influences on alcohol consumption.

endorphins
naturally occurring opiate-like chemicals released in the brain and spinal cord. They reduce the experience of pain and can induce feelings of relaxation or pleasure. Associated with the so-called 'runner's high'.

received reinforcement (internal or external, physical, social or emotional rewards). Addiction may result from repeatedly seeking the pleasurable effects of the substance itself or to avoid negative effects of withdrawal (e.g. Wise 1998).

For smoking, however, few people succeed in remaining casual or social smokers. The addictive potential of smoking arises from the biologically addictive properties of smoking. The active ingredient is the alkaloid nicotine, which acts as a brain stimulant, activates 'reward pathways' involving the neurotransmitter dopamine in the brain to release our natural opiates, beta-**endorphins**, thus perpetuating the need to repeatedly intake nicotine to avoid 'withdrawal' symptoms (Jarvis 2004). Physical dependence on a drug, whether legal or illegal, arises when an individual develops tolerance to its effects and therefore more consumption is required in order to attain the same effects or to avoid the withdrawal effects that follow a diminished bloodstream level of the substance. This withdrawal is manifest in both physical symptoms (e.g. cravings, insomnia, sweating, increased appetite (West 1992)) and psychological symptoms (e.g. anxiety, restlessness, irritability). In this way, drug use can become self-reinforcing as individuals seek to avoid these symptoms. Some individuals report that they relapse during an episode where they were trying to quit a substance, as a deliberate attempt to eliminate these symptoms, which are distressing not only for them but also for those around them! Resuming the behaviour then itself provides reinforcement in terms of the avoidance of any further withdrawal symptoms, thus a vicious cycle emerges.

Patterns of heavy drinking laid down in late childhood and early adulthood tend to set the pattern for heavy drinking in adulthood, and alcohol-related health problems such as liver cirrhosis tend to accumulate in middle age. It should not be assumed that heavy or problem drinking is more common in those less well educated or of lower socio-economic status, as evidence in this regard is quite mixed. The better educated have often been shown more likely to engage in various forms of risky behaviour but to be less likely to develop problem drinking (e.g. Caldwell et al. 2008). However, a recent study (Huerta and Borgonovi 2010) using a large sample of almost 10,000 individuals aged 34 years at the time of the study (all drawn from the British Cohort Study, which is a sample of all those born in a specific week in 1970) found that higher educational attainment *was* associated with increased odds of daily alcohol consumption and with problem drinking, particularly among females. However, this is a very specific cohort of those in their mid-30s and so we cannot assume from such findings that relationships do not exist at other ages, for example in teenage, or for other forms of drinking, such as binge drinking. More recently, the BHF (2012) confirmed a relationship between both drinking heavily and drinking more than recommended guidelines and a person's socio-economic status whereby males and females in the 'managerial or professional' classification engage in these behaviours more than those in either 'intermediate' or 'routine and manual' professions (see also Chapter 2, ☛). Access to alcohol by means of disposable income is an important consideration.

Among older people problem drinking has been shown to be influenced by physical health, access to social opportunities and financial status, with the affluent elderly having higher rates of drinking problems than those less well off (Health and Social Care Information Centre 2013). For some individuals, however, an increase in alcohol consumption can be attributed in part to loneliness, bereavement or physical ill health (e.g. Atkinson 1994).

In spite of clear evidence of physiological addiction to nicotine and other drugs including opiates, people who continue to use such substances typically also report psychological reasons for continuing such as:

- pleasure or enjoyment of the behaviour, and its effects reinforces positive attitudes towards it;
- 'simply a habit' (this could reflect psychological and/or physical dependence): habit formation is a crucial barrier to behaviour change (see Chapter 5 ☛);
- a form of stress self-management, a method of coping/anxiety control; stress has been associated with the maintenance of adult substance use, but little work has explored this association in adolescence, although as described above there is some evidence of stress being associated with smoking initiation.

WHAT DO YOU THINK?

http://www.hscreformseries.co.uk/community-care/18512-put-health-warnings-on-alcoholic-drinks-say-mps

On 11 August 2014, it was reported that 'Alcoholic drinks should come with written health warnings similar to those that appear on tobacco products as part of a drive to tackle a "national crisis"', according to a group of MPs. The All-Party Parliamentary Group on Alcohol Misuse said that – along with other measures including the introduction of a minimum unit price and reducing the drink-drive limit – it would help encourage responsible drinking.

