potentially the prison system, and all the ramifications of that. It is not the purpose of this book to do anything more than to raise, for the reader, the question of societal judgement. It is worth reflecting on whether greater attention and resources could be allocated towards the significantly more prevalent and more widely harmful behaviours such as alcohol misuse and tobacco smoking.

Unprotected sexual behaviour

Unlike the other behaviours described in this chapter, sexual practices are not inherently individual behaviour but behaviour that occurs in the context of an interaction between two individuals. Sex is fundamentally 'social' behaviour (although drinking behaviour may also be considered 'social', the actual physical act of drinking is down to the individual). As such, researchers studying sexual practices and the influences upon them (see 'Research focus' for one example), and health educators attempting to promote safer sexual practices such as condom use, face particular challenges. However, it is worth persevering, given the findings of a Cochrane Review of the evidence as to the effectiveness of condom use in reducing heterosexual transmission of HIV (Weller and Davis-Beaty 2007). This review concluded that consistent use of condoms (defined as use for all acts of penetrative vaginal intercourse) led to an 80 per cent reduction in HIV incidence.

Negative health consequences of unprotected sexual intercourse

Notwithstanding unwanted pregnancy, unprotected sexual intercourse carries with it several risks: infections such as chlamydia and HIV. Sexual behaviour as a risk factor for disease has received growing attention since the 'arrival' of the human immunodeficiency virus (HIV) in the early 1980s and the recognition that AIDS affects heterosexually active populations as well as homosexual populations and injecting drug users who share their injecting equipment.

HIV prevalence

From around 8 million cases in 1990, the most recent data produced by UNAIDS, UNICEF and WHO in 2015 which refers to cases up to the end of 2014 report that approximately 36.9 million people are currently living with HIV/AIDS. There were between 2.2 and 2.8 million new cases diagnosed and between 1.5 and 1.9 million AIDS deaths in 2011 alone, which may sound high, but encouragingly both these figures are down on previous years. This downturn in deaths is attributed to antiretroviral therapies; the downturn in diagnoses is more likely attributed to changes in individual risk behaviours including condom use and reductions in needle sharing amongst injecting drug users. While 69–70 per cent of HIV cases are concentrated in Sub-Saharan Africa (with a 4.9 per cent adult prevalence compared to an average 0.2 per cent prevalence in Western and 0.1 per cent prevalence in Central Europe), there is cause for concern in Eastern European and Central Asian countries where figures have tripled since 2000, and although some of this may be due to increased openness in reporting, this upturn is also attributed to increased 'unsafe' heterosexual sex, and needle sharing in drug users. (http://www.avert.org/worldwide-hiv-aids-statistics.htm; http://www.avert.org/european-hiv-aids-statistics.htm)

In Western Europe there is reasonable consistency in population prevalence of HIV: see Table 3.4, with the southern European countries of Spain, France, Portugal and Italy having higher infection figures, attributed in large part to the prevalence of injecting drug use. (See more at: http://www.avert.org/professionals/hiv-around-world/western-central-europe-north-america/overview)

Of the reported 27,325 people diagnosed with HIV in Europe in 2014:

- 33.7 per cent acquired HIV through heterosexual contact;
- 43.9 per cent became infected through male-to-male sexual contact;
- 3.1 per cent became infected through injecting drug use;
- 0.8 per cent was via mother-to-child transmission;
- 10.6 per cent were 15 to 24 years old;
- and for 18.1 per cent, transmission was unknown.

