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PERSPECTIVES IN PSYCHOLOGY: SUBSTANCE USE

Prepared by the Australian Psychological Society's Working Group on Substance Use

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Introduction

The use of psychoactive substances, in the form of alcohol and other drugs (AOD), is a common human behaviour. The vast majority of adults include some form of substance use in their lifestyle. There is, however, tremendous variation in the amount and type of substances that different individuals and groups consume at different times. Harmful substance use can have a major negative impact on the wellbeing of individuals, families and communities, and is a growing concern in Australia and internationally. There is considerable controversy regarding appropriate responses to harmful substance use at all levels: individual, family, community, national and international.

As a profession and science, psychology has much to offer in terms of theory, research and practice in the AOD field. Psychological training provides many skills that provide valuable contributions to the AOD field in terms of prevention and treatment interventions, education, research and policy, and psychologists need to be encouraged to apply their knowledge in this area. Despite the obvious biological action of psychoactive substances, current evidence indicates that standard behavioural principles and processes still apply to AOD problems. Substance use occurs within a social, cultural and psychological context, and harmful substance use frequently occurs within a broader cluster of psychological problems. The interventions most strongly supported by outcome research recognise this complexity and are fundamentally psycho-social in nature; research further suggests that even where pharmacological interventions are recommended, such as the use of substitution therapies, the efficacy of these interventions is enhanced by the use of concurrent psycho-social interventions.

Many psychologists practice and research directly in the AOD field, while for others, substance use issues are highly relevant to their practice or research. In the APS (2002) discussion paper, *Psychology and Substance Use: Potential Contributions and Professional Training Needs*, all psychologists were recommended to have adequate knowledge and skills in this area, because of the widespread, normative nature of substance use, its substantial impact on human behaviour and wellbeing, and its prevalence in clinical settings.

This paper aims to briefly outline current knowledge regarding substance use from a psychological perspective. It is hoped that this will highlight the contributions of psychology to the AOD field, and encourage further application of psychological science in research, practice and comment in the field of AOD issues.

Please note that the AOD field is extremely dynamic in terms of research activity and the development of prevention and treatment programs and practice. This paper provides an overview of some of the major issues as informed by research reviewed at the time of publication in April 2005. The paper does not aim to comprehensively cover the field and it must be emphasised that new information is emerging daily.

Background

Substance use and AOD experiences can only be fully understood by recognising the contributions of the drug itself, the individual who takes the substance, and the context in which the substance is taken. The social, cultural and even historical contexts in which a substance is taken can significantly affect both the drug experience and consequences of use for any one person or group of people.

"Substance use is fundamentally a social act—we obtain, consume, and construct the experience of using alcohol or other drugs in relation to others. The rituals associated with the consumption of alcohol and other drugs are an important part of creating meaning in relation to this behaviour" (Keenan, 2004, p.65). The media, cultural and religious practices, workplaces, families and friends, as well as the legal and health care systems, are all part of the spectrum of influences creating our beliefs and actions associated with substance use. Discussion and debate on AOD use should not focus solely on substances and individual users, but must also consider valuable information and knowledge regarding the context in which substances are used (Keenan, 2004).

Brief history of substance use and its regulation

Substance use is not a new phenomenon. Throughout history, psychoactive substances have been commonly used for a variety of purposes, from medicines to important components of rituals and ceremonies (see Lang, 2004). For example:

- the consumption of alcohol dates back at least 8000 years;
- tobacco has been used for thousands of years;
- opium use was evident in Mesopotamia at least 7000 years ago;
- cannabis has been known by many names in many languages over the course of human history;
- hallucinogenic mushrooms are referred to in ancient Hindu texts and there is archaeological evidence dating back to at least 7500 BC of the use of a hallucinogen derived from cactus; and
- a wealth of evidence shows that drunkenness, and associated public disorder, has been widespread throughout history.

Substance use has always been and continues to be a part of ordinary human behaviour.

The history of substance use shows how different types of substances have spread throughout the world and how usage trends have changed over time. Many substances were originally introduced to communities as exotic substances brought back from world travels. In this way, substances were exported across cultures, and many substances that were initially used for ceremonial or medical purposes became popular for recreational purposes.

Historical responses to coffee drinking provide an insight into the changing nature of substance use. During the 17th century, which was a time of considerable political upheaval, coffee houses became the meeting places for political radicals and intellectuals. As a consequence, coffee became viewed by many people as an 'evil' substance. Charles II wanted coffee banned, and women petitioned that coffee "made men unfruitful, 'disorders domesticity', and interfered with business"

(Davies, 1986, p.26). Similarly, in Arab countries in the 16th century, prohibitions were placed on coffee, and some sellers of coffee beans were executed: coffee houses were believed to be 'dens of iniquity'. Yet, coffee is now an integral and accepted part of most western cultures. A contrast is the history of tobacco use, which was once widely accepted and even encouraged in some societies, but is now increasingly regulated and socially sanctioned.

Governments have always had major stakes in the manufacture, distribution and sale of alcohol and other drugs. For example, the British controlled most of the opium poppy cultivation and sale in India in the 18th and 19th centuries (Owen, 1968), and the Germans were involved in the production of cocaine in the 19th century (Friman, 1999). Political conflict over the control of territory and supply routes related to drug distribution has been occurring since at least the 16th century, and has escalated to the level of 'drug wars' at certain points in history. For example, through the Opium Wars with China in the mid19[th] century, Britain established control over the opium-producing areas of India (Berkhout & Robinson, 1999).

In the early 20th century in the United States (USA), substance dependence was made into a criminal problem through Prohibition. A 'war on drugs' was proclaimed, and the USA has strongly promoted this stance in other countries ever since.

Profound social consequences result from the 'drug war' approach and viewing drugs as a social menace, particularly if the substance use is associated with a particular marginalised social group (e.g., crack cocaine for young urban blacks in the USA). The media becomes instrumental in conveying this sense of menace to the general public, providing a moralist stance, and generating a perceived need to protect vulnerable social groups, such as women and young people (Morgan, Wallack, & Buchanan, 1988). The result is an increased criminal justice response, which then smothers alternative responses. Underlying political agendas are often at work (for example, in the USA, ending the world trade in opium was important to appease the Chinese government to ensure their cooperation in supporting the USA as the world economic power) (Morgan, Wallack, & Buchanan, 1988). The outcome, however, is that particular social groups, through their association with the use of the prohibited substance, become classed as deviant and are further marginalised.

In Australian history, laws regarding the legality or illegality of certain drugs have been politically driven, and had little to do with the level of use or possible harms that the substances themselves might cause. For example, the restriction of opium began in Queensland in 1897, with the *Aboriginal Protection and Sale of Opium Act* (see Berkhout & Robinson, 1999). This Act made it unlawful for doctors, chemists and wholesale druggists to possess or supply opium, but only if it was intended for sale to Aboriginal peoples. These restrictions were extended to Asian migrants in response to concerns regarding their migration into Australia. 'White' Australians continued to purchase their opiates over-the-counter until the Second World War, and doctors continued to prescribe heroin for labour pain and the terminally ill until 1953. In response to pressure from the USA, which the Australian Government originally resisted, the importation of heroin was banned in 1953, and the States and Territories followed suit to prohibit over-the-counter sales of heroin preparations (Davies, 1986).

In contrast, Britain has never completely outlawed heroin preparations, although their use has been heavily restricted since 1908 (Davies, 1986). Unlike Australia, Britain continues to use heroin in clinical settings. For example, the *British Medical Journal* reported results of a randomised trial of nasal diamorphine (heroin) for analgesia for children and teenagers with clinical fractures, concluding that nasal diamorphine spray should be the preferred pain relief over intramuscular morphine (Kendall, Reeves, & Latter, 2001).

Importantly, prohibitionist and 'drug war' approaches have been shown, historically, to have little impact on levels of substance use, and even less impact on the level of harm associated with substance use. The small gains that law and order campaigns and prohibition approaches have achieved have not been lasting (Lang, 2004). While effective prohibitions have resulted in temporary decreases in the use of targeted substances, other consequences of prohibition have negated this impact. These other consequences include: supply sources finding other destinations for their trade; supply sources eventually developing new supply routes into the original destination; and other substances filling the gap in supply.

Consequently, little reduction is achieved in the level of overall usage. Increased money spent on supply reduction, through criminal justice and customs, has generally paralleled increased, rather than decreased, consumption of an ever-greater variety of substances, both licit and illicit. This does not mean that these approaches do not have their place, but rather that they cannot be the sole basis of substance use regulation.

Furthermore, the licit drug industry is a significant contributor to the Australian economy. In 2001-2002, $5.1 billion in tobacco and $2.9 billion in alcohol taxation revenue (excluding GST components) was received by governments, which meant that on average, each person in Australia during that period of time contributed approximately $421 per year in drug taxes, excise and franchise fees (Australian Institute of Health and Welfare [AIHW], 2003). The pharmaceutical industry also contributes substantially to the Australian economy.

It must be acknowledged that substance use is a fundamental and normative part of the human condition.

The effects of substances

Alcohol and other drugs are psychoactive substances with the capacity to alter mood, cognition and behaviour. They can be categorised into three main groups, depending on the dominant effect the substance has on the central nervous system: depressant, stimulant or hallucinogen (Whelan, 2004).

Depressants slow down the activity of the central nervous system and are associated with feelings of relaxation, slower reflexes, and reduced pain and anxiety. Depressants include: alcohol; volatile substances (e.g., glue, aerosols, solvents and petrol); minor tranquilisers (e.g., benzodiazepines such as Valium and Serapax); and the opiates (e.g., heroin, methadone, morphine and codeine).

Stimulants speed up the activity of the central nervous system and are associated with increased feelings of energy, confidence and wellbeing, and also possibly confused thinking and paranoia. Stimulants include nicotine, caffeine, amphetamines and cocaine.

Hallucinogens alter perceptions of sensory experiences, time and sense of self. Hallucinogens include: LSD; mescaline; psilocybin ("magic mushrooms"); and the dissociative anaesthetics (e.g., PCP and ketamine).

