The social psychology of drug abuse

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Social psychology is sometimes criticized for not being sufficiently ‘relevant’ to everyday life. The Applying Social Psychology series challenges this criticism. It is organized around applied topics rather than theoretical issues, and is designed to complement the highly successful Mapping Social Psychology series edited by Tony Manstead. Social psychologists, and others who take a social-psychological perspective, have conducted research on a wide range of interesting and important applied topics such as consumer behaviour, work, politics, the media, crime and environmental issues. Each book in the new series takes a different applied topic and reviews relevant social-psychological ideas and research. The books are texts rather than research monographs. They are pitched at final year undergraduate level, but will also be suitable for students on Masters level courses as well as researchers and practitioners working in the relevant fields. Although the series has an applied emphasis, theoretical issues are not neglected. Indeed, the series aims to demonstrate that theory-based applications of social psychology can contribute to our understanding of important applied topics.

This book, by Sussman and Ames, is the first in the series and, in its scholarship and clarity, it sets the standard for the others. In it, the authors tackle the complex problem of drug abuse, which has significant costs to individuals and to society. Starting with the question ‘What is drug abuse?’, they discuss definitions of abuse, dependence and disease, and consider drug abuse in the context of other problem behaviours. Predictors of drug abuse are examined, including intra- and extra-personal factors, and this leads to a discussion of integrative theories. The authors draw on a wide range of ideas and theories from social psychology and other fields and disciplines. They go on to argue that drug abuse arises from numerous factors interacting in complex ways, and tease out some of the multiple pathways involved. Attention then turns towards current approaches to prevention and treatment, and an examination of the evidence for their effectiveness. The book ends with a discussion of future directions, which raises a number of challenging
questions for future research. Although there are few easy answers in this field, Sussman and Ames have succeeded in clarifying what we know and what we need to know about the causes, prevention, and treatment of drug abuse.

Stephen Sutton
Drug abuse continues to present a significant public health problem. Drug abuse and dependence are associated with disproportionate costs to society in terms of criminal activity, spread of HIV infection and other diseases, medical expense, deaths on and off the road, and disruption of local communities and families. The sequelae of drug abuse may begin as a picture of prolonged personal risk. However, drug abuse inevitably becomes a societal problem when criminal activity is the only means of obtaining moneys to support the addiction, when innocent bystanders suffer the effects of drug-related crime or accidents, and when health insurance and medical costs rise for everyone because of drug abuse. Before the 1960s, the general public was aware that many individuals were abusing alcohol but the perception was that only some individuals were abusing illicit drugs. Then, something happened. In the 1960s, use of alcohol and illicit drugs appeared to increase radically, peaked in the 1970s, lowered in the 1980s, and began to increase again in the 1990s. Drug use may or may not be levelling off in the 2000s, but its cumulative negative impact on our world community cannot be ignored.

What is drug abuse? When trying to answer this question, other questions may come to mind. Has a favourite celebrity been seen hanging out of the window of some posh detoxification facility, somewhere between jobs? Did you hear this person just died? Is someone in your family the life or death of the party? What’s going on? Why are these seemingly normal human beings killing themselves? Are these people diseased, conditioned, injured, engaging in shoddy cultural practices, immoral, socially alienated, genetically challenged, coping poorly or just making poor life decisions? The purpose of this book is to provide a resource for discussion of these and many other questions.

This book can provide the basis for a course in the issues pertaining to the aetiology, prevention and cessation of drug abuse. It is tailored to the upper level undergraduate student. It is assumed that some courses in the social
Preface

Sciences have been completed and that this book can build on that knowledge. Basic definitions of the field are taught. Predictors of drug abuse are presented. Types of drug abuse prevention and cessation programmes are presented. There are many issues and perspectives regarding drug abuse. After reading this book, the student should have a good understanding of major issues in the drug abuse prevention and cessation fields, and should be able to ‘straddle’ the perspectives of drug abuse practitioners and researchers from varying orientations.

While this book is developed for students, drug dependency counsellors, researchers, educated lay persons or others interested in issues inherent in the drug abuse field may find this resource useful. We focus on core issues; we also take a social psychological slant. We look at people’s perceptions of others, interactions between persons, and social influences. In doing this, we draw on some of the social psychological literature on the addictions. We also draw on work in public health, clinical psychology, sociology and recovery movements, as well as on our own experiences as observers of human behaviour.

There are many complexities in the drug abuse arena. All drugs used recreationally can be abused, but some drugs have minimum addiction potential. The aetiology of drug abuse is related to genetics, self-medication and other intrapersonal factors. It is also related to social influence processes. Media portrayals of drug use (for example glamorization), social thermometers of perceived acceptability and danger of drug use, and accessibility of drugs may influence fluctuations in use. Understanding such numerous aetologic factors is essential in containing drug abuse, and may help to produce a more functional society. Effective drug abuse prevention includes comprehensive social influences programming; however, this programming may not be effective with older, higher risk youth populations. Perhaps an increased focus needs to be placed on intrapersonal factors, as people become more involved in use. Drug treatment may lower social costs; however, a majority of persons in treatment relapse, and 90 per cent of drug abusers appear to stop on their own. Are you confused? If you are, good – we all are. On the other hand, we do hope that this book will help clarify some of these issues. Possibly, some reasonably valid answers will come to you as you read this text.