(http://ecdc.europa.eu/en/publications/Publications/hiv-aids-surveillance-in-Europe-2014.pdf)

Table 3.4 HIV/AIDS infection figures in Western Europe

Western Europe country	N living with HIV/AIDS 2014	Women N 2014	Adult prevalence % 2014	N AIDS-related deaths in 2014
Austria	8,400	2,000	0.1	29
Belgium	27,900	10,000	0.2	33
Denmark	6,800	1,900	0.1	0
Finland	3,400	900	0.1	N/A
France	65,900	23,500	0.1	70
Germany	53,800	10,300	0.1	60
Greece	14,400	2,500	0.2	44
Iceland	400	100	0.2	0
Ireland	7,300	2,200	0.2	0
Israel	8,500	2,800	0.1	26
Italy	33,300	8,100	0.1	N/A
Luxembourg	1,300	350	0.2	1
Malta	300	70	0.1	1
Netherlands	23,000	4,600	0.1	65
Norway	5,600	1,800	0.1	3
Portugal	52,700	14,600	0.5	126
Spain	34,700	6,500	0.1	143
Sweden	11,100	3,600	0.1	N/A
Switzerland	34,500	10,000	0.4	4
United Kingdom	139,800	42,300	0.2	131

Source: HIV/AIDS Surveillance in Europe, http://ecdc.europa.eu/en/publications/Publications/hiv-aids-surveillance-in-Europe-2014.pdf

In many countries, unprotected heterosexual sex has to a large extent taken over from homosexual sex and injecting drug use (IDU) as a route of infection, initially appearing to add weight to research findings of behaviour change among homosexual men (Katz 1997) and offering support to the effectiveness of syringe-exchange schemes for injecting drug users in some countries. Although needle sharing still occurs, in the UK diagnoses of HIV among IDUs have shown a steady decline over the past 30 years. In contrast, male homosexually acquired infection has increased gradually year on year since 2003, providing support for findings of an upturn in the practice of unprotected anal sex (e.g. Chen et al. 2002; Dodds and Mercey 2002). Part of this downturn in the practice of safer sex may be attributable to the fact that people consider AIDS a disease for which there are a growing number of treatments, and thus the perceived lethality of the disease, and the implicit requirement to practise safer sex, may have been undermined. Additionally, individuals' perceptions of their personal risk may be wrong.

Heterosexual infection has greater implications for women (as the 'receptors' of semen during sexual inter-course) than men, and in the USA this is evidenced in increased female HIV figures (e.g. Wortley and Fleming 1997; Logan et al. 2002). The prevalence of HIV infection in pregnant women is relatively low in Europe, but monitoring has found cases to have risen, suggesting an urgent need for development of further antenatal screening services.

Chlamydia, HPV and other sexually transmitted diseases

HIV infection is of course not the only STI that can result from unprotected sexual intercourse. There has been a significant increase in the prevalence of other sexually transmitted diseases or infections (STD/STIs) including chlamydia, genital herpes simplex and genital warts, most common among adolescents and young adults. Chlamydia is a curable disease and is also the most preventable cause of infertility: however, cases have doubled in the UK since 1999 (http://www.avert.org/stds-uk.htm). In contrast, new cases of gonorrhoea have shown a decline since peaking in 2002, and now show highest prevalence amongst males aged 19–24,

Photo 3.3 Education is needed about the health risks of the sun

Source: V. Morrison

females aged 16–19, black ethnic populations and homosexual males. Genital herpes hit a peak in 2008, with highest rates interestingly in males between 35 and 64 years old and females aged 16–24. New diagnoses of genital warts have tripled, and this most common STD in the UK was seen in over 92,000 cases in 2008 alone. Some of this increase may be due to increased uptake of screening checks offered in UK genito-urinary medicine (GUM) centres, and being tested may have become more normalised.

In terms of chlamydia, one UK national screening survey of prevalence in young people found that 13.8 per cent of those under 16 years old, 10.5 per cent of those aged 16–19 and 7.2 per cent of those aged 20–24 had this infection (Moens et al. 2003). Another large survey of sexual behaviour among 11,161 adults aged 16–44 urine-tested half of the sample and found that 10.8 per cent of men and 12.6 per cent of women had had a sexually transmitted infection, 3.6 per cent of men and 4.1 per cent of women had had genital warts, and 1.4 per cent of men and 3.1 per cent of women had chlamydia (Fenton et al. 2001). These are worrying figures, given that chlamydia could be avoided through the use of condoms.

