

# CHAPTER 1: INTRODUCTION

## BACKGROUND

The following inter-related observations (illustrated in Figure 1) have contributed to the focus of this report on social and structural determinants of drug use,<sup>a</sup> with a developmental perspective:

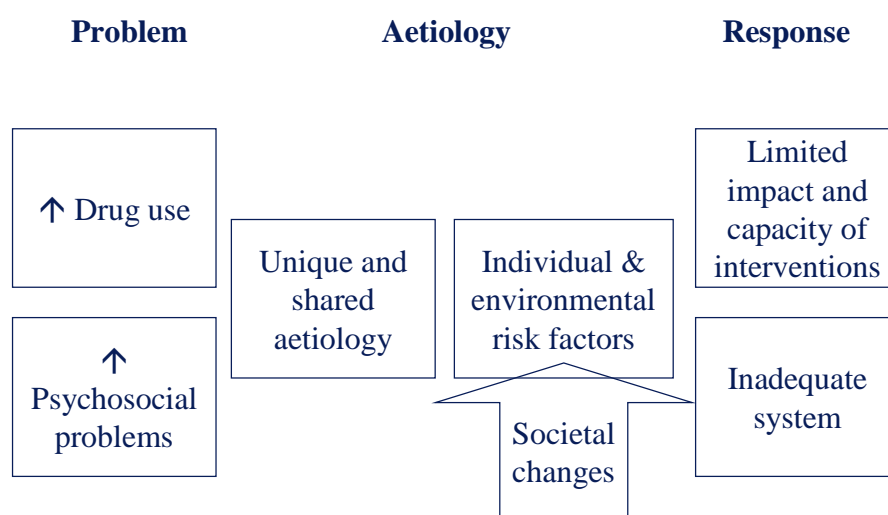
- Despite significant public expenditure and effort, evidence indicated that drug use and related problems were increasing, that the age of initiation of drug use was decreasing, and that new drug patterns (for example, the use of ecstasy and related drugs) were emerging.
- There have been increases in other behavioural and psychosocial problems.
- The co-occurrence of these increases is likely to be due to a combination of shared risk factors. Consequently, there is value in addressing shared risk factors, rather than treating these problems in isolation.
- The development of drug use and other risk behaviours is the result of a complex interplay of individual and environmental risk factors. Interventions that address only individual risk factors (for example, knowledge, skills, attitudes) can have only limited impact when environmental risk factors remain unchanged and continue to be influential.
- Western societies have been undergoing rapid social changes and these changes appear to be adding to the environmental risk factors for drug misuse and other problems.
- Social institutions (for example, childcare, education systems) do not appear to be completely effective, particularly in the context of these social changes.

This report focuses on environmental risk factors for drug use, particularly those that also contribute to other psychosocial and behavioural problems. It examines how our social institutions and policies can influence the environment in such a way as to reduce drug use and related problems. Other aspects of the aetiology and prevention of problematic drug use are important (i.e. drug-specific interventions such as drug policies, drug law enforcement, and individual risk factors such as knowledge and skills), but are not reviewed in this report as they are fully discussed elsewhere.<sup>1</sup> Each of the elements of the rationale for this project is discussed below.

---

<sup>a</sup> Throughout this report, the term ‘drug’ is used to denote any psychoactive drug (or ‘substance’), including tobacco, alcohol, pharmaceuticals, cannabis, ecstasy, cocaine, amphetamines, heroin and volatile substances.

**Figure 1: Elements contributing to this report**



## **Problematic drug use**

Not all drug use is problematic. In fact, drug use can be normative<sup>2</sup> and functional.<sup>3</sup> This report is concerned with drug use that *could* be associated with harm (for the drug user or others) or *is* contributing to harm (to the user or others). This concept is further delineated below, followed by a description of problematic drug-use patterns and trends.

### **Definition**

Various systems of classification attempt to identify drug-use patterns, with no one system sufficiently descriptive of the range of problems that exist. For example, the American Psychiatric Association has developed the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV), which outlines specific criteria for the diagnosis of drug-use disorders, including drug abuse and drug dependence (Appendix 1).<sup>4</sup> The criteria for drug abuse entail continued drug use despite use resulting in significant problems. The criteria for drug dependence include, in addition to continued drug use despite problems, symptoms such as tolerance and withdrawal. The International Classification of Diseases and Related Health Problems, tenth revision (ICD-10), outlines criteria for dependence similar to the DSM-IV criteria for dependence (Appendix 2).<sup>5</sup>

The World Health Organization provides further terms to describe use that might not qualify for such a diagnosis, but might be of concern:<sup>6</sup>

- (a) *Unsanctioned use*: use of a drug that is not approved by a society, or a group within that society.
- (b) *Hazardous use*: use of a drug that will probably lead to harmful consequences for the user. This concept is similar to the idea of risky behaviour.
- (c) *Dysfunctional use*: use of a drug leading to impaired psychological or social functioning (e.g. loss of job or marital problems).
- (d) *Harmful use*: use of a drug that is known to have caused tissue damage or mental

illness in the particular person (p. 228).<sup>6</sup>

The Advisory Council on the Misuse of Drugs in the United Kingdom defined ‘problem drug use’ as ‘drug use with serious negative consequences of a physical, psychological, social and interpersonal, financial or legal nature for users and those around them’ (p. 7).

<sup>7</sup> The National Health and Medical Research Council (NHMRC) has developed guidelines that define drinking patterns as low risk, risky (short and long term) and high risk (short and long term) for males and for females (www.alcoholguidelines.gov.au). These are summarised in Table 1.

**Table 1: National Health and Medical Research Council Australian alcohol guidelines**

	Low risk	Risky (Standard drinks)	High risk
<b>Risk of harm in the short term</b>			
Males	Up to 6 (on any day, no more than 3 days per week)	7 to 10 (on any one day)	11 or more (on any one day)
Females	Up to 4 (on any day, no more than 3 days per week)	5 to 6 (on any one day)	7 or more (on any one day)
<b>Risk of harm in the long term</b>			
Males			
On an average day	Up to 4 (per day)	5 to 6 (per day)	7 or more (per day)
Overall weekly level	Up to 28 (per week)	29 to 42 (per week)	43 or more (per week)
Females			
On an average day	Up to 2 (per day)	3 to 4 (per day)	5 or more (per day)
Overall weekly level	Up to 14 (per week)	15 to 28 (per week)	29 or more (per week)

Source: National Health and Medical Research Council, 2001, p. 5<sup>8</sup>

Drug use would clearly be regarded as problematic when:

- It qualifies the user for a DSM-IV or ICD-10 diagnosis of drug abuse or drug dependence (Appendices 1 and 2).<sup>45</sup>
- For alcohol, it meets NHMRC guidelines for risky drinking.<sup>8</sup>
- It involves smoking (there is no safe level of use of tobacco).<sup>9</sup>

There is disagreement regarding the classification of some drug-use behaviours as ‘problematic’. For example, some people would regard *any* illicit drug use as problematic because it is illegal, whereas others might argue that if there are no problems associated with use, apart from the fact that use is illegal, then it is not problematic. Given that 33 per cent of a sample of Australians aged 14 years and over (59 per cent of the 20–29 year age group) reported in 2001 that they had ever used cannabis,<sup>10</sup> some would argue that cannabis use is so prevalent that it should not be regarded as deviant or problematic. Others, such as the police, might disagree, arguing that the illicit drug trade can be violent and that any participation in that trade contributes to that violence.

The use of *any* drug by adolescents is regarded as problematic or as drug abuse by some people. For example, Tarter argued that any use of any drug by an adolescent is ‘drug abuse’, because (at least in the United States of America) it is illegal for adolescents to smoke cigarettes or consume alcohol, let alone use illegal drugs.<sup>11</sup> Yet others argue that experimentation, even with illegal drugs, is a normal part of growing up. This argument is supported by the results of a longitudinal study (from preschool to age 18) that compared three groups of adolescents: one group who had experimented with drugs, a second group who had not experimented with drugs, and a third group who used drugs frequently. Adolescents who were frequent drug users were most likely to be maladjusted — demonstrating interpersonal alienation, poor impulse control and manifest emotional distress. Adolescents who had engaged in some drug experimentation (primarily cannabis) were the best adjusted in the sample. Adolescents who, by age 18, had never experimented with any drugs were relatively anxious, emotionally constricted and lacking in social skills.<sup>12</sup>

Others are concerned about early initiation of drug use because it has been associated with later problems.<sup>13</sup> For example, some research suggests the use of cannabis can be associated with use of other illicit drugs (that is, the gateway hypothesis), although this is a subject of considerable debate.<sup>14-17</sup>

The issue of whether or not a certain pattern of drug use is ‘problematic’ is open to different interpretations and cannot be solved here. Throughout this report the term ‘drug use’ refers to a range of drug-use patterns. We do not assume that all drug use is risky, harmful or immoral. However, we are primarily concerned with drug use that is risky or harmful to the health and well-being of the user or others such as family and the general community.

### Problems associated with drug use

Alcohol, tobacco and illicit drugs are major contributors to the burden of disease in Australia and worldwide (Table 2).<sup>18</sup> The health harms associated with drug use will not be examined here, as such reviews exist elsewhere.<sup>19 20</sup>

**Table 2: Leading causes of burden of disease and injury in young adults aged 15–24 years: disability-adjusted life years (DALY) by sex, Australia, 1996**

<b>Males</b>	<b>DALY</b>	<b>Per cent of total</b>	<b>Females</b>	<b>DALY</b>	<b>Per cent of total</b>
Road traffic accidents	15,013	13.2	Depression	14,096	14.3
Alcohol dependence and harmful use	12,827	11.3	Bipolar affective disorder	7,054	7.2
Suicide and self-inflicted injuries	10,421	9.1	Alcohol dependence and harmful use	6,703	6.8
Bipolar affective disorder	7,076	6.2	Eating disorders	6,401	6.5
Heroin dependence and harmful use	8,411	7.3	Social phobia	5,886	6.0
Schizophrenia	5,291	4.6	Heroin dependence and harmful use	5,125	5.2

Source: Mathers C, Vos T, Stevenson C, 1999, p. 71<sup>21</sup>

Drug use can be associated with a range of harms — not just health harms for users. For example, drug dealing is associated with a range of problems, including arrest and involvement in violence.<sup>22</sup> MacCoun and Reuter have presented a multidimensional ‘taxonomy of harm’<sup>23</sup> which includes four categories of harm (health, social and economic functioning, safety and public order, criminal justice); six groups that bear the harms/risks (users, dealers, intimates (family, partners, friends), employers, neighbourhood and society); and three sources of harm (use, illegal status and enforcement).

Young people are particularly vulnerable to harms from alcohol and other drug use. For example, Fergusson and colleagues’ longitudinal research in New Zealand found that cannabis use in adolescence and early adulthood impeded the educational achievement of young people at age 25.<sup>24 25</sup> Guo and colleagues’ longitudinal study of youth aged 10–21 years in Seattle found that binge drinking and cannabis use during adolescence predicted behaviours that placed people at risk of contracting sexually transmitted diseases, such as HIV, at age 21.<sup>26</sup> White, Bates and Labouvie reviewed the research on the adult outcomes from adolescent drug use and concluded that, while there are some contradictory findings, there is evidence to suggest that drug use can affect longer term developmental outcomes.<sup>27</sup>

Young people can also suffer negative consequences from their parents’ drug use; for example, as a result of environmental tobacco smoke,<sup>28 29</sup> drug use during pregnancy<sup>30</sup> and the increased risk of adverse parenting by drug-dependent parents.<sup>31-34</sup> This is not to say that drug-dependent people are necessarily poor parents.<sup>35</sup> However, research has demonstrated that children of drug-dependent parents are more likely to be at risk than other children.