Would evidence-based labelling with messages regarding potential health risks of drinking change drinking behaviour amongst your peers? If not, why not? Are such approaches to changing health behaviour effective? Has smoking shown a downturn since graphic images appeared on cigarette packaging in the UK from 2011? Think about your own behaviour and that of others around you before you go on to read Chapters 5–7.

- a lack of belief in their ability to stop the behaviour; this belief, often referred to as self-efficacy is discussed in Chapter 5 ☛.

Cox and Klinger (2004) describe a motivational model of substance use based on consistent findings that people's decisions about substance use are not necessarily rational but involve a complex range of motivational and emotional components and depend also on the rewards and incentives received from the behaviour. For example, a person considering their smoking, drinking or drug use may do so in relation to other aspects of their lives that they may or may not derive satisfaction from. Individuals without commitment to healthy life goals or the motivation to work towards attaining them are less likely to perceive their substance use as a problem and consider themselves as less able to change the behaviour.

As with smoking or regular use of alcohol, it is not the case that the use of all illicit drugs leads to dependency. One example of this is recreational Ecstacy use, which is unlikely to lead to dependence, although there are health risks attached to use. Likewise, it is not the case that all those who engage in illicit drug use turn to theft or become violent as a result. Why then is so much negative feeling attached to illicit drug using behaviour? In part this can be explained by perceptions of such drug use which are driven by one of two models – a dependence model where illicit drug users are thought to be addicted, possibly ill and out of control; or a criminal model, where they are seen as irresponsible, delinquent and even dangerous. These views have influenced how dependency has been treated and the treatments offered to those expressing a desire to stop.

Behaviour cessation

Even people who stop smoking when aged between 50 and 60 can avoid most of their subsequent risk of developing lung cancer or other smoking-related disease or disability such as Chronic Obstructive Pulmonary Disease, coronary artery disease, or stroke (Bratzler et al. 2002) and quitting at 55 can gain a male on average 5 life years (based on 50 years of follow-up of a sample of British male doctors, Doll et al. 2004). Better still, stopping when aged 30 leads to more than 90 per cent of lung cancer risk being avoided (Peto et al. 2000) and approximately 10 life years gained (Doll et al. 2004). Whilst older smokers may be less likely to try to stop smoking, there is some suggestion that they are more successful when they do (e.g. Ferguson et al. 2005).

Attempts to help people to stop smoking are generally viewed positively by the public, and in fact the majority of smokers themselves will report that they wish to stop smoking. It has been found that stopping smoking is more likely among individuals of a higher socio-economic status (dispelling expectations of significant downturns in smoking among those of lower socio-economic status caused by continual increases in cigarette prices) and is more successful in those with a higher level of education (Droomers et al. 2002). This may be directly attributable to higher levels of knowledge and understanding about potential health consequences, or it may be that quitters in higher social classes have fewer smoking acquaintances and friends than non-quitters.. Various studies have shown that smoking networks are associated with quitting to a larger degree than health beliefs, whereby not being part of a smoking network facilitates cessation (e.g. Rose et al. 1996). Barriers to cessation, including for some, a fear of weight gain (Pisinger and Jorgensen 2007; Schofield et al. 2007), are considered in Chapter 5 ☛. Chapters 6 and 7 ☛ describe interventions aimed at promoting smoking cessation.

RESEARCH FOCUS

PERSONALITY AND RISK BEHAVIOUR

Collado, A., Felton, J.W., MacPherson, L. and Lejuez, C.W. (2014) Longitudinal trajectories of sensation seeking, risk taking propensity, and impulsivity across early to middle adolescence. *Addictive Behaviors 39:1580–88.*

Hecimovic, K., Barrett, S.P., Darredea, C. and Stewart, S.H. (2014) Cannabis use motives and personality risk factors. *Addictive Behaviors*, 39: 729–732.

Hagger-Johnson, G.M. Bewick, B.M., Conner, M., O'Connor, D.B. and Shickle, D. (2011) Alcohol, conscientiousness and event-level condom use. *British Journal of Health Psychology* 16: 828–845.

Three papers caught my eye that explored the role personality played in a range of health risk behaviours: general risk behaviour in adolescence, cannabis use and condom use. In health psychology texts when presenting broad descriptions of behaviour such as in this chapter, it is quite typical to focus more on the demographic factors (age, gender, culture, etc.) and on the individual beliefs and attitudes, and forget about the underlying personality traits that potentially interact with these other factors.