Overview of the book

The book is divided into three parts. The first part presents general issues pertaining to drug abuse, and consists of four chapters. We begin the book in Chapter 1 by introducing classes of drugs of abuse, distinguishing use from abuse, providing definitions associated with abuse and dependence, and describing some of the negative consequences of drug abuse. Chapter 2 addresses the issue of whether or not drug abuse should be considered a disease.
Chapter 3 addresses drug-related and other compulsive problem behaviours, and the overlap and non-overlap of drug abuse with other addictive behaviours. In Chapter 4, we provide an overview of some current methods of assessing alcohol and other drug abuse and the utility of these methods.

The second part of the book presents an account of the many predictors or correlates of drug use and abuse, and consists of three chapters. Chapter 5 addresses extrapersonal predictors of initiation, experimental use and abuse; this chapter looks at environmental and social influences affecting someone's decision to use drugs (for example media influences). Next we address individual difference variables or factors that may account for why some individuals who use drugs become drug abusers and others do not. We refer to these factors as intrapersonal predictors of drug use and abuse. Intrapersonal factors may become increasingly more influential as an individual 'transitions' from drug use to problematic use or abuse (for example self-medication). Chapter 7 examines integrative theories of drug use and abuse. These theories consider concurrently a variety of environmental, social or individual factors.

The third and final part of the book presents the issues and contents of current drug abuse prevention and treatment approaches, and consists of three chapters. Chapter 8 discusses effective universal (general population), selective (high-risk indicators) and indicated (high-risk behaviour) drug abuse prevention programming. Chapter 9 discusses a myriad of different treatment options, including spiritual and secular approaches, and cessation and relapse prevention strategies. The book concludes with a discussion of future directions in the prevention and cessation of drug abuse. Potential avenues for development of promising novel aetiological, prevention and cessation ideas are mentioned. The first mention of new terms are emboldened to assist the reader in drug abuse-related vocabulary development.

We hope that this text will help to contribute to a quest to control the prevalence, and minimize the harm, of drug abuse in the near future. We wish you a good adventure as you begin to tackle the issues presented herein.

Repetition is easy, it’s improvement that’s frightening.

(the authors)
About the authors

Steve Sussman, PhD, received his doctorate in psychology from the University of Illinois at Chicago in 1984. He served on a clinical psychology residency at Jackson Veterans Administration and University of Mississippi Medical Centers and is now a Professor in the Departments of Preventive Medicine and Psychology and Institute for Health Promotion and Disease Prevention Research at the University of Southern California. He has published over 160 articles or books in the area of drug abuse prevention and cessation. Sub-areas of particular focus are psychosocial prediction of tobacco and other drug use, drug abuse prevention and cessation, and other research with high-risk populations including placing an emphasis on the use of programme development methods. Recent projects include Project Towards No Tobacco Use (TNT), a tobacco use prevention programme which is a Centers for Disease Control and Prevention ‘Program that Works’. Also included are Project Towards No Drug Abuse (TND) which, along with Project TNT, is considered a model programme by the Centers for Substance Abuse Prevention, and Project EX, which is among the largest and most successful teen tobacco use cessation trials to date.

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Part 1

General issues pertaining to drug abuse
Definitions of drug abuse and drug abuse consequences

Sometimes it is difficult to draw the line between drug use and abuse. For example, some of us know people who smoke marijuana every day. These individuals appear to be ‘stoned’ all the time, but they also seem to avoid detection by unsuspecting others and always get their jobs done. They may never have been arrested, report no obvious physical problems and seem to be satisfied with their social lives. Are these individuals drug abusers? Their circumstances are very different from those of skid-row drunks who have lost everything, and are near death. We would most likely classify skid-row drunks as drug abusers, but we might debate the case of daily marijuana users. These marijuana users do not appear to have suffered any consequences of their use. Or have they? One may wonder from whom they have been purchasing marijuana. Are they interacting with potentially dangerous people? What has been the effect of use on their lungs, memory and emotional development? Do they use marijuana to cope with life stresses? Do they spend a lot of time searching for marijuana? Do they feel that they cannot live without it? Do their clothes or breath smell of marijuana? Do others tend to avoid these individuals because they are ‘stoned’ much of the time? As the number of potential problems associated with use of a drug is considered, the ‘gate’ of inclusion into the concept of ‘drug abuse’ widens.

