The use of psychoactive substances by humans is evident from ancient times, with opium use in the Sumerian civilisation dated around 5000 BC and the first brewing of alcohol attributed to the Egyptians around 3500 BC. The Old Testament makes reference to seeking escapism: “Give beer to those who are perishing, wine to those who are in anguish; let them drink and forget their poverty and remember their misery no more” (Proverbs 31:6–7). Despite the relatively recent introduction of prohibition and legal controls, the harms associated with psychoactive substance use remain in modern society.

Legal classification

The legal classification and associated penalties for supply and possession of selected psychoactive substances in the UK, as specified by the Misuse of Drugs Act, are described in Box 1 (p348). Classification is based on the potential for harm, with class A substances representing the greatest risk.

However, the evidence base underpinning the classification has been questioned. An independent classification of various psychoactive substances using a scale based on the potential for physical harm, dependence and social harm was undertaken by researchers in 2007, with the help of experts in addictive drug use. The authors agreed (with the Act) that diamorphine (heroin) and cocaine represented the greatest level of harm. However, alcohol and tobacco, substances not controlled by the Act, were deemed more harmful than many substances that were, such as cannabis, lysergic acid diethylamide (LSD) and 3,4-methylenedioxy-methamphetamine (MDMA, “ecstasy”).

Prevalence of use and dependence

Alcohol is the most commonly used psychoactive drug in the UK. The 2005 Household Survey, conducted by the Office of National Statistics, reported that 72% of men and 57% of women had drunk an alcoholic beverage at least once during the previous week.

Heavy drinking, classed as more than eight units for men and six units for women on at least one day during the previous week, was reported by 19% of men and 8% of women. In 2007, there were 8,724 alcohol-related deaths in England; two-thirds of these fatalities were men — those
behaviours associated with dependence, such as stealing a priority, this leads to many of the stereotypical activities and functions. As drug-seeking activity becomes more important than normal control. The individual’s need to obtain and use an illicit drug use and the quantities used can escalate out of control. As dependence becomes more severe, frequency of drug use and the quantities used can escalate out of control. The individual’s need to obtain and use an illicit substance often becomes more important than normal activities and functions. As drug-seeking activity becomes a priority, this leads to many of the stereotypical behaviours associated with dependence, such as stealing and severe anxiety (sometimes induced by withdrawal symptoms). Family members often describe the person as being “taken over” by the substance and its continued use.

Drug users will balance the apparent benefits of use against any actual or potential harm they have experienced. Therefore, for example, a significant life event or near-death experience can motivate a change in drug-taking behaviour. A “cycle of change” theory has proven useful for aiding the cessation of illicit drug use, as well as nicotine addiction. The cycle suggests that dependence can be a chronic, relapsing condition, interspersed with periods of abstinence or controlled use. Past history of dependence is known to increase the risk of future dependence, due to greater sensitivity of individuals’ neurobiological reward pathways.

Although the incidence of illicit drug dependence is not limited to any particular social demographic, it tends to be greater in areas of social deprivation. It is also more likely in individuals whose family lives are disruptive, in those with traumatic personal histories, and in men. Dependence on several illicit drugs often occurs in chronic cases, for instance heroin and cocaine/crack cocaine. Alcohol dependence is also common among illicit drug users.

The risk of dependence is influenced by three main factors:

- The substance — ie, its pharmacology and effects
- The individual — eg, personal and genetic characteristics, perceived benefits versus risks, desire for escapism
- The environment — the availability of social networks, the level of deprivation, acceptability and availability of illicit drugs

Even for substances with which there is a high likelihood of dependence, an individual’s characteristics and his or her domestic and social environment has a crucial influence on whether dependence develops.

Types of dependence

### Physical

Physical dependence occurs when prolonged, chronic exposure to a substance causes neuroadaptation (changes in neurons in response to their environment). Abrupt cessation of its use induces symptoms akin to severe influenza, such as shaking, sweating, bone pain, stomach cramps, vomiting, agitation and anxiety. This results in the user developing a constant need to receive the substance — often in gradually increasing amounts as tolerance develops.

### Psychological

Psychological dependence occurs when the “learnt rewards” from repeated administration become relied upon as a coping mechanism or for the user to feel behaviourally or psychologically normal. Psychological...
Mechanism of action

Box 2 summarises the pharmacological action of some of the more commonly misused substances.

Most psychoactive substances exert their effects by increasing dopamine levels in the ventral tegmental area of the brain. This generates pleasurable, rewarding feelings—similar to those experienced after sex or eating chocolate. Different substances do this to varying intensities depending on the neurological pathways involved.

The extent of euphoria experienced depends on the rate of dopamine release, which is affected by the route of administration. For example, injecting heroin causes an intense dopamine release (therefore euphoria) whereas drinking alcohol produces a more gradual release.

Harms

Harm attributed to substance misuse can be classed in terms of:

- Physical and mental effects on health
- Social harms — ie, impact on communities (eg, level of drug-related crime) and society (eg, costs to the health, social care and criminal justice systems)

Physical and mental effects

Physical health risks can vary. The pharmacological action of opiates makes constipation a likely effect of long-term use. Sedation and “clouded-thinking” are also common. The risks vary with routes of administration and can increase in the presence of other factors that are a consequence of dependence (eg, poor self care, malnutrition, social exclusion). Long-term depression is a known consequence of dependence.

Cocaine stimulates the cardiovascular system, which increases the user’s risk of arrhythmias and sudden death. Mental health problems, including anxiety, paranoia and psychosis, are risks associated especially with long-term and heavy use of cocaine (some individuals are particularly susceptible).

Cannabis use is associated with psychosis, especially when stronger forms of the drug (eg, “skunk”) are used. Factors underpinning a predisposition to such psychiatric effects are not fully understood and a causal relationship has not been confirmed.

Social harms

According to the Home Office, in the UK each year around £15.4bn in criminal justice and healthcare costs can be attributed to class A drug use; 99% of this amount is due to dependent users. It also estimates that between a third and a half of acquisitive crime is drug-related. While this impacts on society as a whole, the consequences of crime have particular impact within local communities (where people can feel unsafe, vulnerable and threatened). Offenders who are caught are likely to experience reduced employability and social functioning long term.

Social exclusion of drug users results in lack of engagement in healthcare, social care, education, and a constructive or meaningful occupation. The resulting poverty, stress and depression can have a negative, spiralling impact on individuals and their families.

Fortunately, the evidence base for providing treatment (see accompanying article, p351) to individuals is well established and best practice guidelines are clear and supportive for practitioners.

Risks from injecting

Injection of illicit drugs is associated with the greatest harm. Because injecting bypasses the body’s physical defence mechanisms, there is increased risk of bacterial and fungal infection (eg, abscesses, endocarditis, septicaemia). The risk of overdose is also greater with injected drugs, especially heroin and cocaine.

In addition, sharing injection equipment and paraphernalia is associated with transmission of blood-borne viruses such as HIV and hepatitis C. The current level of provision of needle exchange services and opiate substitution therapy is not adequate to maximise the benefits of such interventions.

Transmission of HIV through sexual contact, from injectors to non-injectors, is a further public health concern. Since some dependent people (usually women) engage in prostitution to fund their drug habits, they may have many non-injecting sexual partners.

Hepatitis C is believed to have infected 120,000–300,000 people in England and Wales (and an estimated 50,000 in Scotland), most of whom are thought to have acquired the virus through illicit drug injection. (The virus has a low risk of sexual transmission.) The potential future health cost of treating these infections is likely to be huge, so any strategies to prevent the spread of hepatitis C are particularly favourable in terms of cost effectiveness.

References