A subgroup of a family of viruses known collectively as Human Papilloma Virus (HPV) have been associated with abnormal tissue and cell growth implicated in the development of genital warts and cervical cancer. The high-risk type viruses labelled HPV-16 and HPV-18 together cause over 70 per cent of squamous cell cancers (cancer develops in flat-type cells found on the outer surface of the cervix), and approximately 50 per cent of adenocarcinomas (the cancer develops in the glandular cells which line the cervix). About 95 per cent of cervical cancers are squamous cell type and about 5 per cent are adenocarcinomas. There are also low-risk type HPV viruses which are associated with the development of genital warts, which do not cause cervical cancer in themselves but which are a sexually transmitted infection which cause significant discomfort. HPV is not contagious as such, but can be transmitted from a single act of sexual intercourse with an infected person.

While condom use reduces the risk of infection, HPV 'lives' on the whole genital area and therefore a condom alone is insufficient to prevent transmission. HPV is startlingly prevalent and therefore the discovery of a vaccination against those types of HPV which cause 70

per cent of cervical cancers (but not genital warts) has been billed as a major public health discovery. This is discussed in Chapter 4 ☞.

It is likely that we will see a flurry of research into the predictors of uptake and non-uptake of vaccination and, therefore, from a health psychology perspective, this is quite an exciting time. Chapter 5 ☞ outlines key psychological factors and sociocognitive models of health behaviour and these models are likely to be tested in relation to HPV.

The use of condoms

Prior to HIV and AIDS, sexual behaviour was generally considered to be 'private' behaviour and somewhat under-researched (with the exception of clinical studies of individuals experiencing sexual difficulties). The lack of information as to the sexual practices of the general population made it initially extremely difficult to assess the potential for the spread of HIV infection. One notable survey that was triggered by this need for information was the National Survey of Sexual Attitudes and Lifestyles, conducted with nearly 19,000 adults (aged 16–59) living in Britain in 1990–91 (Wellings et al. 1994). It was found that:

- Young people use condoms more commonly than older people.

- Females tend to use condoms less often than males.

- Condom use is greatest with a 'new' sexual partner (34 and 41 per cent of males and females, respectively, used condoms on all occasions of sex with a single new partner).

- Condom use declined dramatically in those who reported having had multiple new partners.

- The rate of condom use was lowest in males who had multiple partners who were not new (only 5.7 per cent always used a condom).

- Female condom use was less affected by whether multiple partners were 'new' to them or not (14.3 per cent always used a condom with not new multiple partners).

This survey was repeated in 2001 with over 11,000 men and women aged 16–44 years and with a deliberate intention of boosting the cultural mix of the sample which also over-represented London (NATSAL II;

Erens et al. 2003). Non-white ethnicity and being of a non-Christian religion was also found to be associated with greater condom use, highlighting the importance of ensuring representation across differing cultural and religious groupings. Although not in fact as representative as the first survey, results regarding any use of condoms in the year prior to interview were encouraging (Cassell et al. 2006). A significant increase was reported in both males (from 43.3 per cent in 1990 to 51.4 per cent in 2000) and females (from 30.6 per cent in 1990 to 39.1 per cent in 2000). In both of these, and in subsequent national surveys (ONS 2010), condom use is highest among younger respondents (e.g. 18–24-year-olds) and for those for whom the last sexual partner was 'new'. One important finding is the rate of condom use among those with multiple partners – those 'high-risk' individuals are consistently more likely to report condom use. Among the heterosexual sample of Cassell's study, the prevention of pregnancy was given as the primary reason for condom use, although in those aged 16–24-years prevention of HIV and other STIs was of equal or greater concern. This may reflect increased awareness of HIV and sexual health in the decade between the two surveys, and provide support to those offering health education and health promotion (see Chapters 6 and 7 ☞).