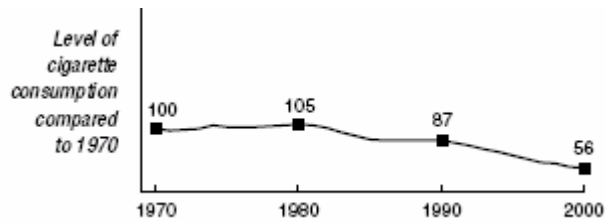
This section has only touched on the multiple problems associated with drug use. The aim of this section is not to imply that all drug use is harmful, but to identify the multiple risks and harms associated with drug use and the need to minimise those risks and harms.

### **Trends in drug use**

Substantial funds have been devoted to drug prevention in Australia. According to the Australian Institute of Health and Welfare (AIHW), the Australian Government spent \$146.2 million on the prevention of hazardous and harmful drug use in 2000–01.<sup>36</sup> This represented 15 per cent of the total national expenditure (\$987 million) on core public health activities, making drug prevention the fourth most highly funded public health activity, after organised immunisation, communicable disease control and selected health promotion.

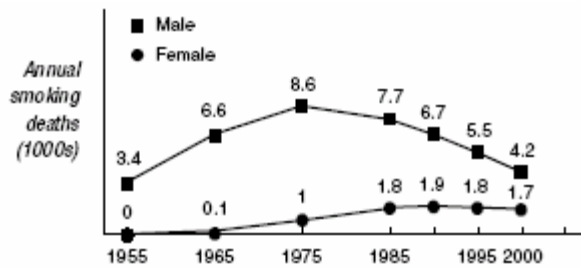
There have been some ‘successes’ in drug prevention, particularly where efforts have been substantial, sustained and evidence-based. For example, evidence strongly supports the impact of random breath testing on road accidents<sup>37 38</sup> and the impact of needle and syringe programs on the transmission of blood-borne viruses, particularly the human immunodeficiency virus (HIV) and the hepatitis C virus.<sup>39</sup> Further, there have been positive trends in drug-use consumption patterns, perhaps reflecting public health programs. For example, smoking rates, particularly among males,<sup>40-42</sup> have reduced in most developed countries, including Australia, in the past 30 years.<sup>43</sup> Annual per capita consumption from 1970 to 2000 and smoking-attributable deaths by gender in Australia, as provided by Shafey and colleagues, are illustrated in Figures 2 and 3.<sup>43</sup>

**Figure 2: Annual per capita consumption, three-year moving average**



Source: Shafey O, Dolwick S, Guindon GE (eds), 2003, p. 62 <sup>43</sup>

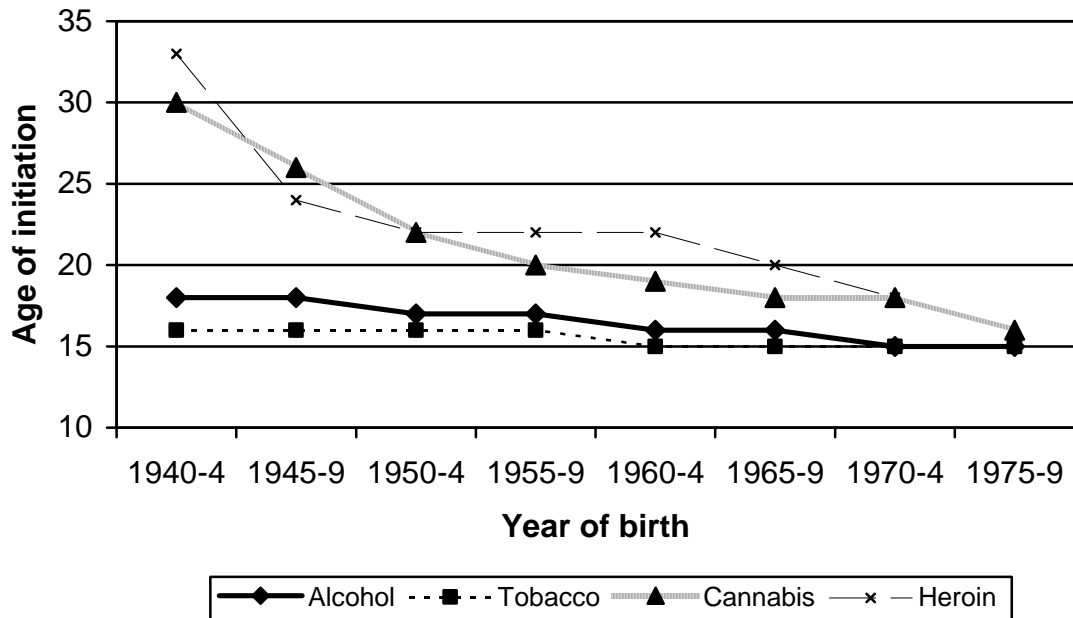
**Figure 3: Smoking-attributed numbers of deaths per year, ages 35–69 only**



Source: Shafey O, Dolwick S, Guindon GE (eds), 2003, p. 63 <sup>43</sup>

In contrast to tobacco use, trends in alcohol and other drug use suggest increased use. <sup>44</sup>  
<sup>45</sup> For example, Degenhardt and colleagues analysed data from the 1998 National Drug Strategy's household survey of drug use. <sup>46 47</sup> They identified that, relative to older cohorts, younger cohorts commenced use of alcohol and tobacco at a younger age, were more likely to have used cannabis, amphetamines, heroin and hallucinogens (LSD), and to have commenced such use at a younger age (Figures 4 and 5).

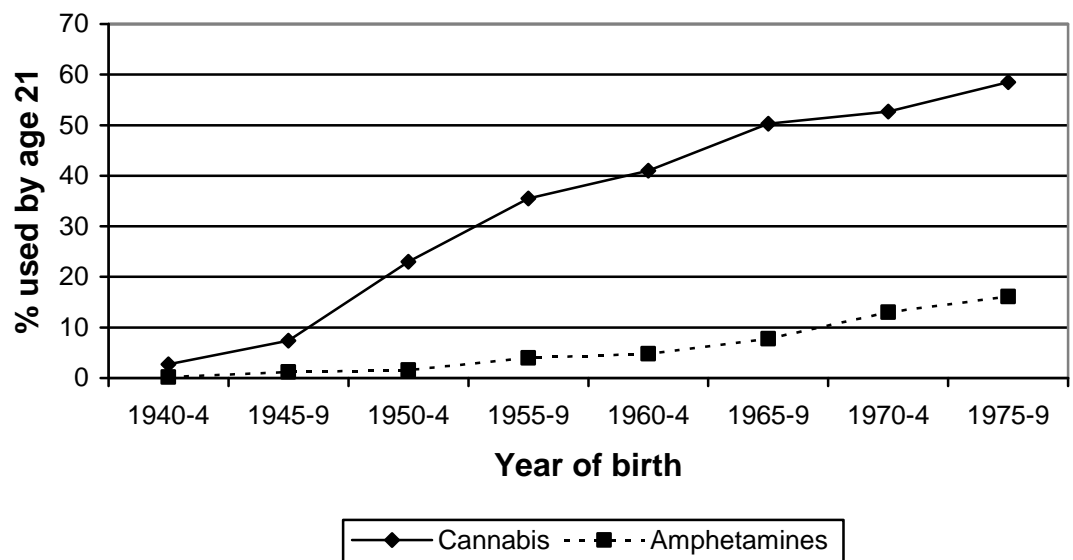
Figure 4: Cohort trends in age of initiation



Source: Degenhardt L, Lynskey M, Hall W, 2000, pp. 421–426 <sup>47</sup>

Figure 4 illustrates that a person born between 1940 and 1944, who had ever used heroin or cannabis, first did so, on average, in their early thirties. A person who was born between 1975 and 1979, who had ever used heroin or cannabis, first did so as a teenager. This indicates that the age of initiation of heroin use and of cannabis use has dropped substantially. A decrease in the age of initiation of tobacco use and of alcohol use (from age 18 to age 15) was also reported.

Figure 5: Cohort trends in use by age 21

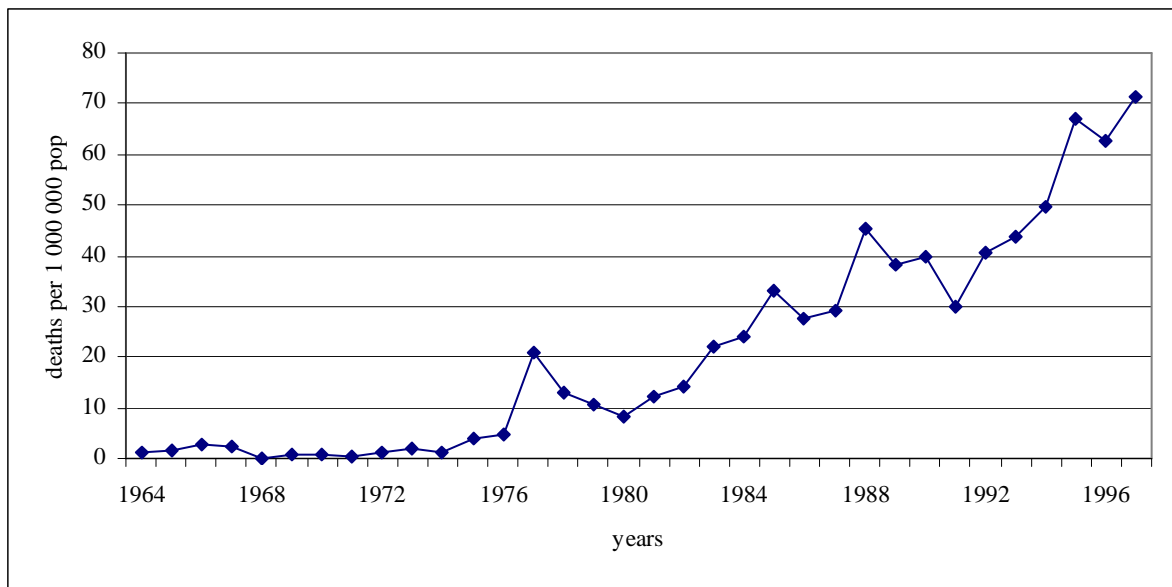


Source: Degenhardt L, Lynskey M, Hall W, 2000, pp. 421–426 <sup>47</sup>

Figure 5 illustrates how the prevalence of the use of cannabis and amphetamines has increased in the past 50 years. In the cohort born between 1940 and 1944, less than 5 per cent had used cannabis or amphetamines by age 21. Among those born between 1975 and 1979, 18 per cent had used amphetamines and 60 per cent had used cannabis by age 21.

Another trend of concern has been the increase in opioid overdoses since the 1960s (illustrated in Figure 6).<sup>48,49</sup> Following a peak in 1999, the rates of overdose have declined,<sup>50</sup> but not to the levels seen in the 1960s.