Other substances don't fit neatly into these categories, such as MDMA ("ecstasy"), which has stimulant effects but also can produce hallucinations. The active ingredient in cannabis products is delta-9-tetrahydrocannabinol (THC), which increases the heart rate but also relaxes the mind and reduces pain, and can produce hallucinations if taken in large amounts.

The effects of many psychoactive substances vary when taken in combination (Brick & Erickson, 1998). Types of drug interactions include:
- addition – substances combine to produce an intensified response that is the sum total of their two effects (e.g., alcohol and antihistamines);
- synergism/potentiation – substances combine to produce an effect that is greater than the addition effect of the two drugs (e.g., alcohol and diazepam); and
- antagonism – substances combine to lessen the effect of one of the drugs (e.g., heroin and Narcan, where the antagonist Narcan can reverse the effect of an opiate overdose).

While the properties of licit and regulated substances, in terms of their purity and strength, are known, this is not generally the case with illicit substances. The purity and strength of illicit substances can vary greatly, and they are often diluted with other substances to increase their quantity. For example, an ongoing study monitoring Australia's main illicit drugs revealed that most of the substances sold as ecstasy contained no MDMA, instead containing a variety of psychoactive and non-psychoactive substances, and those containing MDMA had an average purity of 42%, ranging from 3% to 90% (Topp, Breen, Kaye, & Darke, 2002).

The subjective experience of a substance depends on factors other than just its chemical properties and pharmacological effects. Some of the other influences on any particular substance use experience for an individual are: mood; physical health; body size; expectations about the effects of the drug; tolerance to the effects of the drug; allergies; and idiosyncratic differences in the way the body reacts to the substance (Ryder, Salmon, & Walker, 2001). Consequently, the effects of the same substance vary between people and across occasions for the same individual.

Prevalence of substance use in Australia

The use of licit substances is an accepted part of Australian and most other western societies. The vast majority of Australians use caffeine, through the consumption of tea, coffee, cola drinks and chocolate. The regular use of alcohol and tobacco by adults is acceptable to three out of four and two out of five Australians respectively (AIHW, 2005).

The non-medical use of drugs in Australia in 2001 and 2004, according to a *National Household Survey of Drug Use,* is presented in Table 1. Note that the reported prevalence of substance use depends upon the question that is asked. Asking whether a person has *ever* used a drug includes people who may have used in the past but no longer use, as well as people who used the substance on only one or a few occasions but did not progress to more regular use. This greatly inflates the perceived levels of drug use. Asking whether people have used a substance *in the past 12 months* gives a more current estimate of the level of use, although it still gives no indication of the amount of use.

Alcohol is consumed on a weekly basis by 41.2% of people aged 14 years and over and daily by 8.9%, and 17.4% use tobacco on a daily basis (AIHW, 2005). Alcohol use has been steadily increasing over the past 10 years, while tobacco use has begun to decrease and was significantly less in 2004 than 2001.

While the use of licit substances is by far the most prevalent, illicit drug use is also quite common, although appears to be declining (AIHW, 2005). More than a third (38.1%) of the population has at some stage in their lifetime used a drug currently listed as illicit. Cannabis is the most commonly used illicit drug, having been used by more than 33.6% of the Australian population over their lifetime, and used within the last 12 months by 11.3%. Cannabis use, however, has shown a significant decline since 2001.

Stimulant drugs in the forms of amphetamines and ecstasy, and painkillers/ analgesics, are used by a little over 3% of the population aged 14 years and over, and this is more than twice as common as drugs like heroin and cocaine. Almost 10% of people aged 14 years and older have ever used amphetamines, and 7.5% have ever used ecstasy.

Heroin has been used by 1.4% of the population aged 14 years and over, and 0.2% have used heroin in the past 12 months. Approximately 73,800 Australians (0.5%) have injected illicit drugs in the past 12 months (AIHW, 2005).

Prevalence and patterns of substance use are strongly related to a range of factors, including age and sex, and these patterns vary for different types of drugs (AIHW, 2005). For tobacco, one in seven teenagers (aged 14–19 years) smoked tobacco in 2004, with 10.7% smoking daily. However, 83.3% of teenagers had never smoked. Female teenagers (11.9%) were more likely than male teenagers (9.5%) to be daily smokers. For all other ages, males had higher smoking rates than females. Smoking rates peaked in the 20–29 years age group.

Males (12.0%) were more likely than females (5.8%) to drink daily. The proportion of daily drinkers increased with age; the peak for weekly drinkers was in the 40–49 years age group, and the peak for less-than-weekly drinkers was among teenagers.

Almost three in five (58%) persons aged 20–39 years had used an illicit drug in their lifetime. Compared with other age groups, this age group had the greatest proportion of persons who had ever used an illicit drug. One-third (29.3%) of teenagers had ever used an illicit drug. Female teenagers were slightly more likely than male teenagers to have ever used an illicit drug. However, for all other age groups, males were more likely than females to have ever used an illicit drug.

More than one-quarter (25.5%) of teenagers (aged 14–19 years) had used marijuana/cannabis in their lifetime. Australians aged 20–39 years were more likely than those in the other age groups to have used marijuana/cannabis at some time in their lives. Almost three in five (54.5%) persons aged 20–39 years had used marijuana/cannabis in their lifetime. Across all age groups, males were more likely than females to have ever used marijuana/cannabis, with the exception of 14–19-year-old females who were slightly more likely to have used marijuana/cannabis than their male counterparts.

Of particular relevance for Australia are substance use patterns for Aboriginal and Torres Strait Islander peoples. Data from the 2001 *National Household Drug Survey* show that Aboriginal and Torres Strait Islander peoples are more likely to be daily smokers than non-Indigenous Australians, and 45% smoke daily. They were less likely to have consumed alcohol in the week prior to survey (42%), but more likely to drink at high-risk levels (29% compared with 17% for non-Indigenous Australians). Over half (57%) of Aboriginal and Torres Strait Islander respondents indicated that they had tried an illicit drug, compared to 37% of non-Indigenous respondents.

Table 1. Proportion (%) of the population aged 14 years and over using drugs, Australia 2001 and 2004, and average age of initiation, 2004

Drug	Lifetime use (ever used)	Recent use (used in past 12 months) 2001	Recent use (used in past 12 months) 2004	Average age at initiation of lifetime drug use 2004
Alcohol	90.7	82.4	83.6 #	17.2
Tobacco	47.1#	23.2	20.7 #	15.9
Any illicit drug	38.1	16.9	15.3 #	19.4
Cannabis	33.6	12.9	11.3 #	18.7
Amphetamines[a]	9.1	3.4	3.2	20.8
Hallucinogens	7.5	1.1	0.7 #	19.5
Ecstasy/other designer drugs	7.5#	2.9	3.4 #	22.8
Painkillers/ Analgesics[a]	5.5#	3.1	3.1	23.4
Cocaine	4.7	1.3	1.0 #	23.5
Tranquilisers[a]	2.8	1.1	1.0	25.2
Inhalants	2.5	0.4	0.4	18.6
Injected illegal drugs	1.9	0.6	0.4	21.7
Heroin	1.4	0.2	0.2	21.2
Barbiturates[a]	1.1	0.2	0.2	19.6
Steroids[a]	0.3	0.2	— #	25.2
Methadone[b]	0.3	0.1	0.1	24.8

Note: [a] used for non-medical purposes, [b] non-maintenance use, # indicates that 2004 results significantly different from 2001 results (2-tailed α = .05)
Source: AIHW (2002, 2005)

Substance use and harm

Not all substance use is harmful, but the use of any substance has the potential to cause harm, and the likelihood of harm occurring increases with greater levels of use. Table 2 presents definitions that are commonly used to refer to different amounts or levels of drug use. Many of these categories are quite subjective, but they are useful to classify varying levels of use and to understand the relationship between use and harm. For example, experimental use may be infrequent but is not free of risk: a single drug-taking occasion can be fatal. On the other hand, not all dependent use is harmful: some people are dependent on alcohol with few adverse effects (Ryder, Salmon, & Walker, 2001). Furthermore, people's levels of substance use are not static, but change over time, and in ways that are not necessarily sequential; that is, one level of substance use does not "lead to" the next (Ryder, Salmon, & Walker, 2001).

Table 2. Levels of drug use

Level	Definition
Abstinence	No drug use
Experimental	Trying a drug and using only once or a few times. (e.g., using LSD once)
Recreational	Using a drug for leisure. The use is usually planned and controlled, and may be specific to particular social situations or settings, such as parties, clubs or at home with friends. (e.g., taking ecstasy at a dance party)
Regular	Using a drug as a normal part of one's lifestyle, although use may still be controlled. (e.g., a glass or two of wine with dinner)
Dependence	Using a drug a lot and needing it to feel "normal", to cope with day-day problems, or to stop the symptoms of withdrawal (e.g., using heroin three times a day and feeling physically sick if heroin is not used)
Hazardous	Using a drug in such a way that it will probably cause harm, but has not yet done so. This includes taking serious risks when using a drug, such as: taking excessive amounts of the drug; using a combination of drugs that may interact with each other; sharing injecting equipment; or driving under the influence of the drug.
Harmful	Drug use that has demonstrably led to harm — physical, social or emotional.

Source: Pols & Hawks (1992); World Health Organisation (1982)

Drug-related harm can arise from the way in which it is administered into the body. In particular, a proportion of illicit drugs are injected, increasing the risk of blood-borne viruses such as hepatitis B and C and HIV being transmitted by the sharing of injecting equipment. Risk can also arise from the injection of drugs that are intended to be taken orally, such as prescription benzodiazepines (e.g., Valium, Temazepam), due to vein damage caused by other non-psychoactive ingredients in the substance. It is also important to keep in mind that drug-related harm can extend to how the person obtains the drug (e.g., engaging in criminal activity in order to afford a drug) and their behaviour while under the influence of the drug (e.g. drink-driving, engaging in unsafe sex or increased risk of violence toward oneself or others).