Safer sex practices were not influenced solely by concerns about STIs but also by the type, number and length of sexually active relationships a person is engaged in. Condom use commonly begins to decline after six months within any given relationship. Many other factors have been reported to act as barriers against safer sex behaviour, as we describe in the next section (see also Chapter 5 ☞).

Barriers to condom use

Alcohol intake has been found to reduce condom use in both younger and older individuals, heterosexuals and homosexuals, an effect sometimes attributed to the disinhibitory effects of alcohol, as discussed earlier in the chapter. However, alcohol use may simply reflect a propensity towards general risk-taking behaviour which includes the non-use of condoms and so alcohol itself may not play a direct causal role but reflect underlying personality (see earlier 'Research focus').

ISSUES

The challenge of measuring health behaviour

The research tradition assumes that the objects of study, e.g. health, illness, or in the context of this chapter, behaviour, remain as fixed entities in people's minds. However, without a researcher actually being present and observing the individual behaving over long periods of time, it is difficult to know whether what a person reports to the researcher (or clinician) accurately reflects their actual behaviour. Obtaining valid measures of behaviour is made increasingly difficult when one is interested in behaviour that is perhaps considered 'undesirable' (e.g. excessive alcohol or drug use), or when it is private (e.g. sexual behaviour). Researchers also face the challenge of knowing how best to define the behaviours under study, and yet it is only through appropriate definition that measurement becomes possible. For example, rather than defining exercise in terms of organised activity, it could be defined as any physical activity that requires energy expenditure; or in terms of drinking alcohol, whether a 'drink' is defined and counted in terms of standard 'units' (see alcohol section), or size of glass, or strength of alcohol. The definition adopted will influence the questions asked and, furthermore, questions need to address not just the type of behaviour performed but also aspects such as the frequency, duration, intensity, and even social context in which it is performed.

Where direct observation and/or objective measurement (for example, taking blood or urine samples) are not possible, researchers have to rely on *self-report*. When studies are interested in the frequency with which certain behaviour is performed, it is commonplace to ask study participants to complete a diary, for example, of cigarettes/alcohol/foods consumed or activities undertaken. Participants in such studies are generally required to either record the relevant activity daily for a period of a week (any longer places high demand on participants), or to reflect back on the previous week's activity (a retrospective diary – RD). The latter has obvious memory demands – could you accurately recall how many units of alcohol you drank seven days ago? While there is no evidence of a systematic bias towards overestimation or underestimation (Maisto and Connors 1992; Shakeshaft et al. 1999), some studies attempt to cross-validate behavioural self-reports by obtaining observer ratings or blood samples. However, observation is not always ethical, and biochemical tests are intrusive and costly. Other studies rely on asking participants about their 'typical or average' behaviour: for example, they report the typical amount of alcohol consumed (quantity), and the 'typical or average' number of days on which they consume alcohol (frequency) (e.g. Norman et al. 1998). This method known as a quantity/frequency index (QFI) may, however, provide over-general information. Shakeshaft and colleagues (1999) compared an RD method with a QFI, and found that the RD method elicited higher reported levels of weekly alcohol consumption than did the QFI. In fact, neither way may be totally accurate.

One way of minimising inaccuracies in reporting is by using continuous *self-monitoring techniques*, such as alcohol or food consumption diaries, with short recording periods, e.g. hourly. This can be a useful method of establishing patterns of behaviour and the circumstances in which they occur. For example, food diaries commonly instruct the person completing them to note not only the time at which each meal or snack is consumed but also the location, whether anyone else was present, whether any particular 'cue' existed and the reasons for consumption. Some studies invite the person to note also whether they are currently experiencing positive or negative emotions. A potential limitation of self-monitoring is that it can be reactive: in other words, it acts as an intervention itself, with participants modifying their consumption on the basis of their increased awareness of their intake. Behaviour that is seen as undesirable is likely to decrease while being monitored, whereas desirable behaviour is likely to increase. This may be useful in a clinical context, where the intention of self-monitoring *is* behaviour change, but in a research context it may be obstructive: for example, it may prevent researchers from obtaining reliable baseline measurement of behaviour against which to evaluate the efficacy of an intervention programme. Reliance on self-monitoring data can