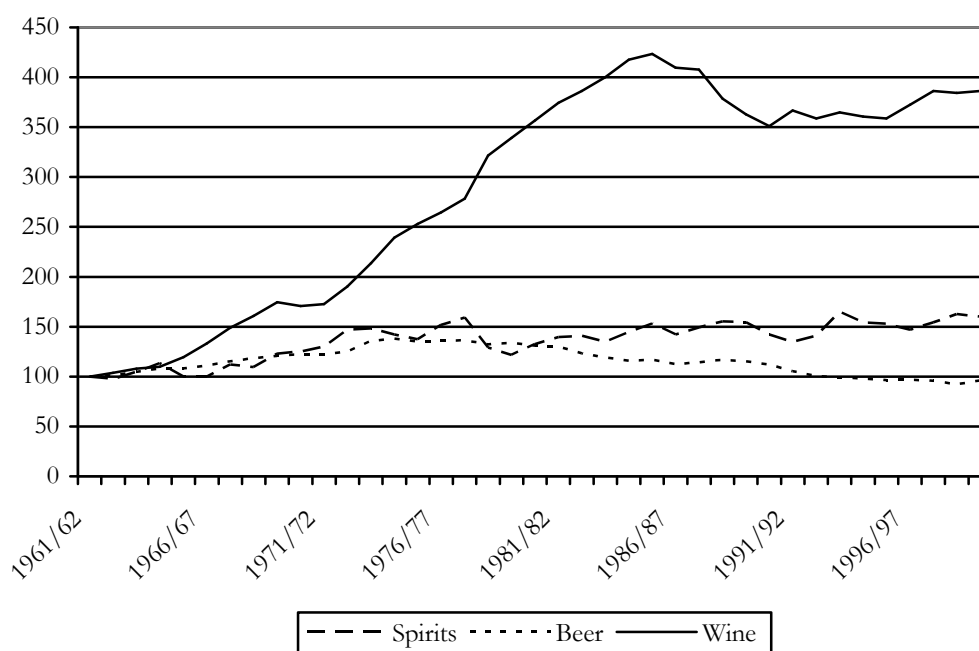
**Figure 6: Trends in opiate overdose mortality, 1964–1997**



Source: Hall, W, Degenhardt L, Lynskey M, 1999, pp. 34–37<sup>49</sup>

While the World Health Organization reported that alcohol consumption per capita has generally declined in developed countries since a peak in the 1970s,<sup>51</sup> Figure 7 illustrates how alcohol use in the form of wine consumption has increased in Australia since the 1960s.

**Figure 7: Consumption of alcohol (standardised), Australia, 1961–2000**



Source: Productschap voor Gedistilleerde Dranken (Commodity Board for the Distilled Spirits Industry), 2001<sup>52</sup>.

Notes: <sup>1</sup> Standardised to 1961–62. i.e. A value of 100 means that consumption was equal to that in 1961–62. A value of 200 means double and a value of 50 means half that in 1961–62.

<sup>2</sup> Includes low alcohol and alcohol-free beer, market share in 1991: less than 0.5%. Data values for spirits 1998–99 and 1999–2000 and beer 1998–99 are estimated data.

Further data on alcohol consumption in Australia were provided by the 2001 National Drug Strategy household survey. Researchers from the National Drug Research Institute compiled this data with reference to the NHMRC guidelines for alcohol consumption (presented above).<sup>53</sup> The results reported by Chikritzhs and colleagues illustrated that drinking patterns in Australia are far from ideal. For example:

- The vast majority of alcohol consumption reported by young people was at a risky or high-risk level for acute harm: 85 per cent of females aged 14–24 years, and 80 per cent of males aged 14–17.
- Nearly half (44 per cent) of all alcohol use reported was consumed by people who exceeded the NHMRC guidelines for avoiding problems from the chronic effects of alcohol.
- The percentage of girls aged 14–17 years who drank at risky or high-risk levels for long-term harm rose from 1 per cent in 1998 to 9 per cent in 2001.

The use of amphetamines<sup>51</sup> and ecstasy and related drugs<sup>54–57</sup> has increased. In Australia, the percentage of people in general population surveys who reported that they had ever used ecstasy increased from 2 per cent in 1995 to 6 per cent in 2001.<sup>58</sup> At least some of this use has resulted in problems for users, as reflected in statistics from the Alcohol and Other Drug Treatment Services National Minimum Dataset.<sup>59</sup> This dataset indicated that, among 20–29 year olds receiving treatment for drug problems in Australia in 2002–03, 'party drugs' such as amphetamines, ecstasy and cocaine were the principal drug of concern in 11 per cent of treatment episodes for 10–19 year olds, 16 per cent for 20–29 year olds, and 8 per cent for clients aged 30 years or more.

Taken together, these trends suggest that, despite significant expenditure on drug prevention, drug use and drug-related problems remain high or are increasing. In order to adequately address drug-use problems, more needs to be done or perhaps a different approach taken. While these trends could be due to factors such as increased availability of drugs, trends in other areas, for example, youth suicide rates, suggest they are part of a broader social pattern. This will be discussed later in this report.

## **Problem behaviours and comorbidity**

Problematic drug use has been associated with other problem behaviours such as delinquency and school failure and with mental health problems. As discussed below, the relationships are complex but the shared risk factors and developmental sequences need to be considered in aetiological research and in interventions.

### **Drug use and other problem behaviours**

There are a number of related terms used to describe behaviours that are problematic.

Delinquent behaviour:	Behaviours that are ‘(a) engaged in by adolescents and (b) labelled “criminal” by society’ (p. 764) <sup>60</sup>
Antisocial behaviour:	Behaviour that is ‘contrary to accepted social customs and causing annoyance’ (Oxford Dictionary)
Problem behaviour:	Behaviours that usually elicit social sanctions (for example, illicit drug use, delinquency, drink-driving) <sup>61</sup>
Risk behaviour:	Behaviour ‘that can compromise well-being, health and the life course’ (p.2). <sup>61</sup> Jessor describes risk behaviours as behaviours that are <i>risk factors</i> for personally, socially or developmentally undesirable outcomes (for example, unhealthy eating, tobacco use, sedentariness, truancy, school drop-out, drug use at school).

Some researchers have advocated a general deviance or problem behaviour construct (in particular, Jessor), <sup>61 62</sup> while others have argued for a more differentiated approach. <sup>63</sup> There are arguments for both conceptualisations. For example, Loeber and colleagues tested Jessor’s theory of problem behaviour using data from the Pittsburgh Longitudinal Study of three age groups of 1,517 boys from Pittsburgh public schools. The authors reported that the analyses provided:

considerable support to Jessor’s problem behavior theory, with many problem behaviors being associated with many other problem behaviors and with shared risk factors being linked to different manifestations of problem behavior. (p. 135)

However, while they found that drug use, attention deficit hyperactivity disorder (ADHD), conduct problems, physical aggression, covert behaviour, depressed mood and being shy/withdrawn did correlate, the strength of correlations varied between outcomes and were strongest for those outcomes that were developmentally close to each other. The highest correlations were between ADHD scores, covert behaviour, physical aggression, conduct problems and delinquency. The lowest correlations were between depressed mood, shy/withdrawn behaviour and drug use, although these were all significantly correlated in most comparisons.

In this report, the term ‘problem behaviour’ is used as a broad term to denote the various behaviours described above. However, we note that participation in any of the above can occur within the bounds of normal adolescent behaviour and that, in fact, engagement in some problem behaviours can be a normal part of meeting a developmental need.<sup>60</sup> Moffitt and colleagues have described how delinquency can be life course-persistent or adolescent-limited:

delinquency conceals two distinct categories of individuals, each with a unique natural history and etiology: A small group engages in antisocial behavior of one sort or another at every life stage, whereas a larger group is antisocial only during adolescence. According to the theory of life course-persistent antisocial behavior, children's neuropsychological problems interact cumulatively with their criminogenic environments across development, culminating in a pathological personality. According to the theory of adolescence-limited antisocial behavior, a contemporary maturity gap encourages teens to mimic antisocial behavior in ways that are normative and adjustive. (abstract)<sup>64</sup>

Adolescent-limited antisocial behaviour is more common but shorter lived than life course-persistent antisocial behaviour.<sup>64</sup> While Moffitt described adolescence-limited delinquency as an ‘adaptive behaviour’ (p. 685), he argued that life course-persistent antisocial behaviour can be considered a psychopathology ‘characterised by tenacious stability across time and in diverse circumstances’ (p. 685). Moffitt noted that interventions with life course-persistent individuals have met with ‘dismal results’ (p. 684).

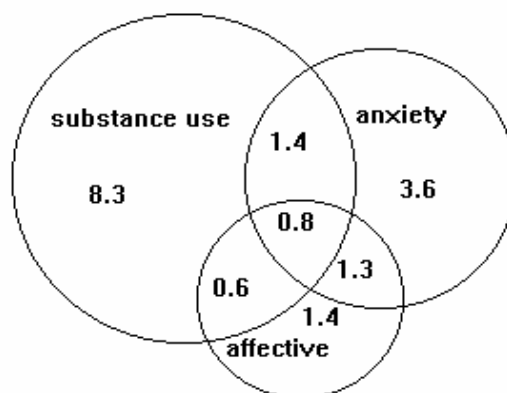
### **Comorbidity: drug-use disorders and mental disorders**

It is well documented that people with drug-use disorders often have a concurrent mental disorder<sup>65 66</sup> and suicidal behaviour.<sup>67-71</sup> For example, results from the Australian National Survey of Mental Health and Wellbeing identified that 66 per cent of males and 45 per cent of females who had a drug disorder also had an anxiety and/or affective disorder.<sup>b</sup> Teesson and Proudfoot illustrated the co-occurrence of these disorders among males and females (Figures 8 and 9).<sup>72</sup>

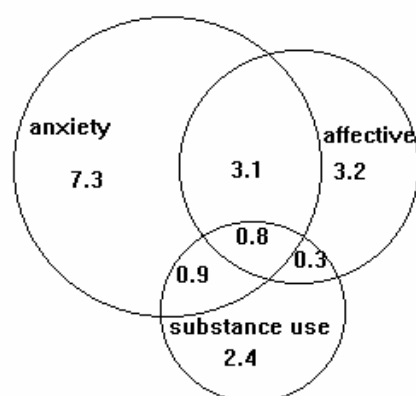
---

<sup>b</sup> Anxiety disorders: social phobia, agoraphobia, panic disorder, generalised anxiety disorder, obsessive compulsive disorder, and post-traumatic stress disorder.  
Affective disorders: major depressive episode, dysthymia, mania, hypomania and bipolar affective disorder.  
Drug-use disorders: abuse/harmful use and dependence on alcohol or four types of drug: cannabis, opioids, sedatives and stimulants.

**Figure 8: Prevalence (%) of single and comorbid affective, anxiety and substance use disorders amongst Australian males in the past year**



**Figure 9: Prevalence (%) of single and comorbid affective, anxiety and substance use disorders amongst Australian females in the past year**



Source: Teesson M, Proudfoot H (Eds.), 2003, pp. 3–4 <sup>73</sup>

Treatment-based studies of drug-dependent people also indicated high rates of comorbidity among people with a drug disorder. For example:

- Mills, Teesson, Darke, Ross and Lynskey reported on a study of a cohort of 210 young Australians aged 18–24, who had entered a drug-treatment facility for heroin dependence. In this sample, the following rates of psychiatric comorbidity were identified: 37 per cent lifetime Post Traumatic Stress Disorder, 23 per cent current Major Depression (17 per cent had attempted suicide in the preceding year), 75 per cent Anti-Social Personality Disorder, and 51 per cent Borderline Personality Disorder. <sup>74</sup>
- Spooner, Mattick and Noffs reported on a study in which 120 adolescents who applied for a residential drug treatment program in Sydney were screened using the Symptom Checklist-90-Revised, a psychiatric screening instrument that assesses psychological symptom status on nine dimensions: somatisation, obsessive-compulsive traits, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid

ideation, psychoticism. More than half of the females (56 per cent) and a quarter of the males (25 per cent) were classified as 'cases' or at risk of having a psychiatric disorder.<sup>75</sup>

- Callaly and colleagues, using the Composite International Diagnostic Interview, interviewed a sample of 62 methadone clients within six months of commencing the program. They found a prevalence rate of psychiatric disorder up to ten times higher among the methadone clients than would be expected for a general population sample.<sup>76</sup>

### **Negative trends in related problems**

It is not uncommon for individuals and the media to express concern about increases in drug use and crime. However, such concerns are often not balanced or are not based upon valid and reliable data. Positive trends exist, but these are rarely a subject of discussion. For example, infant mortality rates in Australia have halved in the last 25 years and life expectancy has increased in the last century by 22 years (40%) for males and 24 years (41%) for females.<sup>77</sup>

With respect to the evidence base, we do not have valid and reliable long-term data for most psychosocial problems. Such data either do not exist or are of limited utility. For example, observed changes can be due to artefact resulting from changes in reporting. Disagreement exists as to whether some outcomes are actually increasing or decreasing (see, for example, the debate regarding trends in child sexual assault).<sup>78-80</sup>

Graycar described how crime trend data can be difficult to interpret.<sup>81</sup> Legislation (for example, criminal sanctions for topless bathing or homosexual acts between consenting adults), levels of attention from police and courts for particular crimes and groups, opportunities (for example, the availability of cars and of illegal drugs), reporting (for example, of domestic violence and child abuse), the social system (for example, treatment of people with mental disorders), record keeping (for example, Aboriginal Australians were not counted in official statistics at the beginning of the 20th century) and sentence options (for example, diversion options) have varied so much over the last century that long-term trends are not a good reflection of actual trends in criminal behaviour.