Addiction

A common misperception is that it is the "addictive" nature of certain drugs that causes them to be harmful. The chemical nature of a substance and its addictive properties do not, on their own, determine the harm caused. Not all people who use a potentially addictive substance become addicted, and some substance users stop using addictive substances before they develop any serious problems (McAllister, Moore, & Makkai, 1991).

The level of addiction, however, does vary between substances. Table 3 presents the proportion of people who have ever used a given drug and then developed dependence upon that drug. It is evident that nicotine and heroin are the substances where use is most likely to lead to dependence, indicating the more highly addictive nature of these substances. However, it is equally clear that use of these substances leads to dependence in a *minority* of cases.

Table 3. Percentage of people who have ever used a substance who are dependent by DSM-IIIR criteria

Substance	Percent who develop dependence
Tobacco	31.9
Heroin	23.1
Cocaine	16.7
Alcohol	15.4
Stimulants other than cocaine	11.2
Cannabis	9.1

Source: Anthony, Warner, & Kessler, 1994

What constitutes harmful substance use has been the subject of much debate. A traditional view has been that drug-related harm is mostly related to drug dependence. While those who are dependent on substances generally do experience harm, it is now recognised that a wider perspective needs to be addressed. A useful model highlighting this broader perspective is provided by Thorley (1982) and presented at Figure 1.
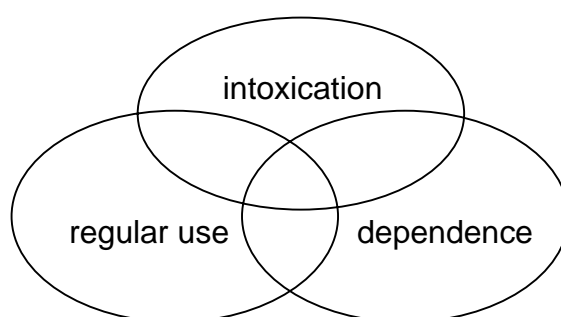

Figure 1. Thorley's model of drug harm.

Intoxication

A person is said to be intoxicated when they have taken a quantity of a substance that exceeds their tolerance, and behavioural or physical changes occur. Intoxication refers to any alteration of physiological processes by a psychoactive drug, and not just the substantial impairment of awareness normally associated with the term "intoxicated".

Harm can occur even at fairly low levels of intoxication. For example, it takes very few alcoholic drinks to raise a person's blood alcohol level above 0.05, the legal upper limit in Australia for driving a car. Research shows that at the 0.05 blood alcohol level, a driver is twice as likely to have a car accident than if he or she was totally alcohol free (National Drug Strategy, 2001).

Harm related to intoxication can arise from using a substance on a single occasion. The most harmful risk is death by overdose. However, there are many other potential risks: infection; road traffic accidents; domestic violence and other

forms of assault; unsafe or unwanted sex; accidents in the workplace or home; and other incidents arising from impaired judgement or co-ordination.

Regular use

Harm arising from the regular use of substances is due to the cumulative effects of use over a period of time. The greater the amount consumed and the longer the period of use, the greater the likelihood that harm will occur from regular use.

The regular use of alcohol is associated with many medical problems, such as liver cirrhosis, pancreatitis, heart disease and brain damage (National Drug Strategy, 2001). Women are harmed more quickly and with lower levels of alcohol consumption than men. Many of the medical problems that are caused by tobacco are due to regular consumption over long periods of time (Ryder, Salmon, & Walker, 2001). In contrast, the regular use of pharmaceutically pure heroin in carefully prescribed dosage appears to do little if any damage to the organs of the body (Julien, 1998; Avis, 1999).

Dependence

The third element of Thorley's model is dependence, which most closely resembles the more commonplace notion of 'addiction'. Dependence, or *neuroadaptation,* occurs when the body requires the substance for its normal functioning. Dependence has a physiological component, as the cells of the body adapt to repeated exposure to the drug, and then require the substance to attain homeostasis (Julien, 1998). A person who has developed dependence upon a substance may experience withdrawal upon ceasing use. Withdrawal often involves symptoms that are somehow "opposite" to the effect of the substance itself, but may also pose risks to the individual as in the case of alcohol where withdrawal can potentially be life threatening. *Tolerance* is a separate, but related, issue: the build-up of tolerance to a substance means that higher doses are required to achieve the same effect.

Dependence also includes a psychological component whereby the person misses their drug of choice without any neuroadaptation having occurred (Russell, 1976). It is common for people to develop a strong psychological dependence on a substance whether there is physical dependence or not. Psychological dependence refers to the subjective belief that the person needs the substance to cope with particular experiences or feelings. For example, one person may believe they need to drink alcohol before they can feel comfortable at social events, while another may feel they cannot unwind after work without smoking marijuana. Typically, psychological dependence relates to the perceived need to use substances to cope with emotional states, such as anxiety, anger, depression, guilt and boredom (Ryder, Salmon, & Walker, 2001).

DSM definitions of harmful substance use

The *Diagnostic and Statistical Manual of Mental Disorders, Version IV-TR* [DSM-IV-TR, American Psychiatric Association (APA), 2000] provides widely accepted guidelines of the symptoms necessary for a diagnosis of drug dependence. Harmful drug use is categorised in DSM-IV-TR under the general heading of *Substance-Related Disorders.* These are grouped into *Substance Use Disorders*

(substance abuse or dependence) and *Substance-Induced Disorders* (e.g., intoxication, withdrawal, substance-induced psychotic disorder). The specific substances mentioned in this section of DSM-IV-TR are grouped in 11 classes: alcohol; amphetamines; caffeine; cannabis; cocaine; hallucinogens; inhalants; nicotine; opioids; phencyclidine (PCP); and sedatives, hypnotics and anxiolytics.

Table 4 presents the physiological and psychological symptoms that comprise the DSM-IV-TR criteria for drug dependence. The major classificatory difference between dependence and abuse is that dependence requires indications of increased tolerance to drug dosages and withdrawal symptoms when blood or tissue concentrations of the drug decline. However, DSM-IV-TR makes it clear that neither tolerance nor withdrawal is necessary or sufficient for a diagnosis of substance dependence, as the diagnosis can be made if three of the remaining criteria are met.

Table 4: DSM-IV-TR drug dependence syndrome

A person has to have experienced three or more of the following in any 12 month period:

1. Tolerance, defined by either:

 • a need for markedly increased amounts of the substance to achieve intoxication or desired effect; or

 • markedly diminished effect with continued use of the same amount of the substance.

2. Withdrawal as manifested by either of the following:

 • the characteristic withdrawal syndrome for the substance; or

 • the same or a closely related substance is taken to relieve or avoid withdrawal symptoms.

3. The substance is often taken in larger amounts or over a longer period of time than was intended.

4. There is a persistent desire or unsuccessful efforts to cut down or control substance use.

5. A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects.

6. Important social, occupational, or recreational activities are given up or reduced because of substance use.

7. The substance use is continued despite knowledge of persistent or recurrent physical or psychological problems that are likely to have been caused or exacerbated by the substance.

Source: APA, 2000

The burden of substance use

Harmful substance use is associated with problems beyond those experienced by the individual. It is estimated that for every one person who drinks alcohol in large and/or frequent quantities, at least four other people are negatively affected (Rumbold & Hamilton, 1998). Harmful substance use can have a major impact on families through violence, divorce, and financial and legal problems (see Dietze, Laslett, & Rumbold, 2004; Mattick et al., 1993; Wallace & Tarvis, 1994). It can affect work colleagues through accidents, absenteeism and loss of productivity, and the wider community through accidents and crime (Australian Bureau of

Criminal Intelligence, 1998). Depending on definitions used, between 10-12% and 70% of crime is related to substance use (House of Representatives, 2003).

Substance use problems pose a considerable cost to the Australian community in economic, health and social terms. It is estimated that about 23,153 deaths and more than 210,000 hospitalisations in Australia during 1998 were AOD-related (Ridolfo & Stevenson, 2001). The estimated total economic costs of substance use are shown in Table 5 and add up to almost $35billion. It is clear that the harm associated with licit substances is considerably greater than that associated with illicit drugs, and that the social costs associated with tobacco use are substantially higher than those for other substances.

Table 5: Social costs of drug abuse, Australia 1998-1999 ($M)

	Alcohol	**Tobacco**	**Illicit drugs**	**All drugs**
Tangible	5 541.3	7 586.7	5 107.0	18 340.8
Intangible	2 019.0	13 476.3	968.8	16 099.0
Total	7 560.3	21 063.0	6 075.8	34 439.8
Proportion of total	22.0%	61.2%	17.6%	100%

Note: The sum of the individual costs of all drugs differs from the "All drugs" total as a result of adjustment for the effect of interaction on the aggregation of individual aetiological fractions and because the 'All drugs" total includes some crime costs attributed to alcohol and illicit drugs.
Source: Collins & Lapsley, 2002

Substance use and mental health

The relationship between substance use and mental health problems is of special concern for psychologists. *Co-morbidity* refers to the co-occurrence of more than one mental disorder; and substance use disorders and other mental health problems are very likely to co-occur. Such co-morbidity is often referred to as *dual diagnosis* or *co-occurring disorders.* Co-morbidity is strongly associated with the harmfulness of drug use, particularly for young people (Moon, Meyer, & Grau, 1999).

Substance use problems are more common among people diagnosed with mental health problems than among the general population (Jablensky, McGrath, Herrman et al., 1999; McLennan, 1998). People with mental health problems become more vulnerable to substance use through attempts to self-medicate their symptoms with licit and illicit drugs, as well as through lifestyle changes related to their mental health problems (Dixon, Haas, Weidon, Sweeney, & Frances, 1990).