In a recent study of adolescents followed annually for 5 years from early adolescence (9–13-year-olds) to age 13–18 years, the developmental trajectories of disinhibitory factors often associated with the onset of health-damaging behaviours, such as sensation-seeking, risk-taking propensity and impulsivity, were explored (Collado et al. 2014). Contrary to expectations of such factors being stable over time, interesting differences emerged: sensation-seeking scores did not change between Waves 1–2 (i.e. year 1–2) but increased between Waves 2–3, 3–4 and 4–5 in a linear fashion, with an effect of race (non-Blacks showing a greater increase), but no association with gender. In contrast, risk-taking propensity increased relatively steeply from Wave1 onwards, but levelled out between Waves 4–5, with no gender or race effects. Impulsivity, assessed only from Wave 2, did not change between Waves 2–3, or 3–4 where it peaked (aged 13–17), and then it decreased in the 5th Wave.

The authors interpret some of the differences by pointing out that where sensation-seeking is more a goal-directed construct (purposively seeking new or positive sensations and experience), impulsivity and risk-taking propensity are more related to behavioural control (or lack of!). The stabilisation of these latter characteristics may reflect age-related developments in neurologically mediated cognitive control (maturation of the prefrontal cortex, see Yurgelun-Todd 2007). What is needed now is a prospective study where actual risk behaviours are studied simultaneously over time with those disinhibitory variables, something Collado and colleagues do not do. What the findings suggest though is that, if such 'personality aspects' show a natural course of change over time, there are implications for the timings of any behaviour change interventions.

In the second study, focusing solely on cannabis users, Hecimovic and colleagues, found that different personality factors related to different *motives* for the cannabis use, i.e. the reasons given for using cannabis varied according to the extent to which the individual user scored on 4 personality 'risk' factors: sensation-seeking (SS), impulsivity (IMP), introversion/hopelessness (I/H), and anxiety sensitivity (AS). Whilst the sample studied varied in the frequency of cannabis use, all were able to report their motives for use, using a 29-item motive scale, which was then factor analysed to produce 4 Factors:

- 'Enhancement motives' i.e. to have fun; to enjoy the feeling;
- 'Expansion motives' i.e. to see things differently, to be more creative;
- 'Conformity motives' i.e. to fit in with peers, to help socialise; and
- 'Coping motives' i.e. as an escape, to forget about problems.

SS was significantly and positively associated with Expansion motives; AS was significantly and positively

associated with Conformity motives and negatively and significantly associated with the Expansion motives (with a trend also towards association with Coping motives); and I/H was significantly and positively associated with Coping motives. Impulsivity overall was not associated with any of the 4 Factors but on analysis by item, impulsivity was significantly higher in those who endorsed the motive for cannabis use as 'because it was easier to get than the drugs' i.e. suggesting an availability motive.

These findings confirm previous evidence of substance use and coping motives but highlight that this may be a stronger motive in those who are introverted or have an anxious predisposition. Impulsive individuals by definition show less specific planning of behaviour, having more erratic motives perhaps, and hence why availability may simply create the environment for yielding to temptation in those impulsive folk. Notable is that those high on anxious sensitivity also reported using cannabis to conform and perhaps reduce social anxiety. This links us to the final study selected where personality is explored in relation to a fundamentally social behaviour – sex.

In the third study selected, non-use of condoms and risk-taking in term of risk of acquiring a sexually transmitted infection or unplanned pregnancy was examined. This risk behaviour has previously been associated with excessive alcohol consumption (see earlier), particularly for first partners (Leigh 2002). The broad trait of sensation-seeking has consistently been predictive of sexual risk-taking, as has low levels of Conscientiousness (one of the 'Big Five' personality traits see Chapter 12, ☛). Hagger-Johnson and colleagues (2011) explored the association between personality, drinking, and specific sexual encounters, to examine whether personality had a direct effect on condom use behaviour or whether alcohol use mediated this effect. In other words, does any effect of personality on condom use only operate VIA an effect on drinking behaviour? They found that Conscientiousness increased the likelihood of condom use during the most recent sexual event (when recency of event and partner type (casual/main) was controlled for), and did not confirm previous associations between alcohol consumption and non-condom use. The effect of personality therefore was a direct one, with low conscientiousness being the risk factor for unprotected sex.