also create problems clinically: for example, Warren and Hixenbaugh (1998) reviewed evidence that people with diabetes make up their self-monitored blood glucose levels and found that, in some studies, individuals did so in order to present a more positive clinical profile to their medical practitioner (i.e. self-presentation bias/social desirability bias). This behaviour could potentially disadvantage treatment efficacy or disease management and outcomes.

Self-monitoring techniques are not the only data-collection technique which could potentially elicit self-presentation bias, as there is evidence that collecting data via *face-to-face interviews* can also elicit reporting bias. Face-to-face interviews enable researchers to seek more explanation for a person's behaviour by using open-ended questions such as 'Think back to your first under-age drink of alcohol. What would you say motivated it? How did you feel afterwards?' Interviews also facilitate the building of rapport with participants, which may be particularly important if the study requires participants to attend follow-up interviews or complete repeated assessments. Rapport may increase commitment to the study and improve retention rates; however, the interview process, content and style may also influence participants' responses. Some people may simply not report their 'risk

behaviour' practices (e.g. illicit drug use, unprotected sexual intercourse) or lack of preventive behaviour practices (e.g. toothbrushing, exercising) in the belief they will be judged to be 'deviant', in poor health, or simply as being careless with their health (e.g. Davies and Baker 1987). Impression management is common: i.e. people monitor and control (actively construct) what they say in order to give particular impressions of themselves (or to achieve certain effects) to particular audiences (Allport 1920 first noted this in the domain of social psychology).

So how can you tell whether health behaviour data that are collected provide a true representation of behaviour or simply the outcome of self-presentational processes? It is probably best to assume that they are a bit of both, and when reading statistics regarding the prevalence of particular behaviour, stop to consider the methods used in generating the data and ask yourself what biases, if any, may be present.

> **social desirability bias**
> the tendency to answer questions about oneself or one's behaviour in a way that is thought likely to meet with social (or interviewer) approval.

In terms of women and HIV prevention, many interpersonal, intrapersonal, cultural and contextual factors have been shown to interact and affect whether or not the woman feels able to control the use of condoms in sexual encounters (e.g. Bury et al. 1992; Sanderson and Jemmot 1996). In general, surveys of condom use among young women have found that while females share some of the negative attitudes towards condom use found among male samples (such as that condoms reduce spontaneity of behaviour or reduce sexual pleasure), and that they also tend to hold unrealistically optimistic estimates of personal risk of infection with STDs or HIV, women face additional barriers when considering condom use (Hobfoll et al. 1994; Bryan et al. 1996, 1997). These can include:

- anticipated male objection to a female suggesting condom use (denial of their pleasure);
- difficulty/embarrassment in raising the issue of condom use with a male partner;

- worry that suggesting use to a potential partner implies that either themselves or the partner is HIV-positive or has another STD;
- lack of self-efficacy or mastery in condom use.

These factors are not simply about the individual's own health beliefs and behavioural intentions regarding avoiding pregnancy, STDs or AIDS; they also highlight that sexual behaviour is a complex interpersonal interaction. Safer sexual behaviour perhaps requires multiple-level interventions that target not only individual health beliefs (such as those described in Chapter 5 ☞) but also their interpersonal, communication and negotiating skills (see Chapters 6 and 7 ☞). Individual behaviour, where positively or negatively associated with health, can be a sensitive issue, with some people preferring to keep their practices and motivations to themselves. This can create many challenges for those interested in measuring health or risk behaviour with a