Estimates of the proportion of people with a co-occuring mental disorder and substance use disorder range from 50% to 90% (Baigent, Holme, & Hafner, 1995). Australian data show that substance use problems are evident for 28% of men and 14% of women with anxiety disorders, and for 34% of men and 16% of women with affective disorders (Teeson, 2000). For people with psychotic disorders, 60% use tobacco, 22% are daily alcohol users, 23% use alcohol weekly, 9% have used psycho-stimulants, and 5% have used opiates in the past year (Degenhardt & Hall, 2000). Comparing these statistics with those for the

general population (see Table 1) highlights the high rate of substance use for people with mental health problems.

Among individuals who present to services with AOD problems, symptoms of anxiety and depression have a particularly high prevalence (Robinson et al., 2001). Personality disorders are also common, with reviews concluding that approximately two-thirds of drug users in treatment have some form of personality disorder, with anti-social personality disorder being the most common (Seivewright & Daly, 1997). In another study, co-morbidity with personality disorder was evident for 44% of those with alcohol dependence and 79% among those with opiate dependence (Verheul, Ball, & Van den Brink, 1997). However, it must be noted that the impact of substance use and associated behaviours can complicate accurate assessment for personality disorder.

Special mention of the relationship between cannabis use and mental health is merited because of the current debate around this issue. It is now evident that while cannabis use does not *cause* mental illness, it appears to precipitate psychotic symptoms in some people who are predisposed to schizophrenia, and is certainly a major risk factor for relapse (see Hall & Pacula, 2003).

Substance use and suicide

Suicide is a leading cause of death in Australia that is associated with both substance use and mental health problems. There were 2320 suicides (equivalent to a crude rate of 11.8 per 100,000 population) registered in Australia in 2002 (ABS, 2003). In 2002, there were 1817 male and 503 female suicide deaths: the male standardised suicide death rate being higher than the female rate by a ratio of approximately four to one. More than half (56%) of all suicide deaths in 2002 occurred in people aged between 25 and 49 years. The lowest age-specific suicide death rate for both males and females in 2002 was observed in the 15-19 years age group (13.9 per 100,000 for males and 4.1 per 100,000 for females).

While the factors associated with greater risk of suicide are numerous and complex, a history of harmful substance use is a major contributor. Other factors are unemployment, family and other interpersonal problems, physical and/or sexual abuse, and homelessness, which are themselves associated with harmful substance use (Commonwealth Department of Health and Family Services, 1997; Conwell, Duberstein, Cox et al., 1996).

Approaches to drug harm in Australia

A nationally coordinated approach to drug harm began in Australia in 1985, when the National Campaign Against Drug Abuse (now known as the National Drug Strategic Framework) was implemented (see www.nationaldrugstrategy.gov.au). The Strategy has recently been updated in the document *The National Drug Strategy Australia's Integrated Framework 2004-2009,* but remains based on the principle of harm minimisation, which refers to policies and programs aimed at reducing drug-related harm. Harm minimisation provides a range of options aiming to improve health, social, and economic outcomes for both individuals and communities, which encompass:

1. *Supply reduction* (strategies designed to disrupt the production and supply of illicit drugs);

2. *Demand reduction* (strategies designed to prevent the uptake of harmful drug use, including abstinence-orientated strategies to reduce drug use); and

3. *Harm reduction* (strategies designed to reduce drug-related harm for particular individuals and communities) (Ministerial Council on Drug Strategy, 1998).

The term *harm minimisation* is generally not used outside the AOD field. The principles underlying it are, however, similar to those underlying many public health campaigns, many of which accept that, for some people, knowledge of the risks of their behaviour does not automatically lead to changes in their behaviour (Stimson, 1992). For example, public health campaigns that encourage the use of sunscreen are based on the understanding that while being in the sun can cause harms such as skin cancer, people will still expose themselves to the sun's rays. Many people are not prepared to stay indoors or to wear protective clothing at all times. There are also people who must work outdoors and cannot avoid the sun. Through acknowledging the impossibility of preventing people from being exposed to the sun, campaigns were developed encouraging behaviours that would minimise the harms associated with spending time in the sun (e.g., "Slip, Slop, Slap").

A major harm associated with injecting illicit drugs is HIV infection. The harm minimisation approach gained momentum with recognition that many countries were threatened with uncontrolled epidemics of HIV infection, beginning among injecting drug users and spreading to the general population (Wodak, 1999). The introduction of Needle and Syringe Programs (NSPs) in Australia in the mid-80s was a major harm minimisation initiative that has resulted in Australia now having one of the lowest infectious disease rates in the world, especially amongst the injecting drug using population (Davies, 1998).

In Australia, approximately 8% of new HIV diagnoses occur in persons with a history of injecting drug use, and the prevalence of HIV infection among people attending NSPs in Australia is estimated at less than 3% (National Centre HIV Epidemiology and Clinical Research, 2001). The success of Australia's public health intervention has been recognised internationally, and it has been estimated that as many as 10,000 cases of HIV/AIDS in the USA would have been avoided had the USA adopted similar policies (Hall, Lynskey, & Degenhardt, 1999).

The harm minimisation approach has been controversial, with some viewing it as condoning drug use rather than aiming to reduce use. This view neglects to acknowledge that *harm minimisation* is an overall approach that includes the three different strategies listed earlier: *demand reduction* (aiming to reduce the demand for drugs by users or potential users); *supply control* (aiming to restrict or eliminate drug availability); and *harm reduction* (reducing harm amongst those who continue to use drugs) (Single & Rohl, 1997).

Two main tensions form the basis of the controversy. The first is a tension between reducing harm and reducing use. Due to the fact that harm minimisation strategies do not focus solely on reducing use and encouraging abstinence, some people hold the mistaken belief that harm minimisation has been put forward as an alternative to abstinence, and that it condones or even encourages drug use (Midford, McBride, & Munro, 1998). On the contrary, the harm minimisation approach recognises abstinence as one of many strategies; however, the approach also acknowledges that abstinence is insufficient on its own, and that other strategies are needed as a more realistic alternative to abstinence or as a step toward future abstinence. The harm minimisation approach realises that different strategies will suit different people at different times, and that a wide range of strategies is required.

The second tension occurs between harm minimisation and law enforcement. This tension is also based on the mistaken belief that harm minimisation is opposed to law enforcement efforts aimed at reducing the demand for and supply of illicit drugs (Kutin, 1998). In contrast, demand reduction and supply control strategies are an integral part of the overall harm minimisation approach, and are seen as not necessarily incompatible with harm reduction strategies.

Neither prohibitionist law-enforcement strategies nor prevention strategies based on information and education have, on their own, been shown to be able to reduce the supply or use of substances. Furthermore, many treatment interventions have achieved only modest success (Rumbold & Hamilton, 1998). What's more, divergent strategies appear to be effective for different types of harmful substance use. For example, the most effective strategies to minimise the harm of legal drugs appear to be those that have use-reduction as their goal; whereas paradoxically, the most effective strategies to minimise the harm of illicit drugs are based on harm-reduction approaches (Hawks & Lenton, 1995). Reducing drug harm in our society is a formidable challenge that requires a diverse range of approaches, used in collaboration, and viewed as different paths to achieving the same end: the minimisation of harm from both licit and illicit substances.

Understanding substance use

People use drugs for a wide range of reasons, and to varying degrees and in different ways across their life cycle. Substance use changes over time—people who occasionally use a particular substance at one period of their life can become regular users at another period, and be abstainers at yet another. Alcohol and other drug use is strongly related to social, cultural and other environmental influences, the impact of which needs to be considered. For example, understanding substance use in the context of enhancing sports performance is very different compared with understanding use for a poly-drug user who is entrenched in a drug-using lifestyle.

There are clear developmental patterns evident for substance use. Table 1 shows that the licit substances of tobacco and alcohol are first used at an average age of about 16 years, whereas illicit substances are generally first tried in early adulthood. For tobacco and alcohol, the mean ages of initiation remained relatively stable between 1995 and 2004 at around 16 years of age for tobacco and 17 years of age for alcohol. The mean age of initiation for first use of all illicit substances surveyed either remained stable or increased between 2001 and 2004, at just over 19 years of age.

Adolescence is a life stage of special interest in understanding substance use because it is known to be a time of risk-taking, experimentation and testing boundaries, and the experimental use of drugs can be part of this developmental process (Parker, Aldridge, & Measham, 1998). The events, settings and social influences during adolescence are, however, quite distinct from those at other life stages and these must be taken into account in order to understand substance use during this phase of the life cycle (Sellman & Deering, 2004).

In adulthood, recreational substance use is common: most adults consume alcohol and its use tends to increase with age. Many adults also use tobacco, and a considerable proportion has used cannabis, as a form of recreation and relaxation (AIHW, 1999). In general men use alcohol and other drugs more than women, and women's substance use patterns can be quite different from men's. There are unique factors that impact on women's substance use, which are just beginning to be better understood (see Dore, 2004).

In older age, substance use generally declines, at least according to patterns of use for current cohorts of older Australians (Andrews, Hall, Teeson, & Henderson, 1999). Alcohol use remains the substance most commonly used, while smoking declines considerably. There is very little illicit substance use reported by current cohorts of older people. Such patterns may change considerably with the ageing of current cohorts of younger people, who are more likely to have ever used illicit substances. The use of alcohol and other drugs in older age has unique features that must be taken into consideration (see Sim, Surveyor, & Hulse, 2004).

Substance use patterns also display marked social and cultural differences. In particular, religion and religious practices can influence the use of AOD (Ryder, Salmon, & Walker, 2001). Some faiths restrict or prohibit the use of particular drugs; for example, Mormons do not consume tea or coffee because of the restrictions on caffeine use. Other faiths integrate substances into the rituals and ceremonies; for example kava use in religious ceremonies in Samoa, Tonga and Fiji.

Substance use problems, and appropriate interventions for the prevention and treatment of harmful substance use, must be carefully understood within the context of culture and culturally sensitive and safe practice. This is particularly relevant for Aboriginal and Torres Strait Islander peoples (see Gray, Saggers, Hulse, & Atkinson, 2004) and other significant population groups in the Australian region such as Maori peoples (see Robertson, Huriway, Potiki, Friend, & Durie, 2004).