Having noted the need for caution and balance, various prominent researchers have reported negative trends in a number of behaviours and other indicators of well-being in Western societies.<sup>82-84</sup> Perhaps the most cited and credible of these reports is that of Rutter and Smith, who investigated international trends in psychosocial problems and reported increases in crime, depression and suicide.<sup>82</sup> In relation to crime, they reported that, across the last two centuries, crime followed a U-curve. High rates of crime and disorder were observed early in the 19th century, especially in larger cities, followed by falling crime rates in the late 19th and early 20th century, and large increases after the Second World War. Rutter and Smith described the increases in crime between 1951 and 1990 as 'striking', and noted that most crime was committed by young people under age 29. While country variations existed, the crime rate per head of population generally increased by a factor of about five during this period. With regard to specific crimes over the period 1977–90, substantial increases in rates of serious assault in Australia, Denmark, England and Wales were reported. While no data were found on depression for the period before the Second World War, evidence from a range of studies has suggested an increase in depressive symptoms since then. During the 20th century, a general increase in suicide was recorded across Europe, with the increase in the last third of the 20th century confined to young people in particular.

Researchers from the Institute of Psychiatry, King's College London and the University of Manchester reported an analysis of data from three national surveys conducted in the United Kingdom in 1974, 1986 and 1999. Consistent with Rutter and Smith's analyses, they identified increases in emotional problems (such as depression and anxiety) and conduct problems for both males and females aged 15 years.<sup>85 86</sup> Furthermore, they reported the emergence of a social class gradient in these emotional problems throughout this period.

Summarising data from the United States of America, Bronfenbrenner and colleagues reported a number of negative trends in crime rates. These included increased rates of violent crime, aggravated assault and robbery between 1960 and 1995; and a 168 per cent increase in the number of arrests for homicide between 1984 and 1993 among youth aged less than 18 years.<sup>83</sup> Twenge reported on two meta-analyses that indicated that people from the United States of America have developed higher levels of anxiety and neuroticism since the 1950s.<sup>87</sup> Since Bronfenbrenner's report, the United States Department of Health and Human Services has produced annual reports on trends in the well-being of children and youth in the United States.<sup>88</sup> Some problematic trends appear to have levelled off. For example, suicides, violent crime arrest rates and deaths due to injury by firearms among youth have reduced since their peak in the mid-1990s.

Professor Fiona Stanley has presented indicators of adverse trends in the developmental health of Australian children and young people. Among a list of indicators, Stanley noted:<sup>84</sup>

- The rate of youth suicides for young males has trebled since 1960.
- The death rate from drug dependence in 1998 was almost five times the 1979 rate.
- Cases of permanent brain damage due to child abuse (shaken baby syndrome) have risen dramatically since 1985.
- Reports of child sexual assault have more than doubled in the last decade.
- Involvement by juveniles in offences against the person has increased.

Even regarding those trends about which we can be reasonably confident, the reasons for their patterns are likely to be complex. Smith and Rutter regarded social disadvantage, inequality and unemployment as unlikely reasons for the psychosocial trends they reported (above). They suggested these trends could be due to increased prevalence in family risk factors such as parental conflict, separation and neglect; changes in adolescent transitions; cultural shifts (breakdown in frameworks providing values, purpose, a sense of belonging).<sup>89</sup> Bronfenbrenner attributed the observed trends to a notion of 'growing chaos',<sup>83</sup> while Keating and Hertzman posited societal change as the cause.<sup>90</sup> Each of these explanations suggests that aspects of our changing society are having a negative impact on some outcomes, including drug use.

### **Explanations for co-occurrence**

Why does drug misuse tend to co-occur with other problem behaviours and mental health problems? This section explores answers to this question.

### *Drug misuse and problem behaviours*

Some researchers suggest that problem behaviours co-exist because they share a common aetiology.<sup>61 62</sup> Hawkins, Catalano and Arthur reviewed the literature and summarised a range of shared and specific risk factors for adolescent drug abuse and other problem behaviours. Their summary table is reproduced in Table 3.<sup>91</sup>

**Table 3: Adolescent problem behaviours**

Risk factors	Substance abuse	Delinquency	Teen pregnancy	School drop-out	Violence
<i>Community</i>					
Availability of drugs	✓				✓
Availability of firearms		✓			✓
Community laws and norms favourable toward drug use, firearms and crime	✓	✓			✓
Media portrayals of violence					✓
Transitions and mobility	✓	✓		✓	
Low neighbourhood attachment and community disorganisation	✓	✓			✓
Extreme economic deprivation	✓	✓	✓	✓	✓
<i>Family</i>					
Family history of the problem behaviour	✓	✓	✓	✓	✓
Family management problems	✓	✓	✓	✓	✓
Family conflict	✓	✓	✓	✓	✓
Favourable parental attitudes and involvement in the problem behaviour	✓	✓			✓
<i>School</i>					
Early and persistent antisocial behaviour	✓	✓	✓	✓	✓
Academic failure beginning in later elementary school	✓	✓	✓	✓	✓
Lack of commitment to school	✓	✓	✓	✓	✓
<i>Individual/peer</i>					
Alienation and rebelliousness	✓	✓		✓	
Friends who engage in the problem behaviour	✓	✓	✓	✓	✓
Favourable attitudes toward the problem behaviour	✓	✓	✓	✓	
Early initiation of the problem behaviour	✓	✓	✓	✓	✓
Constitutional factors	✓	✓			✓

Source: Hawkins JD, Catalano RF, Arthur MW, 2002, pp. 951–976<sup>91</sup>

However, the aetiologies are not exactly the same, so caution is required in using the ‘shared aetiology’ argument. For example, Loeber and colleagues (study described above) demonstrated patterns of shared and specific risk factors with different combinations of problem outcomes.<sup>63</sup> They found that 10 of the 35 risk factors they investigated were significant predictors of drug use, and seven of those ten were also significant predictors of delinquency. They concluded:

most risk factors associated with substance use were nested within the risk factors associated with delinquency, but over half of the risk factors associated with delinquency were not predictive of substance use. (p. 121)

That is, drug use and other problem behaviours have some common and some distinct risk factors.

With an acknowledged degree of commonality in the risk factors, it is logical to suggest that efforts to reduce or prevent antisocial behaviour can contribute to drug prevention, and vice versa. Further, rather than focusing on specific problems, it has been suggested that it is better to promote positive child and youth development so that individuals develop resiliency for a range of problems.<sup>90,92</sup> However, Catalano and colleagues caution against focusing only on youth development and abandoning specific prevention efforts.<sup>93</sup>

### *Comorbidity*

Degenhardt, Hall and Lynskey reviewed three alternate explanations for the co-occurrence of drug disorders and other mental health disorders: direct causal relationships, indirect causal relationships or common risk factors.<sup>94</sup>

- Direct causal relationships:
  - Mental health disorders can cause drug disorders if people with mental health problems use drugs to alleviate the symptoms of their mental health problem and then develop problematic use as a result of over-use. This is often referred to as the self-medication hypothesis. Degenhardt and colleagues suggested that self-medication might be a factor in drug use, but that it does not appear to be the only factor in the relationship.
  - Drug-use disorders can cause mental health disorders. There is some evidence of depression resulting from alcohol dependence and of cannabis use precipitating schizophrenia in vulnerable individuals.
- Indirect causal relationships can exist when the impacts of one disorder then result in a second disorder. For example, alcohol dependence could lead to job loss, and the subsequent unemployment could lead to depression. There is some evidence for such indirect causal relationships.
- Common risk factors: As discussed above in relation to problem behaviours, drug-use disorders and mental health disorders could share common risk factors. Degenhardt and colleagues reviewed the literature on common risk factors, including neurotransmitter function, genetic factors, individual factors (temperament — neuroticism), and social and environmental factors (for example, social disadvantage, separation/divorce, parental psychiatric illness and family dysfunction).

They concluded that there are no simple causal hypotheses that explain the association between problematic drug use and mental disorders. However, given the convergence of risk factors for both, it appears plausible to hypothesise that the comorbidity is a result of these problems arising from common risk factors and life pathways.<sup>94</sup>

The relationships between different disorders are complex and can depend upon the particular disorder and other factors such as gender.<sup>95</sup> Glantz and Leshner<sup>96</sup> reviewed the research on comorbidity and highlighted how the relationship between substance use

and other disorders varies with the mental health disorder. Their findings are summarised below.

- Conduct disorder (CS), antisocial personality disorder (ASP) and bipolar disorder (BP) have been shown to be predictors of subsequent drug abuse, but it is not known whether there is a causal relationship or whether CS and ASP and drug abuse are manifestations of the same underlying mechanisms that arise at different times in the life course. It is likely that CS and ASP at least contribute to the later development of drug abuse. They noted that this is an important relationship because children with these disorders are more likely to be socially estranged and that there is currently no effective way to communicate prosocial attitudes to socially estranged groups.
- Depression might play a role in substance use once drug abuse has been established; it has not been demonstrated to be a predictive antecedent of drug abuse.
- Other psychopathologies that have been found to occur with drug-use disorders, but for which there is no clear relationship, include anxiety, attention deficit hyperactivity disorder (ADHD) and eating disorders.

Glantz and Leshner noted that these relationships raise a number of questions that have not been adequately researched. These include:

- Would successful treatment of the psychopathologies in childhood prevent later drug abuse?
- Can treatment of childhood psychopathologies be modified to reduce the risk of later drug abuse?

### **Implications**

The co-occurrence and (to some degree) shared aetiology of problematic drug use with psychopathology and other problem behaviours have a number of implications. For example, research, policy and interventions relating to drug abuse and dependence can benefit from collaboration with research, policy and interventions concerned with psychopathology and/or other problem behaviours. This does not mean there is nothing unique about the different outcomes, but there is certainly some overlap. Further, problem behaviours such as truancy, being excluded from school, and involvement in crime can be regarded as markers for high risk of drug abuse problems and assist with targeting interventions for the prevention of drug abuse and other problems.<sup>97</sup>

### **Aetiology**

There are a number of qualities of drugs that encourage their use. Drugs produce rewarding effects for users (for example, providing pleasure, mitigating pain), so their use is hardly surprising. In fact, much risk factor research fails to appreciate that drug use is a choice.<sup>97</sup> However, some people use drugs in a risky or harmful manner, and some develop a drug dependency. Psychoactive drugs artificially and strongly activate the brain pathways that direct behaviour toward stimuli that are critical to survival (such as food and water). This effect results in strong motivation to use, even after prolonged periods of abstinence.<sup>51</sup> Consequently, drug dependence is described as a disorder of altered brain function caused by the use of psychoactive drugs.<sup>51</sup> But not all people use drugs in a risky or harmful manner and fewer people progress from use to dependent use. Apart from the psychoactive properties of drugs, what contributes to people using in a manner that is risky or harmful, or to developing drug dependence? This section explores the research on the aetiology of drug abuse.