All of these studies have limitations, and the interested student should read each paper as listed above; however, the take home message is this: studies of risk behaviour need to consider personality as well as the wider social and narrower cognitive factors that we more commonly attend to (see Chapter 5 ☛), because:

- Our personality may not be as fixed as initially thought, with some aspects associated with risk behaviour changing over time as we develop.
- Our personality likely influences our motivations to carry out certain risk behaviours.
- Low levels of conscientiousness affect sexual risk-taking directly and not necessarily via effects on other behaviour.

Things to think about and research yourself

How might some people interpret these kinds of findings – is there any room to intervene with personality? What would you try to work on if you recognised someone as being of a highly anxious predisposition, or introverted? What, if anything, can be done to increase conscientiousness or reduce impulsivity?

Thoughts about treating dependence

Dependency problems and how those with such problems are viewed by society have changed over time. In relation to alcohol and opiate taking, perspectives have shifted from viewing dependence, as the immoral behaviour of weak individuals, unable to exert personal control over their consumption during the seventeenth–eighteenth centuries, to being the behaviour of passive victims of an evil and powerful substance in the nineteenth century. The earlier 'moral' view considered individuals as responsible for their behaviour and therefore the ethos of treatment was punishment. The latter

view considered the individual to have less control over their behaviour, and as such the prohibition of alcohol sales (as seen in the USA) was considered an appropriate societal response, and treatment was offered to those 'victims' who 'succumbed'. The medical treatment of individuals with alcohol problems reflects the beginnings of a disease concept of addiction where the drug was seen as being the problem. However, by the early twentieth century, it was clear that prohibition had failed and the model of alcoholism developed into one that placed responsibility back onto the individual. In 1960, Jellinek described alcoholism as a disease but considered both the nature of the substance and the pre-existing characteristics of the person who used it. While it became accepted that alcohol could be used by the majority without any resulting harm, a minority of individuals developed alcohol dependence, and for these individuals pre-existing genetic and psychological 'weaknesses' were acknowledged. Addiction was seen as an acquired, permanent state of being over which the individual could regain control only by means of abstinence, and treatment reflected this: for example, the self-help organisation, Alcoholics Anonymous, founded in 1935, had the primary goal of helping individuals to achieve lifelong abstinence.

However, in psychology during the early twentieth century, the growth of **behaviourism** brought with it new methods of treatment for those with addiction problems that drew from the principles of **social learning theory** and **conditioning theory**. These perspectives consider behaviour to result from learning and from the reinforcement that any behaviour receives. Excessive alcohol consumption, for example, according to these theories, can be 'unlearned' by applying behavioural principles to treatment. Such treatment would aim to identify the cues for an individual's drinking or drug use behaviour and the type of reinforcement individuals receive for it (see Chapter 6 ☛). These approaches therefore consider the individual, their behaviour and the social environment. Nowadays, at least in the UK and elsewhere in Europe, abstinence is considered as one possible treatment outcome among others, such as controlled drinking or opiate replacement therapies (e.g. methadone programmes). In controlled drinking, individuals are encouraged to restrict their consumption to certain occasions/settings/times of day, or to control the alcoholic content of drinks consumed by, for example, switching to low-alcohol alternatives (Heather and Robertson 1997).

Health promotion efforts therefore have two targets: **primary prevention** in terms of educating children about the risks of smoking, drinking or drug use and about 'safe' levels of consumption; and secondary prevention in terms of changing the behaviour of those already engaged in such behaviours. Examples of these are described in Chapters 6 and 7 ☛.

Whether influenced by personality, cognitive development, peer behavioural norms, reacting to stress or availability, and whether motivated by a desire to escape negative thoughts, emotions or situations, the prevention of initiation to illicit drug use can and should be treated in the same way as alcohol use or smoking. In terms of reducing use among regular users, however, for a minority there will be, as with alcohol, issues of physical and psychological dependence to deal with. To a large extent the treatment of alcohol dependence can be the same as the treatment for opiate dependence, at least in terms of any cognitive or motivational therapy and given the social influences thereon (see Orford 2002 for a discussion of common themes supporting 'excessive appetites'). What will differ will have been people's responses to the individuals concerned and how, perhaps, they have been treated by health and social care services. In addition, the illegality of some substance use takes the user into contact with the legal system,

behaviourism
the belief that psychology is the study of observables and therefore that behaviour, not mental processes, is central.

social learning theory
a theory that has at its core the belief that a combination of outcome expectancy and outcome value will shape subsequent behaviour. Reinforcement is an important predictor of future behaviour.

conditioning theory
the theory that behaviour is directly influenced by its consequences, positive and negative.

primary prevention
intervention aimed at changing risk factors prior to disease development.