A consideration of all the relevant developmental, social, cultural and contextual factors is beyond the scope of this paper. Presented here are general themes that are expected to apply in understanding most substance use experiences. However, it is acknowledged that there can be important differences and caveats for some population groups that require further exploration.

The biopsychosocial model

Many varied theories are applied to understanding substance use (see Lee, 2004). Hester and Miller (1995) describe 13 different conceptual models for alcohol problems alone: moral, temperance, spiritual, dispositional, disease, educational, characterological, conditioning, cognitive, sociocultural, general systems, biological, and public health.

Understanding substance use necessitates a framework that can incorporate a wide range of biological, psychological, social and cultural factors. The *biopsychosocial* model of medicine was first proposed by psychiatrist George Engel (1977), as a way of accommodating the interconnectedness of the mind, body and society. More recently, a spiritual component has also been added to the model (although this can also fit under the psychological and social factors).

Figure 2 outlines the biopsychosocial model, which incorporates such factors as: the nature of the particular substances being used, their effects and availability; characteristics of the individual user, such as their genetic make-up, personality, personal learning experiences, and current mood and mental health status; and the socio-cultural environment, which determines exposure to risk or protective factors for substance use. All these factors interact in a dynamic and reciprocal way, and change over time as a person matures and his/her life circumstances evolve. All the components of the model are relevant at all stages in the development, maintenance and change of substance use behaviour and the biopsychosocial model supports an interdisciplinary and collaborative approach to understanding substance use and intervening to minimise drug harm (Wallace, 1993).
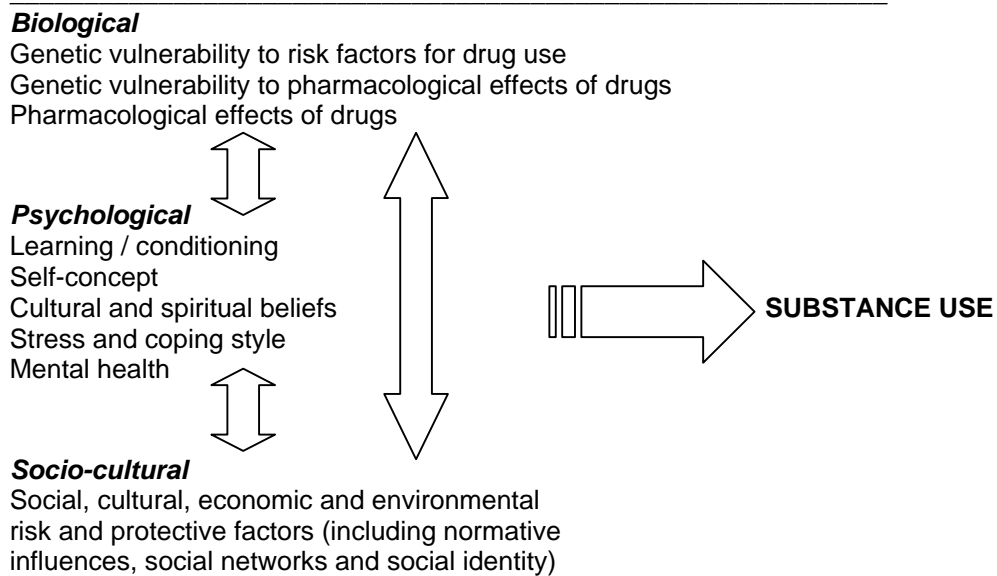
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Biological
Genetic vulnerability to risk factors for drug use
Genetic vulnerability to pharmacological effects of drugs
Pharmacological effects of drugs

Psychological
Learning / conditioning
Self-concept
Cultural and spiritual beliefs
Stress and coping style
Mental health

SUBSTANCE USE

Socio-cultural
Social, cultural, economic and environmental
risk and protective factors (including normative
influences, social networks and social identity)

_____

Figure 2. Biopsychosocial model of substance use.

Stages of change

Five sequential *stages of change* have been described that are generally used to describe the process of ceasing harmful drug use, but which are equally relevant to the initiation of substance use. These are: precontemplation, contemplation, preparation, action and maintenance. Some versions of the model have relapse as a sixth stage, while others incorporate the notion of relapse into the broader process where lapses back to previous behaviour can occur at any stage in the model and are viewed as a normal part of the recovery process (Werch & DiClemente, 1994).

A major advantage of the *stages of change* model is that it highlights that both the initiation and cessation of substance use are processes. The process is not necessarily sequential and people do not have to move through the stages in a linear fashion.

Understanding stages of change is essential for planning interventions to reduce or cease substance use – interventions need to be matched to the stage of change of the people targeted by the intervention. Motivation for change between the stages is a fluctuating balance between the "pros" and "cons" of the behaviour. This applies equally to interventions aiming to prevent the development of harmful substance use and those attempting to treat or cease harmful substance use.

It is especially important to identify what stage of the change cycle a person is in when developing treatment plans. Stage-appropriate treatment goals and strategies will change over time as the person continues to make progress through the stages, experiences setbacks or becomes "stuck" in a particular stage. The implementation of an inappropriate goal or intervention that is inconsistent with the current stage may be at best ineffective, and at worst cause harm.

For example, an over-emphasis on abstinence in the early stages of change may be unrealistic or counter-productive. Rather, a series of smaller, more achievable goals may provide positive experiences of success and encourage the person to seek further change. This approach does not preclude the person from aiming for abstinence at a later point in the process (Tejero, Trujols, Hernandez, de los Cobos, & Casas, 1997). Cycling through the stages multiple times is likely to be the norm for the cessation of harmful drug use, and relapse is a normal part of the recovery process. Interventions that do not recognise this aspect of behavioural change may set up unrealistic expectations, which reinforce a sense of failure if a setback occurs (DiClemente & Velasques, 2002).

Preventing harmful substance use

Within the harm minimisation framework adopted by the Commonwealth Government's *National Drug Strategic Framework,* a strong focus is on preventing the uptake of substance use and associated harms. Prevention is defined as: "measures that prevent or delay the onset of drug use as well as measures that protect against risk and prevent and reduce harm associated with drug supply and use" (Ministerial Council on Drug Strategy, 2004, p.5).

Prevention interventions for harmful drug use in Australia have historically been somewhat arbitrary and focused on controlling access to substances and educating people as to their harmful effects, often as a result of international pressure. The success of these many and varied measures is widely debated, particularly in terms of the high cost of supply-reduction strategies (Wodak, 2000). Evidence also shows that some knowledge-based drug education programs implemented in schools have increased drug use (Hawthorne, Garrard, & Dunt, 1995; Wallace & Staiger, 1998).

Despite the expectation that 'education' will change people's behaviour, evidence shows that changing people's attitudes or knowledge about a health-related topic does not necessarily translate into behaviour change (see Wallace & Staiger, 1998). In particular, simply presenting information or relying on scare and fear messages have been shown to be ineffective in preventing harmful substance use. Attitudes and knowledge contribute to, but are only a small part of, the complex set of biopsychosocial factors influencing substance use and other health-related behaviours. Prevention interventions need to target a wider range of factors than just attitudes and knowledge.

There are a number of recognised models and approaches to prevention. The developmental pathways approach is one of the most prominent, and was adopted as part of the *National Crime Prevention Initiative* (National Crime Prevention, 1999). It also underpins the promotion, prevention and early intervention approach to mental health (Commonwealth Department of Health and Aged Care, 2000a, 2000b). Research and policy related to crime prevention and prevention of mental health problems have acknowledged the social determinants of health and wellbeing and the common causal developmental pathways that can lead to a variety of negative outcomes, including crime, mental health problems, suicide, and harmful drug use (see Eckersley, Dixon, & Douglas, 2001).

The *National Drug Strategic Framework* notes that "it has become clear that drug use is but one of a number of social and health problems that can share common determinants, and that these problems tend to cluster in vulnerable individuals and population groups. Equally, it is clear that wide-ranging and broad-based interventions are needed to address these problems in an integrated way across the whole community" (Ministerial Council on Drug Strategy, 2004, p.5).

Risk and protective factors

An understanding of risk and protective factors is the foundation of effective prevention programs. *Risk factors* are those that increase the likelihood of a harmful outcome, whereas *protective factors* decrease such likelihood. Risk and protective factors can be biological, psychological or socio-cultural in nature. For example, a risk factor for harmful substance use for young people is having a substance-using peer group. In contrast, a protective factor that reduces *exposure* to such risk is parenting behaviour whereby parents responsibly monitor the whereabouts and behaviour of their children. A protective factor that reduces the *impact* of a risk factor is parenting behaviour that is caring and supportive, so that the child has access to social support, is attached to family, and is likely to have higher self-esteem (see Commonwealth Department of Health and Aged Care, 2000b).

Preventive interventions comprise a range of approaches that can be categorised according to the level of risk of the targeted group or individuals (Mrazek & Haggerty, 1994). Preventive interventions can be aimed *universally* at whole population groups who are not identified by any particular risk factors, but who can be encouraged to be resilient to the development of harmful drug use (e.g., resilience programs in schools). Preventive interventions can be aimed *selectively* at population groups identified as being at higher risk than average (e.g., high school students, who are at increased risk of experimentation), or they can be aimed as *indicated* by the needs of high-risk groups and individuals (e.g., people with mental health problems).

For people who are already experimenting with and using substances, prevention approaches aim to divert people from progressing to *harmful* drug use. Prevention of harmful drug use can include abstinence as a goal, but can also include enabling people to use substances in ways that do not lead to dependence, disease, criminal sanctions, or death. Prevention interventions can vary in focus on preventing uptake or preventing harmful use.

A thorough review of the current state of evidence for prevention of substance use, risk and harm in Australia has recently been produced (see Loxley et al., 2004). Table 6 presents the major risk and protective factors for harmful substance use identified across the lifespan by this review.