## **Risk and protective factors**

Aetiological research discusses risk and protective factors for drug abuse. Risk factors identify certain individuals as being more susceptible to an outcome. Protective factors are factors that, in the face of adverse conditions, protect the individual from an adverse outcome.

Risk factors fall into two broad categories: population markers and causal risk factors. Risk factors as population markers identify a group at higher risk of an outcome (such as drug use) due to an association between the risk factor and the outcome. Causal risk factors are risk factors that have been demonstrated (generally through replicated, multivariate longitudinal research studies) to be causally related to the outcome. As described by Macleod and colleagues,<sup>98</sup> it is important to understand the difference between these two types of risk factor because if the risk factor is just a marker and there is no causal relationship, then reducing the risk factor will not reduce the risk of the outcome. For example, Rhodes discussed how age of initiation has been identified as a risk factor for problem drug use and other outcomes, so there have been calls to increase the age of initiation as a public health objective. However, he cited Fergusson and Horwood's longitudinal research which indicated that lower age of initiation is only a marker for other risks such as social disadvantage and greater exposure to drug-using peers.<sup>99</sup> Consequently, Rhodes argued that the focus needs to be placed on the conditions that created lower age of initiation, rather than lower age of initiation per se.<sup>97</sup>

## **Risk and protective factors for drug abuse**

Various reviews of risk and protective factors for drug abuse have been published.<sup>97 100-102</sup> For example, Lloyd reviewed the research on risk factors for problem drug use and concluded that the following factors were risk factors:

- family:
  - having parents or siblings with problem drug use
  - family disruption
  - poor attachment or communication with parents
  - child abuse
  
- school:
  - low school grades
  - truancy
  - exclusion from school
  
- childhood conduct disorder
- crime
- mental disorder (in particular, depression and suicidal behaviour during adolescence)
- social deprivation (although he noted that the evidence is limited for this factor)
- a young age of drug-use onset.<sup>101</sup>

In contrast to most reviews, Lloyd described much of the literature on peer influences as 'naïve' and regarded the findings on peer influences as 'equivocal'.

Spooner reviewed the literature on risk factors for adolescent drug abuse and concluded that the following factors were risk factors:

- biological predisposition to drug abuse
- personality traits that reflect a lack of social bonding
- a history of low-quality family management, family communication, family relationships and parental role-modelling
- a history of being abused or neglected
- low socio-economic status
- emotional or psychiatric problems
- significant stressors and/or inadequate coping skills and social supports
- inadequate social skills
- history of associating with drug-using peers
- rejection by prosocial peers due to poor social skills
- a history of low commitment to education
- failure at school
- a history of antisocial behaviour and delinquency
- early initiation to drug use.<sup>102</sup>

The World Health Organization summarised reviews of research on risk and protective factors for drug use at the individual and environmental levels. These factors are presented in Table 4.

**Table 4: Risk and protective factors for drug use**

Domain	Risk factors	Protective factors
Individual	Genetic disposition	Good coping skills
	Victim of child abuse	Self-efficacy
	Personality disorder	Risk perception
	Family disruption and dependence problems	Optimism
	Poor performance at school	Health-related behaviour
	Social deprivation	Ability to resist peer pressure
	Depression and suicidal behaviour	General health behaviour
Environmental	Drug availability	Economic situation
	Poverty	Situational control
	Social change	Social support
	Peer culture	Social integration
	Occupation	Positive life events
	Cultural norms, attitudes	
	Drug policies	

Source: WHO Alcohol and Public Policy Group, 2004, p. 23<sup>51</sup>

There is no definitive list of risk and protective factors for drug abuse — the list varies with the review. The aetiological process is complex and our understanding limited. Some issues to note are:

- While many people use drugs, few progress to drug abuse or dependence. Risk factors for initiation of use, continued use, abuse/dependence differ.<sup>102-104</sup> Rhodes lamented the way most risk factor research uses ‘ever’ use as the outcome variable; few studies delineate the stage of use or the particular pattern of use.<sup>97</sup>
- No single risk factor predicts problematic drug use. Rather it is the number of risk factors,<sup>105</sup> or the balance of the number of negative risk factors relative to the number of protective factors that predicts use.<sup>106</sup>

- Risk factors exist in different domains: individual, family, peer, school, local community, macro environment. These domains interact with each other in a complex web of causation.
- Risk factors can also be situational; for example, features of licensed premises can impact upon levels of violence.<sup>107</sup>
- Risk factors vary across the life course and are cumulative across the life course (discussed in Chapter 2).
- Risk factors vary with historical period. Parker described how: ‘we now have a largely normative population consuming alcohol and drugs in ways which twenty years ago would be regarded as highly deviant and “problematic”’ (p. 143).<sup>108</sup> Furthermore, Parker noted: ‘The conundrum for risk factor analysis is that we can no longer hang the traditional deficit predictors around these young people’s necks’ (p. 142).

As mentioned above, the development of drug-use behaviours is complex. There are multiple pathways to drug abuse and each set of risk factors can contribute to a different pattern of outcomes. Cicchetti and Rogosch described these patterns as equifinality and multifinality.<sup>109</sup> Specifically:

‘Equifinality refers to the observation that in any open system a diversity of pathways, including chance events ... may lead to the same outcome. Stated differently ... the same end state may be reached from a variety of different initial conditions and through different processes ...

The principle of multifinality suggests that any one component may function differently depending on the organization of the system in which it operates ... Stated differently, a particular adverse event should not necessarily be seen as leading to the same psychopathological or non-psychopathological outcome in every individual. Likewise, individuals may begin on the same major pathway and, as a function of their subsequent “choices”, exhibit very different patterns of adaptation or maladaptation.’ (pp. 597–598)<sup>109</sup>

For example, a drug disorder can result from a range of combinations of the risk factors for drug abuse as described above (equifinality); a particular set of risk factors such as difficult temperament and poor parenting might result in alcohol abuse or delinquency or both or neither, depending upon factors and events across time (multifinality).

As noted above, one feature of drug use that distinguishes it from other problem behaviours or mental health problems relates to the psychosocial properties of drugs: drugs are used purposively; for example, to relieve stress and socialise.<sup>3 110 111</sup> This is important in the context of this report because the social environment can:

- shape the meanings of drug use to be psychologically or socially reinforcing, or not
- influence how ‘stressful’ the environment is
- influence the availability of alternative means of stress reduction, recreation and socialisation, as well as the values placed upon those alternatives.

Such issues will be explored in later chapters.

## **Social epidemiology, social determinants and structural interventions**

In the past decade, interest in the social determinants of health and structural interventions to address health problems has increased.

- **Social determinants** are the ‘environmental’ or ‘societal’ factors that influence the health outcomes of populations. <sup>112-114</sup> These include the economic environment, the physical environment and the socio-cultural environment.
- **Social epidemiology** is the study of how societal factors influence the health of populations. <sup>115</sup>
- **Structural interventions** are changes to societal structures that aim to influence the social determinants of health. Societal structures can be government policies, taxation systems, service systems (for example, welfare, education, health, justice), laws and workplace policies.

These are not new concepts. For example, oft-cited origins of social epidemiology include:

- Frederick Engels’ study in 1845 of the impacts of individual and area-based indicators of socio-economic status on mortality <sup>116</sup>
- Durkheim’s study originally published in 1897 which demonstrated the importance of the social environment on suicide rates. <sup>117</sup>

There are multiple conceptual models to explain how social factors influence health, none of which is entirely satisfactory. However, as Marmot has discussed, a model that incorporated all of the social determinants of health, and their interrelationships over time, would be impossibly complex. <sup>118</sup> Marmot suggested that it is more helpful to take a two-step approach: first, to develop models of causation at different levels, then to integrate the models. A similar approach has been used to write this report. Social determinants of drug use were investigated from a different perspective in each chapter: developmental, social, cultural, economic, and disadvantaged groups. These issues were then drawn together in the final chapter.

While concern with the social determinants of health outcomes has increased substantially, alcohol, tobacco and drug use have rarely been the focus of research attention in this area. With some notable exceptions, for example, work by Galea in the United States of America <sup>104 119</sup> and Rhodes in the United Kingdom, <sup>97 120</sup> the research is limited. Consequently, this report is more speculative than conclusive. However, if this report broadens and deepens the reader’s conceptualisation of the aetiology of drug-use problems and how they might be addressed, then it will have achieved a useful purpose. The limitations of earlier conceptualisations of the aetiology of drug-use problems and resulting drug prevention efforts are outlined below.

### **Limitations of earlier drug prevention efforts**

Drug prevention efforts have historically focused upon changing drug-use behaviour by changing individual risk factors such as knowledge, attitudes and skills. <sup>3</sup> Typically, these efforts have mostly targeted adolescents, as this is the age at which most drug-use behaviour commences. The most used setting for drug prevention has been the school, as the vast majority of adolescents can be accessed there. Much of this activity has taken place in isolation from other research disciplines and program areas. This whole approach has been limited for a number of reasons. These are summarised below.

**The focus on single risk factors:** Programs have tended to be simplistic, on the basis that if a single risk factor can be addressed, then drug use and abuse can be prevented. In particular, drug-prevention programs in the past have tried to increase knowledge about

the dangers of drug use or increase skills to resist drug use. However, drug-use behaviours are the result of a complex interplay of individual and environmental factors that operate across the life span, at multiple levels of the environment (for example, situational, family, local community and national).<sup>102</sup> Changing a single risk factor is unlikely to have a significant and sustained impact on such a complexly determined behaviour. Further, a simplistic approach can backfire. For example, increasing social skills can result in increased drug use if the young person socialises with drug users.<sup>121</sup>

**The focus on risk factors:** Research has increasingly recognised that some individuals do *not* develop drug-use patterns in spite of exposure to multiple risk factors. There is now interest in investigating those factors that protect individuals from negative outcomes; that is, factors that build resilience, such as positive attachments.<sup>122 123</sup>

**The focus on correlation:** In the past, simplistic research equated correlation with causation. For example, the association between family structure and drug abuse has been documented in multiple studies.<sup>124-126</sup> However, when other factors such as socio-economic status and family functioning were included in the analyses, family structure was non-significant.<sup>127 128</sup> While family breakdown can contribute to exposure to disadvantages that can contribute to drug abuse, sole-parent families are not inherently harmful.

**The focus on the individual:** While it is easier to focus upon individuals, to measure individual risk factors and individual behaviour change, it has become increasingly apparent that research needs to focus on the environment that shapes behaviour.<sup>129-131</sup> The limitations of individual-oriented interventions have also been identified with other problem behaviours such as delinquency<sup>60</sup> and in public health in general,<sup>132 133</sup> as marked by the increased interest in ‘social epidemiology’. In his Presidential Address to the Society for Community Research and Action, Maton contended that changes in individuals alone or transient changes in proximal or setting environments, without interventions that ultimately impact upon community and societal environments, will not make much of a difference:

Social environments, not psychological or biological deficits, are the fundamental cause of major social problems. (p. 27)<sup>134</sup>

He emphasised the futility of working only at the micro-environmental level (for example, within families and schools) because of the overriding importance of ‘macrosystem dominance’; that is, the primary role of societal systems and structures in causing and sustaining local community problems.

Calls to attend to the role of broader community factors in drug abuse have been made in the past,<sup>135</sup> but these have tended to focus on drug-specific environmental risk factors such as laws and regulations relating to alcohol and other drug use and availability rather than environmental factors that might influence a range of problem outcomes. Also, some research has focused on the family, school and local community, but this has still tended to be in a limited (drug-specific) fashion. For example, Wodarski and Smyth wrote in 1994 that ‘growing up in poverty’ and ‘lack of access to meaningful roles in the community’ were among the ‘most important factors in predicting adolescent AOD use’, yet their discussion of prevention did not address the need to examine these risk factors.<sup>136</sup>

**The focus on the school setting:** Expectations of school-based drug education have been unrealistically high. While school-based drug education can have some impact, schools cannot undo years of negative family and other environmental influences on children. They can be only one part of a more comprehensive approach to drug prevention.<sup>137</sup>

**The focus on adolescence:** As drug use tends to be initiated in adolescence, most drug prevention efforts have focused on adolescents. The early years of life are also being increasingly recognised as important for adolescent and adult outcomes.<sup>90 123 138</sup> While interventions for adolescents are essential, efforts also need to be directed towards the earlier years of life.

**The focus on single problems:** As discussed above, drug abuse behaviours share common antecedents with other problem behaviours such as criminal behaviour, truancy, school drop-out and suicidal behaviour.<sup>61</sup> Research disciplines (for example, psychology, criminology, public health, social work) and programs (crime prevention, mental health promotion and child welfare) have worked in isolation, duplicating effort and scattering limited resources across multiple small programs with minimal impact. Research needs to be interdisciplinary and programs need to be intersectoral so that knowledge and resources can be pooled and used to greater effect. This does not negate the need for research into specific drug-abuse behaviours and interventions to address specific drug problems. However, where commonalities exist, working collaboratively can increase efficiency and enable the pooling of resources to increase effectiveness.

Given the limitations of previous approaches to drug prevention, it is not surprising that some drug-use behaviours and problems have increased. More recently the drugs field has begun to take a broader approach. For example, a report by the Advisory Council on the Misuse of Drugs in the United Kingdom focused on environmental factors contributing to drug-use problems and the need for structural changes to address these factors. This report aims to support expanded thinking and a broader approach to preventing and addressing drug-use problems.

### **Changes in the societal environment**

The social environment is changing in ways that are likely to affect risk factors for drug abuse, particularly in relation to parenting and the socio-economic environment of children. Changes in western societies include demographic, workplace and economic changes. Some of these changes are outlined below.

- Demographic changes<sup>139</sup>
  - increasing divorce rates
  - increasing numbers of one-parent families
  - increasing labour force participation rates of women of child-bearing age
  - increasing joblessness in families
  - changing family structure and formation.

These changes are placing increased pressure on the ability of parents to raise children.

- Workplace changes<sup>140</sup>

- longer working hours for full-time workers
- growth in part-time and casual jobs, particularly for women and youth
- increased job insecurity
- increased competition for work
- increased job demands.

Increased work demands mean that children spend less time with parents and more time in out-of-home care. Further, work-related stress can affect partner relationships and stress in the home, which can have an impact on parenting behaviour, which can then affect children's behaviour.<sup>140</sup> For example, a study by Sallinen and colleagues investigated the relationship between parental work and adolescents' well-being in Finland and found that adolescents were sensitive to their parents bringing stress home from work (for example, being tired and in a bad mood after work), and this affected adolescent well-being.<sup>141</sup> The extent of this 'negative spill-over' from fathers' jobs was associated with more conflicts between fathers and adolescent children and more negative perceptions of school by adolescents.

- Economic changes
  - increased income inequality: Wealth is increasing in the world, but gaps between the rich and the poor are also increasing. Income inequality has been associated with a range of negative outcomes, at least in some contexts.<sup>142</sup> Australia's social gradient is getting steeper, and there is concern that this is having an effect on children.<sup>143</sup>
  - child poverty: Between 10 per cent and 25 per cent of children in Australia (depending on the criteria used) lived in poverty in 2000 and child poverty appears to have increased.<sup>144</sup> Poverty is one of the most consistent indicators of poorer child outcomes.<sup>123 143</sup>

Life for young people has changed. For example, in Australia between 1984 and 2000, the percentage of full-time tertiary students who worked part-time increased (from 51 per cent to 74 per cent) and the number of hours they worked also increased (from an average of 5 hours per week to 15 hours per week during semester).<sup>145</sup> In their profile of young Australians, Pitman and colleagues described how technological change and economic restructuring have affected youth employment:

Others, particularly young men, are casualties of technological change and/or economic restructuring. More than half the 1.9 million new jobs created since 1986 have been in occupations utilising mental skills, i.e. professional and para-professional jobs. Apart from this, the predominant growth has been in lower skilled service jobs such as shop assistants and hospitality workers which are mainly filled by female workers. Employment in skilled trades and manual jobs, which were traditionally filled by males, has shrunk as a proportion of all jobs. The growth of part-time employment and casual jobs at the expense of full-time employment has also impacted on young people's capacity to fully participate in work. Since 1995, full-time jobs for young people 15 to 19 years declined by 6.9% and, for 20 to 24 year olds, by 15.2%. (p. 35)<sup>145</sup>

Walker and Henderson described how the combination of parents working, the town planning policies of the 1970s that separated residential areas from commercial and industrial areas, school timetables that finish two hours before the end of standard work hours, and increasing use of user-pay principles for educational and recreational facilities have left young people increasingly bored and unsupervised.<sup>146</sup>

These are just a few examples of how society is undergoing rapid change and how these changes appear to be impacting on risk factors for drug abuse. This report will explore the relationship between such social changes and drug use.

### **Problems with the current system**

Given the evidence that social factors contribute to health and well-being, and that society is undergoing rapid change, we must ask whether our public system is coping with the change. The public system can act as an important mediator of the impacts of social changes.

Problems have been identified with the current system. For example, government departments (education, health, justice etcetera) tend to be structured vertically into different departments and work as ‘silos’.<sup>84 90 129 138 147</sup> This means that planning and implementation of policies and programs are undertaken *within* rather than *across* government departments, thus constituting a barrier to whole-of-government approaches to issues such as drug abuse. This is a significant problem for the drugs field, given that drug abuse is so closely linked to other health and social outcomes.

Concerns have also been raised about the focus of governments on economic growth rather than population development.<sup>90</sup> The assumption of this focus is that the benefits of a wealthy country will result in benefits for the population in terms of employment, health and welfare. However, with policies that fail to redistribute this wealth and that emphasise a user-pays system for essential services such as childcare, education and health, most of the benefit of economic growth is going to the already wealthy portion of society, with minimal benefit to the already disadvantaged.<sup>148</sup> This has resulted in an increased disparity between the richest segment of the population and the poorest segment of the population, and greater health and welfare differentials in the population.<sup>90</sup>

One area for investment in population development is child and youth development. There is a need for greater spending on children in the early years of life, when it is most needed and beneficial.<sup>149 150</sup> In particular, a coordinated system of good-quality early childcare and education can provide benefits for working parents, and for parents who need help (or at least respite), in providing a stimulating and positive environment for early child development.<sup>140</sup> Press and Hayes’ review of early childhood education and care in Australia identified the need for improvements to childcare services in the areas of availability, quality and coordination.<sup>151</sup> They concluded:

Despite the large scale of Australia’s Early Childhood Education and Care (ECEC) provision, too many Australian families still do not have access to appropriate ECEC options. Children still may not experience smooth transitions between different ECEC settings. Families with additional needs may not have these appropriately met. Ensuring quality in the face of diversity and change also represents a major challenge, especially in times of economic constraint and an increasing social divide. (p. 62)<sup>151</sup>

Concerns have also been raised about the private school system and fees for tertiary education exacerbating social and economic divisions and downgrading public education.

152 153

Systemic (or 'structural') problems such as these are further discussed throughout this report.

## **THIS REPORT**

The aim of this report is to describe research and debate relating to social determinants of problematic drug use and to consider the implications for government. The intended readership is broad, including postgraduate students and people working in relevant fields such as drug prevention, health promotion, drug treatment, policy and research. The approach used to produce the report was to draw together a broad range of literature relevant to understanding societal and developmental influences on the aetiology, prevention and treatment of problematic drug use. With such a broad range, it was impossible to be comprehensive or to deal with any issue in depth. References are provided for readers who want to know more about particular issues. Rather than being an encyclopaedia on the structural determinants of drug use, this report provides an overview of the research relating to this area. Each person who reads this report will no doubt have their own examples to add to any given topic presented in the report. That is, the report aims to prompt thought rather than to provide a blueprint for action.

## **REFERENCES**

1. Loxley W, Toumbourou J, Stockwell T, Haines B, Scott K, Godfrey EW, et al. The prevention of substance use, risk and harm in Australia: a review of the evidence (Ministerial on Council on Drug Strategy Monograph). Canberra: Australian Government Department of Health and Aging, 2003.
2. Parker H, Aldridge J, Measham F. *Illegal leisure: the normalization of adolescent recreational drug use*. London: Routledge, 1998.
3. Paglia A, Room R. Preventing substance-use problems among youth: a literature review and recommendations (ARF Research Document Series No. 142). Toronto: Addiction Research Foundation, 1998.
4. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed. Washington, DC: American Psychiatric Association, 1994.
5. World Health Organization. *The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization, 1992.
6. Edwards G, Arif A, Hodgson R. Nomenclature and classification of drug and alcohol related problems: a WHO memorandum. *Bulletin of the World Health Organization* 1981;59(2):225-242.
7. Advisory Council on the Misuse of Drugs. *Hidden harm: responding to the needs of children of problem drug users*. London: Home Office, 2003.
8. National Health and Medical Research Council. *Australian alcohol guidelines: health risks and benefits*. Canberra: Commonwealth of Australia, 2001.
9. U.S. Department of Health and Human Services. *The health consequences of smoking: a report of the Surgeon General*. Atlanta, GA: Department of Health

- and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.
10. Australian Institute of Health and Welfare. 2001 National Drug Strategy household survey: detailed findings (cat.no. PHE 41). Drug Statistics Series Number 11. Canberra: Australian Institute of Health and Welfare, 2002.
  11. Tarter RE. Etiology of adolescent substance abuse: a developmental perspective. *American Journal on Addictions* 2002;11:171-191.
  12. Shedler J, Block J. Adolescent drug-use and psychological health: a longitudinal inquiry. *American Psychologist* 1990;45(5):612-630.
  13. Lynskey MT, Heath AC, Bucholz KK, Slutske WS, Madden PAF, Nelson EC, et al. Escalation of drug use in early-onset cannabis users vs co-twin controls. *Journal of the American Medical Association* 2003;289(4):427-433.
  14. Lynskey M. An alternative model is feasible, but the gateway hypothesis has not been invalidated: comments on Morral et al. *Addiction* 2002;97(12):1508-1509.
  15. Morral AR, McCaffrey DF, Paddock SM. Reassessing the marijuana gateway effect. *Addiction* 2002;97(12):1493-1504.
  16. Lenton S. Cannabis as a gateway drug: comments on Fergusson and Horwood (2000). *Addiction* 2001;96(3):511-513.
  17. Fergusson DM, Horwood LJ. Does cannabis use encourage other forms of illicit drug use? *Addiction* 2000;95(4):505-520.
  18. Mathers CD, Vos ET, Stevenson CE, Begg SJ. The Australian Burden of Disease Study: measuring the loss of health from diseases, injuries and risk factors. *Medical Journal of Australia* 2000;172(19 June):592-596.
  19. Campbell A. The Australian illicit drug guide. Melbourne: Black Inc., 2001.
  20. Julien RM. A primer of drug action. Henry Hold and Company: New York, 2001.
  21. Mathers C, Vos T, Stevenson C. The burden of disease and injury in Australia. Canberra: Australian Institute of Health and Welfare, 1999.
  22. Centers NL, Weist MD. Inner city youth and drug dealing: a review of the problem. *Journal of Youth and Adolescence* 1998;27(3):395-411.
  23. MacCoun RJ, Reuter P. Drug war heresies. Cambridge: Cambridge University Press, 2001.
  24. Fergusson DM, Horwood JL, Beautrais AL. Cannabis and educational achievement. *Addiction* 2003;98(12):1681-1692.
  25. Fergusson DM, Horwood LJ. Cannabis and school dropouts: a reply to Hickman et al. *Addiction* 2004;99(5):651-652.
  26. Guo J, Chung IJ, Hill KG, Hawkins JD, Catalano RF, Abbott RD. Developmental relationships between adolescent substance use and risky sexual behavior in young adulthood. *Journal of Adolescent Health* 2002;31(4):354-362.
  27. White HR, Bates ME, Labouvie E. Adult outcomes of adolescent drug use: a comparison of process-oriented and incremental analyses. In: Jessor R, editor. *New perspectives on adolescent risk behavior*. Cambridge: Cambridge University Press, 1998:150-181.
  28. Witorsch RJ, Witorsch P. Environmental tobacco smoke and respiratory health in children: a critical review and analysis of the literature from 1969 to 1998. *Indoor and Built Environment* 2000;9(5):246-264.
  29. Janson C. The effect of passive smoking on respiratory health in children and adults. *International Journal of Tuberculosis and Lung Disease* 2004;8(5):510-516.
  30. O'Leary CM. Fetal alcohol syndrome: diagnosis, epidemiology, and developmental outcomes. *Journal of Paediatrics and Child Health* 2004;40(1-2):2-7.