The review also considers evidence for the effectiveness of prevention interventions. A wide range of prevention interventions targeted across the lifespan is shown to be effective. Families, schools, workplaces and communities are identified as settings for drug prevention interventions. For families, targeting parenting skills and parental AOD use are particularly important approaches (Sanders & Markie-Dadds, 1996).

The *National School Drug Education Strategy* (Commonwealth of Australia, 1999) recognises the role of schools in the prevention of drug use and has the overarching aim of 'no illicit drugs in schools'. It sets out some principles for drug education in schools, highlighting the importance of the school environment, and placing drug prevention within the broader and more holistic approach of general health promotion (see

).

The Resilience Education and Drug Information (REDI) program was introduced by the Australian Government's Department of Education, Science and Training in 2003. The implementation of this resilience approach to drug education in Australian schools is part of an overall program promoting the health and wellbeing of students and school communities, and is funded under the Council of Australian Governments 'Tough on Drugs in Schools' measures. The program was introduced into Australian schools in the latter part of 2003.

Although a wide range of diverse approaches have been shown to be effective for prevention, Spooner (1998) argues that there are five key concepts for best practice in prevention, and that programs should be:
- comprehensive and consider the range of social influences and institutions (schools, parents, peers, media, police);
- long-term rather than one-off;
- age-specific;
- developmentally appropriate and culturally sensitive;
- based on research knowledge and include sound methods; and
- evaluated for both positive and negative effects.

Table 6. Major risk and protective factors for harmful substance use across the lifespan

Prior to birth	Infancy/ Pre-school	Primary school (5-11 years)	Secondary school (12-17 years)	Adulthood (18-64 years)	Retirement/ old age (65+ years)
			Risk factors		
Social disadvantage	Parental neglect & abuse	Early school failure	Low involvement in activities with adults	Frequent drug use in late adolescence	Losing a spouse
Family breakdown		Conduct disorder	Perceived high level of community drug use	Unemploy-ment in early adulthood	Loneliness & reduced social support
Genetic influences		Aggression	Community disadvantage & disorganisation	Mental health problems	
Maternal smoking & alcohol use			Availability of drugs		
			Positive media portrayal of drug use		
			Parent-adolescent conflict		
			Favourable parental attitudes to drug use		
			Parental AOD problems		
			Parental rules permitting drug use		
			Not completing secondary school		
			Peers who use drugs		
			Delinquency		
			Sensation seeking & adventurous personality		
			Favourable attitude toward drug use		
			Protective factors		
Birth outside Australia	Easy tempera-ment	Social and emotional competence	Attachment to family	Well-managed environment for alcohol use	
		Shy & cautious temperament	Low parental conflict	Marriage in early adulthood	
			Parental communication and monitoring		
			Religious involvement		

Source: Loxley et al., (2004)

Early intervention

Early intervention is a term that can be applied to prevention interventions for people who are in the early stages of drug use—that is, experimentation or the contemplation and early action phases of the *stages of change* process. The aim is to intervene early in the process to prevent the development of a major substance use disorder and all its concomitant health, social and personal problems.

Programs designed for people with more established substance use may be inappropriate for people early in the pathway to harmful substance use. It should be emphasised that programs facilitating interaction between young people experimenting with drugs and people with more established substance use behaviours are especially inappropriate, as such interaction may socialise young people further into drug-using and criminal sub-cultures. Young people in drug treatment programs are not just younger versions of adults in drug treatment: their issues and needs differ qualitatively and quantitatively, and youth-specific services are best able to meet those needs (Spooner, Mattick, & Howard 1996).

Historically, few treatment programs have been orientated specifically towards young people. Although, a comprehensive model of treatment for substance use in young people has been developed over the past 10 years by the Ted Noffs Foundation and the National Drug and Alcohol Research Centre (NDARC), evaluations have not been able to clearly demonstrate its effectiveness (Spooner, Mattick, & Howard, 1996). There remains an urgent need to develop effective early intervention programs to divert young people from harmful substance use.

Interventions to treat harmful drug use

The treatment and management of AOD problems is a diverse, dynamic and complex field. Readers are directed to *Management of Alcohol and Drug Problems* by Gary Hulse, Jason White and Gavin Cape (2002), for a more thorough account of management issues. What follows is a brief overview of some of the main treatment approaches relevant to psychologists.

Most people with harmful substance use do not attend specialist AOD services, but instead seek no help or are engaged with other services within the health, welfare and criminal justice systems. Evidence shows that up to 80% of people who experience drug-related problems resolve these without any formal treatment at all (Sobell, Cunningham, & Sobell, 1996; Sobell, Ellingstad, & Sobell, 2000). Consequently, it is essential to recognise the potential for self-initiated change and self-help (Granfield & Cloud, 1999), and the treatment role of a wide range of sectors and professional groups, including psychologists who do *not* specialise in AOD treatment.

Traditionally, many treatment approaches adopted disease models of addictive behaviours, which characterise the substance user as having a biological predisposition to be unable to control their behaviour. These approaches favoured either a medical approach through pharmacological solutions, or abstinence community-based approaches, such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA).

Recently, the most widely accepted treatment options have expanded to incorporate approaches based on psychological principles of behaviour change, such as cognitive behavioural therapy and motivational interviewing. Moreover, there is a large and growing body of research into what constitutes effective treatment, which is being used to develop evidence-based treatments.

There is, however, a diversity of evidence-based treatment options, and this is argued to be important for effectiveness and is consistent with the principles of harm minimisation. Miller and Hester (1995) advocate an 'informed eclecticism', defined as openness to a variety of approaches that is guided by scientific evidence. This approach is based upon four central assumptions:

1) there is no single superior approach to treatment for all individuals;

2) treatment programs and systems should be constructed with a variety of approaches that have been shown to be effective;

3) different individuals respond best to different treatment approaches; and

4) it is possible to match clients to optimal treatments, therefore increasing treatment effectiveness and efficiency.

Assessment

Fundamental to any treatment approach is the assessment and formulation of the individual's problems and resources, in order to determine appropriate treatment goals. This must occur alongside engagement and the development of the therapeutic relationship (Luborsky, 1994). The clinical interview remains the most

common assessment approach, with psychometric testing of AOD-specific and non-AOD aspects of functioning providing additional information as needed.

Assessment of substance-related issues should ideally occur within the context of a more comprehensive assessment of other important aspects of the person's life. It is also necessary to gain an understanding of the pattern of substance use, the risks involved, and what underlying needs the substance use is related to (Mentha, 2001). However, the benefits of a thorough assessment must be balanced by the need to provide harm minimisation education and intervention, especially where there are concerns that the client may not return for further sessions.

Given the high rates of co-existing mental illness and substance use, mental health workers should routinely assess for personal and family history of substance use, while AOD workers should routinely assess for personal and family history of mental illness and current symptoms of mental illness (NSW Health Department, 2000).

People with co-occurring mental health and substance use problems are generally perceived by service providers to be difficult to manage, time consuming, poor treatment compliers, highly mobile (including being homeless), lacking social supports, highly emotional, and at high risk of having worse psychiatric symptoms than other clients (ADCA, 2000). They also have higher rates of relapse and re-hospitalisation and more admission to emergency rooms (NSW Health Department, 2000). Co-morbidity requires an integrated service approach and appropriately targeted programs that treat both disorders concurrently (Cupitt, Morgan, & Chalkey, 1999).

The Best Practice in Alcohol and Other Drug Interventions Working Group from Western Australia has produced a valuable review of the intervention literature, and a guide to core counselling skills for working with clients with AOD problems (see Best Practice in Alcohol and other Drug Interventions Working Group, 2000a, 2000b).

Pharmacological interventions

Substance use has biochemical impacts and there is, therefore, an important role for pharmacological interventions. Pharmacological interventions take two main forms: 1) pharmaceutical assistance with the withdrawal process; and 2) replacement maintenance therapies (for a review see ADCA, 2003). Assistance with withdrawal includes pharmaceuticals to ease the symptoms of withdrawal or to gradually wean the person from the dependent substance. Replacement pharmacotherapies stabilise the individual so that other psychologically based treatment interventions can have greater effect.

Pharmacological interventions are currently available for only some of the more dependence-producing substances; namely, tobacco, alcohol and opiates (see Table 3). They are not currently available for other substances such as cannabis and amphetamines.

Nicotine replacement therapy (NRT) is available through the use of patches, gums, nasal sprays, inhalers, or non-nicotine bupropion, which all have similar

success rates. NRT has been shown to double the success rate for quitting (Silagy, Mant, Fowler, & Lancaster, 2000).

Pharmacological treatment of alcohol withdrawal is well advanced and at the stage of developing guidelines for best practice. Several withdrawal and maintenance therapies exist for alcohol dependence (see Heather, Peters, & Stockwell, 2001). Antabuse (disulfiram) interferes with the metabolism of alcohol, producing unpleasant sensations such as sweating, nausea and headaches, which can last from two to four hours, but the evidence of its effectiveness is limited. Naltrexone has been shown to be more effective, and acts by blocking the euphoric effect of drinking alcohol without the negative sensations experienced from Antabuse. Acamprosate is available through the Pharmaceutical Benefits Scheme, and has been shown to be an effective adjunct to psychological treatment strategies. There is strong evidence for the effectiveness of both acamposate and naltrexone (Cochrane Collaboration, 2000).

For opiate dependence, the New Pharmacotherapies Project has trialled a number of pharmacotherapy options in Australia (Ritter, Kutin, Linteris, & Bammer, 1997). Results have shown naltrexone to be effective for rapid detoxification under light sedation. Naltrexone has been registered for use in Australian since 1999 (National Drug Strategy, 2004). It is currently available on the Pharmaceutical Benefits Scheme for relapse prevention of alcohol withdrawal only, and available on private prescription for the relapse prevention of opioid withdrawal.