31. Johnson JL, Leff M. Children of substance abusers: overview of research findings. *Pediatrics* 1999;103(5):1085-1099.
32. McKeganey N, Barnard M, McIntosh J. Paying the price for their parents' addiction: meeting the needs of the children of drug using parents. *Drugs: Education, Prevention and Policy* 2002;9(3):233-246.
33. Donohue B. Coexisting child neglect and drug abuse in young mothers: specific recommendations for treatment based on a review of the outcome literature. *Behavior Modification* 2004;28(2):206-233.
34. Barnard M, McKeganey N. The impact of parental problem drug use on children: what is the problem and what can be done to help? *Addiction* 2004;99(5):552-559.
35. Street K, Harrington J, Chiang W, Cairns P, Ellis M. How great is the risk of abuse in infants born to drug-using mothers? *Child: Care, Health and Development* 2004;30(4):325-330.
36. Australian Institute of Health and Welfare. National public health expenditure report 2000-01 (Health and Welfare Expenditure Series No. 18). Canberra: Australian Institute of Health and Welfare, 2004.
37. Homel R. Drink-driving law enforcement and the legal blood alcohol limit in New South Wales. *Accident Analysis and Prevention* 1994;26(2):147-155.
38. Homel R, McKay P, Henstridge J. The impact on accidents of random breath testing in New South Wales: 1982-1992. In: Kloeden CN, McLean AJ, editors. *Alcohol, drugs and traffic safety Volume 2*. Australia: NHMRC Road Accident Research Unit, 1995.
39. Health Outcomes International, The National Centre for HIV Epidemiology and Clinical Research, Drummond M. Return on investment in needle and syringe programs in Australia. Canberra: Commonwealth of Australia, 2002.
40. Australian Bureau of Statistics. Australian social trends 2000: health - risk factors: trends in smoking. Canberra: Australian Bureau of Statistics, 2000.
41. White V, Hayman J, Wakefield M, Hill D. Trends in smoking among Victorian secondary school students 1984–2002 (CBRC Research Paper Series No. 4). Melbourne: The Cancer Council Victoria, Centre for Behavioural Research in Cancer, 2003.
42. White V, Hill D, Siahpush M, Bobevski I. How has the prevalence of cigarette smoking changed among Australian adults? Trends in smoking prevalence between 1980 and 2001. *Tobacco Control* 2003;12:67-74.
43. Shafey O, Dolwick S, Guindon G, editors. *Tobacco control country profiles*. Atlanta, GA: American Cancer Society, 2003.
44. Silbereisen R, Robins R, Rutter M. Secular trends in substance use. In: Rutter M, Smith DJ, editors. *Psychosocial disorders in young people: time trends and their causes*. Chichester, England: John Wiley and Sons, 1995:490-543.
45. Bauman A, Phongsavan P. Epidemiology of substance use in adolescence: prevalence, trends and policy implications. *Drug and Alcohol Dependence* 1999;55(3):187-207.
46. Degenhardt L, Lynskey M, Hall W. Cohort trends in the age of initiation of drug use in Australia. Sydney: National Drug and Alcohol Research Centre, 2000.
47. Degenhardt L, Lynskey M, Hall W. Cohort trends in the age of initiation of drug use in Australia. *Australian and New Zealand Journal of Public Health* 2000;24(4):421-426.
48. Hall W, Darke S. Trends in opiate overdose deaths in Australia 1979-1995. *Drug and Alcohol Dependence* 1998;52(1):71-77.

49. Hall WD, Degenhardt LJ, Lynskey MT. Opioid overdose mortality in Australia, 1964-1997: birth-cohort trends. *Medical Journal of Australia* 1999;171(1):34-37.
50. Degenhardt L, Barker B. 2002 Australian Bureau of Statistics data on accidental opioid induced deaths. Sydney: National Drug and Alcohol Research Centre, 2003.
51. WHO Alcohol and Public Policy Group. Neuroscience of psychoactive substance use and dependence. Geneva: World Health Organization, 2004.
52. Productschap voor Gedistilleerde Dranken (Commodity Board for the Distilled Spirits Industry). *World Drink Trends* 2002, 2001.
53. Chikritzhs T, Catalano P, Stockwell T, Donath S, Ngo H, Young B, et al. Australian alcohol indicators 1990-2001: patterns of alcohol use and related harms for Australian states and territories. Perth: National Drug Research Institute, Curtin University of Technology, 2003.
54. Agar M, Reisinger HS. Going for the global: the case of ecstasy. *Human Organization* 2003;62(1):1-11.
55. Weir E. Raves: a review of the culture, the drugs and the prevention of harm. *Canadian Medical Association Journal* 2000;162(13):1843-1848.
56. Degenhardt L, Barker B, Topp L. Patterns of ecstasy use in Australia: findings from a national household survey. *Addiction* 2004;99(2):187-195.
57. NIDA. MDMA abuse (Ecstasy). Rockville, MD: National Institute on Drug Abuse, 2004.
58. Australian Institute of Health and Welfare. 2001 National Drug Strategy household survey: first results. *Drug Statistics Series Number 9*. Canberra: Author, 2002.
59. Australian Institute of Health and Welfare. Alcohol and other drug treatment services in Australia 2002-03: report on the national minimum data set (cat. no. HSE 33). *Drug Treatment Series 3*. Canberra: Australian Institute of Health and Welfare, 2004.
60. Siegel AW, Scovill LC. Problem behavior: the double symptom of adolescence. *Development and Psychopathology* 2000;12(4):763-793.
61. Jessor R, editor. *New perspectives on adolescent risk behavior*. Cambridge: Cambridge University Press, 1998.
62. Jessor R, Jessor SL. *Problem behavior and psychosocial development: a longitudinal study of youth*. New York: Academic Press, 1977.
63. Loeber R, Farrington DP, Stouthamer-Loeber M, Van Kammen WB. Multiple risk factors for multiproblem boys: co-occurrence of delinquency, substance use, attention deficit, conduct problems, physical aggression, covert behavior, depressed mood, and shy/withdrawn behavior. In: Jessor R, editor. *New perspectives on adolescent risk behavior*. Cambridge: Cambridge University Press, 1998:90-149.
64. Moffitt TE. Adolescence-limited and life-course-persistent antisocial-behavior: a developmental taxonomy. *Psychological Review* 1993;100(4):674-701.
65. Andrews G, Hall W, Teesson M, Henderson S. *The mental health of Australians*. Canberra: Mental Health Branch, Commonwealth Department of Health and Aged Care, 1999.
66. Grant BF, Stinson FS, Dawson DA, Chou SP, Dufour MC, Compton W, et al. Prevalence and co-occurrence of substance use disorders and independent mood and anxiety disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry* 2004;61:807-816.

67. Erinoff L, Anthony JC, Brown GK, Caine ED, Conner KR, Dougherty DM, et al. Overview of workshop on drug abuse and suicidal behavior. *Drug and Alcohol Dependence* 2004;76(1001):S3-S9.
68. Erinoff L, Compton WM, Volkow ND. Drug abuse and suicidal behavior. *Drug and Alcohol Dependence* 2004;76(1001):S1-S2.
69. Wilcox HC, Conner KR, Caine ED. Association of alcohol and drug use disorders and completed suicide: an empirical review of cohort studies. *Drug and Alcohol Dependence* 2004;76(1001):S11-S19.
70. Goldston DB. Conceptual issues in understanding the relationship between suicidal behavior and substance use during adolescence. *Drug and Alcohol Dependence* 2004;76(1001):S79-S91.
71. Dougherty DM, Mathias CW, Marsh DM, Moeller FG, Swann AC. Suicidal behaviors and drug abuse: impulsivity and its assessment. *Drug and Alcohol Dependence* 2004;76(1001):S93-S105.
72. Teesson M, Proudfoot H. Responding to comorbid mental disorders and substance use disorders. In: Teesson M, Proudfoot H, editors. *Comorbid mental disorders and substance use disorders: epidemiology, prevention and treatment*. Canberra: Australian Government Department of Health and Ageing, 2003:1-8.
73. Teesson M, Proudfoot H, editors. *Comorbid mental disorders and substance use disorders: epidemiology, prevention and treatment*. Canberra: Australian Government Department of Health and Ageing, 2003.
74. Mills KL, Teesson M, Darke S, Ross J, Lynskey M. Young people with heroin dependence: findings from the Australian Treatment Outcome Study (ATOS). *Journal of Substance Abuse Treatment* 2004;27(1):67-73.
75. Spooner C, Mattick RP, Noffs W. A study of the patterns and correlates of substance use among adolescents applying for drug treatment. *Australian and New Zealand Journal of Public Health* 2000;24(5):492-502.
76. Callaly T, Trauer T, Munro L, Whelan G. Prevalence of psychiatric disorder in a methadone maintenance population. *Australian and New Zealand Journal of Psychiatry* 2001;35(5):601-605.
77. Australian Institute of Health and Welfare. *Australia's health 2004*. Canberra: The Australian Institute of Health and Welfare, 2004.
78. Dunne MP, Purdie DM, Cook MD, Boyle FM, Najman JM. Is child sexual abuse declining? Evidence from a population-based survey of men and women in Australia. *Child Abuse and Neglect* 2003;27(2):141-152.
79. Stanley J, Kovacs K. Re: Is child sexual abuse declining? Evidence from a population-based survey of men and women in Australia (Dunne, Purdie, Cook, Boyle, and Najman, 2003). *Child Abuse and Neglect* 2004;28(4):369-372.
80. Dunne MP, Najman JM. Reply to Stanley and Kovacs re: Is child sexual abuse declining? Evidence from a population survey of men and women in Australia (Dunne, Purdie, Cook, Boyle, and Najman, 2003). *Child Abuse and Neglect* 2004;28(4):373-375.
81. Graycar A. Crime and justice centenary article: crime in twentieth century Australia. *Year book Australia 2002 (ABS Catalogue Number 1301.0)*. Canberra: Australian Bureau of Statistics, 2002.
82. Rutter M, Smith DJ, editors. *Psychosocial disorders in young people: time trends and their causes*. Chichester, England: John Wiley and Sons, 1995.
83. Bronfenbrenner U, McClelland P, Wethington E, Moen P, Ceci SJ. *The state of Americans: this generation and the next*. New York: Free Press, 1996.
84. Stanley F. *Developmental health and well being: Australia's future*. Child developmental health and well being into the 21st century. Paper for Prime

- Minister's Science, Engineering and Innovation Council Seventh Meeting - 28 June 2001: Unpublished, 2001.
85. Hagel A. Time trends in adolescent well-being. London: The Nuffield Foundation, 2004.
  86. Collishaw S, Maughan B, Goodman R, Pickles A. Time trends in adolescent mental health. *Journal of Child Psychology and Psychiatry and Allied Disciplines* 2004;45(November):(in press).
  87. Twenge JM. The age of anxiety? Birth cohort change in anxiety and neuroticism, 1952-1993. *Journal of Personality and Social Psychology* 2000;79(6):1007-1021.
  88. Westat. Trends in the well-being of America's children and youth 2003. Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, 2004.
  89. Smith DJ, Rutter M. Time trends in psychosocial disorders of youth. In: Rutter M, Smith DJ, editors. *Psychosocial disorders in young people: time trends and their causes*. Chichester, England: John Wiley and Sons, 1995:763-781.
  90. Keating D, Hertzman C, editors. *Developmental health and the wealth of nations. Social, biological, and educational dynamics*. New York: The Guildford Press, 1999.
  91. Hawkins JD, Catalano RF, Arthur MW. Promoting science-based prevention in communities. *Addictive Behaviors* 2002;27(6):951-976.
  92. Roth J, Brooks-Gunn J. Youth development programs: risk, prevention and policy. *Journal of Adolescent Health* 2003;32:170-182.
  93. Catalano RF, Hawkins JD, Berglund ML, Pollard JA, Arthur MW. Prevention science and positive youth development: competitive or cooperative frameworks? *Journal of Adolescent Health* 2002;31(6):230-239.
  94. Degenhardt L, Hall W, Lynskey M. What is comorbidity and why does it occur? In: Teesson M, Proudfoot H, editors. *Comorbid mental disorders and substance use disorders: epidemiology, prevention and treatment*. Canberra: Australian Government Department of Health and Ageing, 2003:10-25.
  95. Silberg J, Rutter M, D'Onofrio B, Eaves L. Genetic and environmental risk factors in adolescent substance use. *Journal of Child Psychology and Psychiatry and Allied Disciplines* 2003;44(5):664-676.
  96. Glantz MD, Leshner AI. Drug abuse and developmental psychopathology. *Development and Psychopathology* 2000;12(4):795-814.
  97. Rhodes T, Lilly R, Fernandez C, Giorgino E, Kemmesis UE, Ossebaard HC, et al. Risk factors associated with drug use: the importance of 'risk environment'. *Drugs: Education, Prevention and Policy* 2003;10(4):303-329.
  98. Macleod J, Oakes R, Oppenkowski T, Stokes-lampard H, Copello A, Crome I, et al. How strong is the evidence that illicit drug use by young people is an important cause of psychological or social harm? Methodological and policy implications of a systematic review of longitudinal, general population studies. *Drugs: Education, Prevention and Policy* 2004;11(4):281-297.
  99. Fergusson D, Horwood J. Early onset cannabis use and psychosocial adjustment in young adults. *Addiction* 1997;92:279-296.
  100. Hawkins J, Lishner D, Catalano R. Childhood predictors and the prevention of adolescent substance abuse. In: Jones C, Battjes R, editors. *Etiology of drug abuse: implications for prevention (NIDA Research Monograph No. 56)*. Rockville: National Institute on Drug Abuse, 1985:75-126.
  101. Lloyd C. Risk factors for problem drug use: identifying vulnerable groups. *Drugs: Education, Prevention and Policy* 1998;5(3):217-232.

102. Spooner C. Causes of adolescent drug abuse and implications for treatment. *Drug and Alcohol Review* 1999;18:457-479.
103. Glantz M, Pickens RW. *Vulnerability to drug abuse*. Washington, DC: American Psychological Association, 1992.
104. Galea S, Nandi A, Vlahov D. The social epidemiology of substance use. *Epidemiologic Reviews* 2004;26(1):36-52.
105. Pollard JA, Hawkins JD, Arthur MW. Risk and protection: are both necessary to understand diverse behavioral outcomes in adolescence? *Social Work Research* 1999;23(3):145-158.
106. Rhodes JE, Jason LA. *Preventing substance abuse among children and adolescents*. New York: Pergamon Press, 1988.
107. Homel R, Burrows T, Gross J, Herd B, Ramsden D, Teague R. *Preventing violence. A review of the literature on violence and violence prevention*. Sydney: Crime Prevention Division, NSW Attorney General's Department, 1999.
108. Parker H. Pathology or modernity? Rethinking risk factor analyses of young drug users. *Addiction Research and Theory* 2003;11(3):141-144.
109. Cicchetti D, Rogosch FA. Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology* 1996;8(4):597-600.
110. Reilly C, Homel P. 1986 survey of recreational drug use and attitudes of 15 to 18 year olds in Sydney. Sydney: New South Wales Drug and Alcohol Directorate, 1987.
111. Moore D, Saunders B. Youth drug use and the prevention of problems: why we've got it all wrong. *International Journal on Drug Policy* 1991;2(5):29-33.
112. Marmot M, Wilkinson R, editors. *Social determinants of health*. Oxford: Oxford University Press, 1999.
113. Eckersley R, Dixon J, Douglas B, editors. *The social origins of health and well-being*. Cambridge: Cambridge University Press, 2001.
114. Raphael D, editor. *Social determinants of health. Canadian perspectives*. Ontario: Canadian Scholars Press, 2004.
115. Berkman LF, Kawachi I, editors. *Social epidemiology*. New York: Oxford University Press, 2000.
116. Engels F. *The condition of the working class in England*. Harmondsworth: Penguin, 1987.
117. Giddens A, Birdsall K. *Sociology*. 4th ed. Cambridge: Polity Press, 2001.
118. Marmot MG. Multilevel approaches to understanding social determinants. In: Berkman LF, Kawachi I, editors. *Social epidemiology*. New York: Oxford University Press, 2000:349-367.
119. Galea S, Ahern J, Vlahov D. Contextual determinants of drug use risk behavior: a theoretic framework. 2003;80(4):50-58.
120. Rhodes T. The 'risk environment': a framework for understanding and reducing drug-related harm. *International Journal of Drug Policy* 2002;13(2):85-94.
121. Ashton M. Confident kids like to party. *Drug and Alcohol Findings* 2004(11):22-23.
122. Rutter M. Resilience reconsidered: conceptual considerations and empirical findings. In: Shonkoff JP, Meisels SJ, editors. *Handbook of early childhood intervention*. 2nd ed. New York: Cambridge University Press, 2000:651-682.
123. National Research Council and Institute of Medicine, Committee on Integrating the Science of Early Childhood Development, J.P. Shonkoff and D.A. Phillips eds. *From neurons to neighborhoods: the science of early childhood development*. Washington, DC: National Academy Press, 2000.
124. Bjarnason T, Andersson B, Choquet M, Elekes Z, Morgan M, Rapinett G. Alcohol culture, family structure and adolescent alcohol use: multilevel modeling of

- frequency of heavy drinking among 15-16 year old students in 11 European countries. *Journal of Studies on Alcohol* 2003;64(2):200-208.
125. Griesbach D, Amos A, Currie C. Adolescent smoking and family structure in Europe. *Social Science and Medicine* 2003;56(1):41-52.
  126. Hoffmann JP. The community context of family structure and adolescent drug use. *Journal of Marriage and the Family* 2002;64(2):314-330.
  127. Fergusson D, Horwood L, Lynskey M. Parental separation, adolescent psychopathology, and problem behaviors. *Journal of the American Academy of Child and Adolescent Psychiatry* 1994;33(8):1122-1133.
  128. Nicholson J, Fergusson D, Horwood L. Effects on later adjustment of living in a stepfamily during childhood and adolescence. *Journal of Child Psychology and Psychiatry and Allied Disciplines* 1999;40(3):405-16.
  129. Sanson A, editor. *Children's health and development: new research directions for Australia research (AIFS Report no.8 2002)*. Melbourne: Australian Institute of Family Studies, 2002.
  130. Mitchell P, Spooner C, Copeland J, Vimpani G, Toumbourou J, Howard J, et al. The role of families in the development, identification, prevention and treatment of illicit drug problems. A literature review prepared for the National Illicit Drug Strategy Working Committee and the National Health and Medical Research Council. Canberra: Commonwealth of Australia, 2001.
  131. Cook TD. The case for studying multiple contexts simultaneously. *Addiction* 2003;98(Suppl 1):151-5.
  132. Susser M, Susser E. Choosing a future for epidemiology: II. From black box to Chinese boxes and eco-epidemiology. *American Journal of Public Health* 1996;86(5):674-677.
  133. Raphael D. Critique of lifestyle and behavioural approaches to health promotion (SDOH-Listserv Bulletin No. 7): Unpublished, 2004.
  134. Maton KI. Making a difference: the social ecology of social transformation. *American Journal of Community Psychology* 2000;28:25-57.
  135. Saunders B, Baily S. Alcohol and young people: minimizing the harm. *Drug and Alcohol Review* 1993;12:81-90.
  136. Wodarski JS, Smyth NJ. Adolescent substance abuse: a comprehensive approach to prevention intervention. *Journal of Child and Adolescent Substance Abuse* 1994;3(3).
  137. Hawthorne G. Drug education: myth and reality. *Drug and Alcohol Review* 2001;20(1):111-119.
  138. National Crime Prevention. *Pathways to prevention: developmental and early intervention approaches to crime in Australia*. Canberra: Attorney-General's Department, 1999.
  139. Australian Institute of Health and Welfare. *Australia's welfare 2003*. Canberra: Australian Institute of Health and Welfare, 2003.
  140. Russell G, Bowman L. *Work and family: current thinking, research and practice: Unpublished background paper prepared for the Department of Family and Community Services as a background paper for the National Families Strategy, 2000*.
  141. Sallinen M, Kinnunen U, Ronka A. Adolescents' experiences of parental employment and parenting: connections to adolescents' well-being. *Journal of Adolescence* 2004;27(3):221-237.
  142. Lynch J, Davey Smith G, Harper S, Hillemeier M, Ross N, Kaplan GA, et al. Is income inequality a determinant of population health? Part 1: a systematic review. *Milbank Quarterly* 2004;82(1):5-99.

143. Cass B. The intersection of public and private worlds in the distribution of well-being of Australian children: research and social policy implications. In: Prior M, editor. Investing in our children. Developing a research agenda. Canberra: Academy of the Social Sciences Australia, 2002:42-59.
144. Senate Community Affairs References Committee. A hand up not a hand out: renewing the fight against poverty. Canberra: Commonwealth of Australia, 2004.
145. Pitman S, Herbert T, Land C, O'Neil C. Profile of young Australians; facts, figures and issues. Melbourne: The Foundation for Young Australians, 2004.
146. Walker J, Henderson M. Understanding crime trends in Australia. Canberra: Australian Institute of Criminology, 2004.
147. Hertzman C. Leave no child behind! Social exclusion and child development. Toronto: The Laidlaw Foundation, 2002.
148. AMP, National Centre for Social and Economic Modelling. Income and wealth report (Issue 1): National Centre for Social and Economic Modelling, 2002:16.
149. McCain M, Mustard JF. Reversing the real brain drain. Early years study final report. Toronto: The Founders' Network of the Canadian Institute for Advanced Research, 1999.
150. Stanley F. Before the bough breaks. Doing more for our children in the 21st century (Cunningham Lecture 2002, Academy of the Social Sciences in Australia Occasional Paper Series 1/2003). Canberra: Academy of the Social Sciences, 2003.
151. Press F, Hayes A. Australian background report for the OECD: thematic review of early childhood education and care. Canberra: Commonwealth of Australia, 2002.
152. Anderson DS. Public and private schools: sociological perspectives. In: Saha LJ, editor. International encyclopedia of the sociology of education. Oxford UK: Pergamon, 1997:456-463.
153. Vinson T. NSW Public Education Inquiry: second report. Sydney: NSW Teachers Federation and Federation Of P&C Associations Of NSW, 2002.