There is, however, no evidence that rapid detoxification with naltrexone under anaesthesia provides better outcomes than rapid detoxification under light sedation (National Drug Strategy, 2004). This approach was made famous some years ago as the supposed "wonder treatment" in Israel, leading to high consumer demand, which was based on the belief that this approach offered a quick, painless detoxification, which committed patients to abstinence. However, these perceptions are not well-founded (National Drug Strategy, 2004), and research consistently shows that rapid detoxification is neither quick nor painless. Furthermore, Mattick and colleagues (2001) reported that only 18% of people who had undergone rapid detoxification were continuing treatment at the three-month mark, and by six months, the retention rate dropped to less than 10%.

As well as being used for rapid withdrawal, Naltrexone is registered as a form of maintenance treatment for those who have stopped using heroin. It blocks both the craving for heroin and the effects of heroin if it is used. However, San and colleagues (1991) found that only 14% of participants completed six months of naltrexone maintenance treatment. Hulse and Basso (1999) argue that the inclusion criteria used by San et al. was too restrictive and that allowing for some periodic heroin use during treatment provides a more valid assessment of naltrexone maintenance. Using this outcome criterion, Hulse and Basso found that 60% were still on naltrexone at 6 months, and 28% had returned to heroin use and were not recommended for continuing naltrexone maintenance.

Other replacement maintenance therapies for opioid dependency include methadone, levo-alpha-acetylmethadol (LAAM) and buprenorphine. Methadone is a long-acting synthetic opiate, which replaces hazardous, illegal opiate use with a supervised, regulated and legal alternative. Methadone maintenance treatment

remains the most cost-effective treatment currently available in Australia (Ward, Mattick, & Hall, 1998). This has been confirmed through exhaustive national trials in six different States and Territories of a number of pharmacological treatments, including methadone, buprenorphine, LAAM and naltrexone (Ali et al., 2001).

Clinical trials in Australia (ACT, Victoria, SA, NSW) have provided positive results in the use of buprenorphine, both as a withdrawal agent and in maintenance treatment for heroin dependency (Ali et al., 2001). Buprenorphine produces a milder, less euphoric and less sedating effect than full opioid agonists such as heroin, morphine and methadone, but its activity is usually sufficient to diminish cravings for heroin, and prevent or alleviate opioid withdrawal in dependent heroin users. By its dual effects of producing opioid responses while blocking the effects of additional heroin use, buprenorphine reduces continued use of heroin (Lintzeris et al., 2001).

Psychological interventions

A wide range of psychological treatment options are available that vary in their approach depending on the goals of treatment. A definitive work on treatment approaches arose from the Quality Assurance project conducted at the National Drug and Alcohol Research Centre, which lists the following as appropriate strategies when the client's goal is moderation or abstinence: problem-solving skills training; drink-refusal skills training; assertiveness training; communication skills training; cognitive restructuring; relaxation training; behavioural self-management; relationship therapy; and relapse prevention (Jarvis, Tebbutt, & Mattick, 1995). Cognitive behavioural therapy and motivational interviewing will be briefly noted here because these have become core components of psychological interventions used in Australia that have demonstrated efficacy.

Cognitive Behavioural Therapy (CBT)

CBT strategies are based on the belief that harmful substance use is, at least partly, learned behaviour. Strategies aim to gain a better understanding of the pattern of substance use through systematic exploration of the person's use, identifying and challenging unrealistic thinking patterns that may contribute to the substance use, and increasing more adaptive and sustainable coping responses. CBT approaches can provide clients with practical skill development, enhance their feelings of self-efficacy, and address issues underlying the substance use, including the feeling states that may act as triggers for substance use (Beck, Wright, Newman, & Liese, 1993).

There is empirical support for the use of CBT to treat for substance use disorders, particularly for the treatment of alcoholism (Longabaugh et al., 2005). Longabaugh and colleagues outlined the effectiveness of cognitive therapies in treating alcohol addiction while highlighting the need to understand the mechanisms behind CBT success, arguing that there are, as yet, no comprehensive explanations as to why CBT is effective for the treatment of alcohol abuse (Morganstern & Longabaugh, 2000).

CBT has produced some positive results with cannabis dependence. However, there is evidence that briefer interventions, such as group social support or

motivational interviewing, could be as effective as full CBT for this group (Stephens, Roffman, & Curtin, 2000; Stephens, Roffman, & Simpson, 1994).

CBT can be complemented by other treatments, such as pharmacotherapy and 12-step programs like AA and NA (Beck et al., 1993). For example, contingency management (CM) is one of the most reliable treatments for harmful cocaine use, and involves monitoring (typically through urinalysis) and reinforcing abstinent behaviour. The effects of CM tend to subside following treatment, however, and CBT has been used alongside CM to produce more enduring reductions in substance use (Epstein, Hawkins, Cori, Umbritch, & Preston, 2003; Farabee, Rawson, & McCann, 2002).

While acknowledging the value of CBT interventions, Saunders (1997) suggests that going *beyond* CBT may provide better outcomes. He highlights the limitations of CBT in addressing the roles of identity and meaning in the behaviour change process, and cautions against the reduction of CBT strategies to a mechanical process in which the complexity and humanity of the individual is lost.

Research on the process of behaviour change supports Saunders' view. For example, Heatherton and Nicholls (1994) studied individuals who had been successful or unsuccessful in making major life changes. They found that while attributions of personal agency and internal control were important for maintaining behavioural change, one of the clearest differences between those who were successful and those who were not, concerned the role of meaning and identity. Nearly three quarters (70%) of those who successfully made a major life change believed that the establishment of a new identity was critical for long-term change. Successful changers stated that their new identity formed after the re-evaluation of life goals and meaning.

Motivational Interviewing

Motivation for change has long been regarded as a prerequisite for responsiveness and readiness for treatment (Miller & Tonigan, 1996). A tool to encourage motivation to change is motivational interviewing, which is defined as "a client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence" (Miller & Rollnick, 2002, p.25). Ambivalence towards change is seen as a normal part of the process, rather than an obstacle. The central philosophy underpinning motivational interviewing is that the approach relies on a respectful collaboration between therapist and client, rather than coercion or confrontation; motivation is elicited from within the client rather than imposed on them; and while the therapist facilitates the change process, the client maintains their autonomy and responsibility for their choices.

Motivational interviewing is a natural partner to the stages of change model, assisting people to develop strategies that are appropriate for their current stage of change, and is particularly useful for people in the precontemplation and contemplation stages (DiClemente & Velasquez, 2002). For example, if a person is only just beginning to contemplate changing their substance use, it may be premature to try and help them into an intensive residential rehabilitation program, as the person is not convinced they have a problem, let alone require such a major intervention. Instead, it may be beneficial to explore and evaluate the

substance use in relation to other meaningful goals they may have in life, such as employment, relationships or parenting.

Research into motivational interviewing approaches is growing, but inconsistencies across studies make comparisons difficult. In a review of 26 studies of brief motivational interviewing interventions, Burke, Arkowitz and Dunn (2002) found that there was relatively consistent support for the efficacy of the approach, particularly in comparison to no treatment, and that research involving substance use in particular showed positive findings. However, research of the effectiveness of motivational interviewing, specifically, is confounded by the fact that therapists with positive interpersonal skills and high empathy tend to be associated with better outcomes across a range of interventions for clients presenting with AOD problems (Moos, 2003; Najavits & Weiss, 1994).

12-step programs

One of the most widely used interventions for substance use is the self-help approach of 12-step programs. *Alcoholics Anonymous* (AA) was established in 1935 in the USA as a fellowship of men and women who share their experiences and support each other in their recovery from alcohol dependence (see Alcoholics Anonymous, 1976). *Narcotics Anonymous* (NA) developed in the late 1940s, also in the USA, with a similar format to AA (see Narcotics Anonymous, 1982). Other self-help programs, such Al-Anon and Nar-Anon, have developed over the years to support families and friends of people with substance dependence.

The AA approach is strongly supported by personal testimonials, and evidence from Project MATCH attests to its effectiveness for some people (Glaser et al., 1999). NA approaches have been less well researched, but a longitudinal study has shown that at 12-month follow-up, 40% of new members had maintained at least weekly self-help attendance and this had resulted in a number of advantages, including a four-fold reduction in alcohol and drug use and improvements in social support (Toumbourou & Hamilton, 2003).

Programs using the12-step approach tend to adopt a disease model of substance use, which attributes the person's difficulties with substance use to their personal make-up. Substance use is argued to be incurable, which fosters the belief that the individual cannot control an area of their life. Consequently, while 12-step programs have assisted many people to maintain their commitment to recovery, the principles underpinning the disease model are not appropriate for many people, and can reinforce problematic substance use following a relapse (see Peele, 1984).

Therapeutic communities

Therapeutic Communities (TCs) have undergone significant evolution over the past four decades since Maxwell Jones first developed the concept in the United Kingdom, and Synanon was established as the first therapeutic community in the USA (De Leon, 1990-91). The two models were significantly different. The UK model grew out of psychiatric hospitals and had professional staff, including psychiatrists, psychologists and mental health nurses to guide the treatment process. The USA model was based on 12-step philosophy and promoted experiential staffing by employing staff who had themselves completed a

treatment program. In Australia, programs now generally combine both philosophies, providing a multidisciplinary staff team that includes both professionally trained and experiential workers.

The TC process is one of social learning and development that follows a social-cognition approach, comprising attitudinal, normative and behavioural control components (De Leon, 1990-91). This process involves five main areas of primary treatment: socialisation in terms of developing attitudes and values of a mainstream, prosocial lifestyle; psychological improvement, in terms of heightened insight, self-esteem and self-efficacy; recognition of triggers to drug taking; the development of self-efficacy through new coping skills; and the development of drug-free social networks.

TCs have adopted a range of interventions that while still encompassing the broad principles of work, education and therapy, may also involve specific therapeutic approaches such as: CBT, interpersonal therapy, motivational interviewing, solution-focused therapy, family therapy, couple counselling, Gestalt, transactional analysis, psychodrama and psychotheatrics, art therapy, play therapy, and creative writing.

TCs have expanded to include populations such as women, families with children, adolescents, people with mental disorders, and forensic populations. This has necessitated modifications, and the development of special interventions and services applicable to different client groups. Some of the changes adopted by TCs include shorter residential programs, outpatient services, child care and interventions for children at risk, dual diagnosis programs, and pharmacotherapy treatments.

Comparison of treatment approaches

Two major studies have compared the effectiveness of the 12-step abstinence-orientated approach and cognitive-behavioural approaches. The first study by Ouimette, Finney, and Moos (1997) studied over 3000 clients at 15 Veterans Affairs Medical Centres in the USA, reporting that 12-step programs, cognitive-behavioural programs, and combined 12-step/cognitive-behavioural programs were equally effective in reducing substance use and improving most areas of functioning.

The second study, Project MATCH was a vast trial of treatment options in the USA, over an eight-year period, using a 35-member research team, 130 clinical professionals and multiple sites (30 locations) (see Glaser et al., 1999). The study employed three treatments that differed in philosophy and practice:

1) a 12-session 12-step facilitation therapy;

2) a 12-session CBT; and

3) a motivational enhancement therapy, designed to increase the motivation for and commitment to change.

The result, at the final follow-up (39 months later for the outpatient group), was that there were relatively few outcome differences between the three treatments.

Project MATCH has been criticised on a number of grounds. Sobell, Sobell, and Breslin (1998) suggest that the group studied was so highly selected that the

results are not generalisable. The eligibility criteria eliminated those with concurrent psychiatric problems or IV drug use, and the results apply mainly to people with moderate to severe alcohol dependence and no serious co-morbid issues, which tends to be the exception for AOD treatment populations.

The absence of differential outcomes from the different types of interventions reported by Project MATCH has been termed the "equivalence paradox" (Orford, 1999). This refers to the finding that the same treatment models were shown to have better results in some centres than others, which has led to the argument that, for many clients, it may be the quality of the therapist and therapeutic relationship that is more important than the type of intervention (Bambling & King, 2001).

In Australia, the first large-scale prospective study of treatment outcomes for heroin dependence was the Australian Treatment Outcomes Study (ATOS). The study collected data from heroin users on entry to three index treatments: methadone/buprenorphine maintenance; withdrawal; and residential rehabilitation, as well as a non-treatment control group, between April 2001 and September 2002. Participants were followed up at three and 12 months post entry.

The study found that the sample differed in many important ways from the general population, reporting much higher levels of post-traumatic stress disorder, major depressive episodes, borderline personality disorder and mental and physical disability. Around half the sample had attempted suicide on at least one occasion and the majority had overdosed at least once. Criminal activity was common, with drug dealing and property crime most prevalent (Holt, Ritter, Swan, & Pahoki, 2002).

Outcomes of the study revealed the general functioning of all participants had improved in the 12 months since treatment commenced, with greater improvements for the treatment groups than the control group (Ross et al., 2004). The majority of treatment participants had been abstinent from heroin for one month preceding the 12 month follow-up (methadone/buprenorphine maintenance 65%, withdrawal 52%, residential rehabilitation 63%). Substantially fewer (25%) of non-treatment individuals had been abstinent for the month preceding treatment. (It should be noted that 74% of the non-treatment group had received some form of intervention in the 12 months but that they had significantly fewer days of treatment than the treatment groups.) There was a notable reduction in criminal behaviour, marked improvements in injection-related health and the prevalence of major depression declined across treatment groups.

Relapse and relapse prevention

Although there are many interventions that have proven effective in modifying harmful substance use, success in maintaining behavioural change over time and across situations has been more difficult (Marlatt & Gordon, 1980). Clients often do not complete treatment and the prevalence of relapse following treatment is high (Baillie, Webster, & Mattick, 1992). Very few individuals are able to achieve long-term behavioural change on the first attempt (Addy & Ritter, 2000). Relapse is, therefore, a normal part of the recovery process for substance use disorders.

Although many substance users return to some form of AOD use, they may not return to the same level of use. It is important to define relapse as the return to

regular or daily use, or to the level of use for which treatment was originally sought (McAuliffe et al., 1986). A *lapse* has been differentiated from *relapse* as an initial, relatively isolated instance of substance use after a period of abstinence, or the first of an isolated instance of heavy use after a period of controlled substance use (Jarvis, Tebbutt, & Mattick, 1995).

Despite the normative nature of relapse, people who lapse or relapse are often counted as treatment failures. This dichotomous 'all-or-none' approach to assessing outcome reinforces the myth that all relapses are total, and that clients returning to substance use will do so to the same harmful extent as that prior to treatment (Marlatt & Gordon, 1980). A more helpful approach places relapse within the context of a normal cycle, where individuals typically cycle through stages of change several times before terminating a dependency (Prochaska, DiClemente, & Norcross, 1992). Both lapses and relapses can productively be seen as mistakes that provide opportunities for intervention and further learning.

One of the most frequently cited relapse prevention models was devised by Marlatt and Gordon (1980). The model focusses on the events surrounding initial drug use after a period of abstinence, and emphasises the effects of exposure to high-risk situations, low self-efficacy, lack of effective coping mechanisms and expected beneficial effects from the resumption of substance use (Addy & Ritter, 2000).

The majority (76%) of relapse episodes have been shown to fall into just three categories of high risk situational triggers: coping with negative emotional states, such as anxiety or depression; social pressure; and coping with interpersonal conflict (Marlatt & Gordon, 1985). The remaining 24% of all relapses fall into the categories of: giving into temptations and urges; enhancement of intrapersonal positive emotional states; negative physical states; testing personal control; and enhancement of interpersonal positive emotional states.

Relapse prevention training aims to help individuals identify high-risk situations and develop coping skills. An important component of the model is the point where a 'lapse' may turn into a 'relapse', which has been termed the abstinence violation effect (Helfgott, 1997). There are two main ways whereby a lapse turns into a relapse: firstly, continued use may be a way to obtain relief from the negative feelings of shame and guilt that follow the lapse; and secondly, the person may internalise the lapse by relating it to a personal failure or lack of willpower rather than to factors that could have been planned for and controlled. The key goals of relapse prevention training are to ensure a variety of skills and confidence to avoid lapses, and a set of strategies and beliefs that reduce the fear of failure, thereby preventing lapses turning into relapses (Jarvis, Tebitt, & Mattick, 1995).

As lifestyle also influences substance use behaviour, relapse-prevention training should also examine the lifestyle factors that can either hinder or support behaviour change (Saunders & Allsop, 1989). Furthermore, DeFina (1995) highlights the importance of the family system and understanding how each member of the person's family has developed individual ways of coping with the substance use problem within the family.

Relapse prevention training should be incorporated into any treatment program that is aimed at changing substance use. Research has shown that relapse

prevention strategies are effective and that active practising of strategies increases the likelihood of success, whether the person is pursuing the goal of abstinence or moderation (Mattick et al., 1993).

Summary

Key points related to understanding substance use are summarised below:

1) Substance use has always been and continues to be a part of ordinary human behaviour.

2) The effects of a substance vary according to: the nature of the substance itself (type of drug, strength, purity, combinations with other substances); characteristics of the individual taking the substance at that particular time (mental and physical states); and the social and cultural context affecting the substance use episode.

3) Societal responses to substance use have been shown, historically, to be politically, socially, culturally and economically motivated: they are not related to the nature of the substance itself or its level of use.

4) Prohibition responses do not lead to reduced substance use in the long term because they ignore the adaptiveness of human behaviour in terms of meeting needs and desires.

5) The vast majority of Australians use psychoactive substances. Greatest use is of the licit substances—coffee, alcohol and tobacco. Cannabis is the most commonly used illicit substance.

6) Not all substance use is harmful, but the use of any substance has the potential to cause harm.

7) Harmful effects from substance use can derive from intoxication, regular use and dependence.

8) Substance dependence is not defined solely through tolerance and withdrawal, but also by the impact of the substance use on the individual.

9) Substance use can cause harm to the user themselves and also to their family, workplace and community through accidents, violence and crime.

10) Substance use problems are commonly associated with mental health problems, including suicide.

11) A harm minimisation approach to drug harm has been adopted in Australia, which comprises supply reduction, demand reduction and harm reduction.

12) Harm reduction includes as goals both the reduction of drug use (abstinence) and the reduction of harmful drug use.

13) There are many diverse theories and models of substance use.

14) The *biopsychosocial* model recognises the complex interactive contributions of biological, psychological and social factors to substance use.

15) A *stages of change* approach can be applied to both initiation and cessation of substance use. People typically experience the stages of precontemplation, contemplation, preparation, action and maintenance. Relapse is a sixth stage recognised for reduction or cessation of harmful substance use.

16) Effective prevention of harmful drug use needs to focus on multiple risk and protective factors.

17) Most people with substance use problems do not attend specialist AOD agencies.

18) A wide range of effective treatments exist for AOD problems and there is no single superior approach to treatment for all individuals: different individuals respond best to different treatment approaches at different times.

19) Comprehensive assessment, including general mental health assessment, is essential to effective treatment.

20) There are effective withdrawal and replacement pharmacotherapies for some of the more dependence-producing substances, which can be important adjuncts to psychological treatments.

21) Effective psycho-social interventions include CBT and motivational interviewing approaches.

22) Peer-support 12-step programs have been demonstrated to be effective for some people, particularly for alcohol problems.

23) Therapeutic communities are a treatment approach that has changed markedly over time. They tend to be based strongly on peer-support and learning processes, but now provide a wide range of interventions aimed at a diverse client groups.

24) Two major studies have demonstrated the "equivalence paradox" showing that different treatment approaches are equally effective. It is argued that an empathetic and positive therapist is a common factor in effective interventions.

25) Harmful substance use poses particular challenges when co-morbid with mental health problems and this is the norm rather than the exception. An integrated service approach that treats both the harmful substance use and the mental health problems is essential.

26) Relapse is an expected part of the treatment process and relapse prevention should be routinely incorporated. Relapse prevention needs to focus on enabling clients to identify and cope with risky situations for relapse.

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