Given this introductory caveat of scepticism, experts do provide consensual identification of problem drug users. Individuals become labelled as ‘problem drug users’ by experts through contact with treatment, service and law enforcement agencies. Around the world, approximately 15 per cent of the population over 18 years of age is considered to have serious drug use difficulties (other than nicotine addiction, which itself may involve up to 25 per cent of the world’s population) and this percentage has remained fairly constant since the mid-1970s. Of these drug abusers, about two-thirds abuse alcohol and one-third abuse other drugs. Across the continents, the other major drugs of abuse are marijuana, amphetamines, cocaine and heroin. Approximately 2.5 per cent of the world’s population abuse marijuana, 0.5
per cent abuse stimulants, 0.3 per cent abuse cocaine or opioids, and up to 0.8 per cent abuse other drugs (for example, inhalants, depressants, hallucinogens. White 1999). Many individuals who try illicit drugs do not go on to abuse them. As examples, approximately 33 per cent of the populations of the United States and Australia, and 10 to 20 per cent of the population of different European countries, report lifetime use of marijuana (US Department of Health and Human Services (DHHS) 1998). Yet, only 2.5 per cent of the world’s population use marijuana so regularly as to incur recognizable consequences.

Drug abuse incurs great financial losses to the world’s legitimate economy. Costs to society may be more than $600 billion per year ($200 billion dollars per year in the United States alone). For example, many people know the statistic that 50 per cent of vehicle fatalities involve a drunk driver. Many such accidents also involve chronic marijuana or amphetamine users. These costs-to-society statistics do not include nicotine addiction, which is the Number One behavioural killer of people worldwide because of its influence on heart disease, lung cancer, chronic obstructive lung disease and numerous other diseases (US DHHS 1982; Sussman et al. 1995a). Drug abuse appears to be a serious international calamity. To achieve a better understanding of this problem, we briefly review drug processing and a variety of specific drugs of abuse. Next, we attempt to define drug abuse and dependence.

A brief review of drugs of abuse

Drug processing

Entire books have been written about the different drugs of abuse, their pharmacology, effects, mechanisms of action, and consequences (for example see Winger et al. 1992; Julien 1998). A complete discussion is beyond the scope of this book, but we do provide a brief summary of these drugs of abuse. Each drug class is involved in four steps of drug processing, and these drugs also may have various effects on each other when used together.

First, administration refers to how the drug enters the body (for example ingestion, inhalation, injection or absorption). Most classes of drugs are used through several alternative methods. For example, marijuana may be smoked or swallowed. Methamphetamine may be swallowed or injected. Heroin may be sniffed, smoked or injected.

Second, distribution refers to how efficiently the drug moves throughout the body (which is influenced by the size of drug molecules and solubility – protein, water, fat-bound – among other factors). As a general rule, the rate of entry of a drug into the brain is determined by the fat solubility of the drug (Julien 1998). The rate of entry is faster if the fat solubility is greater. Conversely, highly ionized drugs, such as penicillin, penetrate the blood–brain barrier poorly. Most drugs of abuse exert their effects within an hour of intake, although some exert their effects within minutes of intake.
Definitions of drug abuse and drug abuse consequences

Third, action refers to the means of effects. All drugs of abuse ‘feel good’ in different ways (for example the user may feel more alert or relaxed or expanded). Most or all drugs of abuse act directly or indirectly on brain reward systems (that is dopaminergic and probably serotonergic systems), although each drug may have specific receptor sites in the brain. For example, there is a rich concentration of opioid receptors in the nucleus accumbens, whereas there appears to be functionally important nicotinic receptors in the medial habenula, the superior colliculus, and the anteroventral thalamic and interpeduncular nuclei. Benzodiazapines (for example Valium) are less likely to be abused as a sole drug of abuse, perhaps because they act primarily on the Gamma-aminobutyric acid (GABA) neurotransmitter system, not the dopaminergic system.

Fourth, elimination refers to breakdown and excretion of drugs from the body. Drugs are excreted in time through sweating, trips to the lavatory and sometimes by vomiting. Drugs have measurable and differential distribution and elimination half-lives (that is the amount of time it takes for half of the drug to reach sites of action and be eliminated from the body). For example, nicotine, when smoked in a cigarette, has a nine-minute distribution half-life (very fast) and a two-hour elimination half-life. Marijuana, when smoked, has a similar distribution half-life, but it also has a 28–56 hour elimination half-life, which involves complex metabolic processes. Nicotine is metabolized mostly through the liver, whereas THC (the active ingredient of marijuana) may be stored and released slowly from various bodily organs.

Finally, drugs can have four different types of interaction effects when used together. First, these effects may be additive (‘1 + 1 = 2’: the effects of the drugs simply add together). Second, these effects may be synergic (‘1 × 1 = 5’: the effects become much, much stronger when the drugs are used together). Third, these effects may be potentiating (‘0 + 1 = 2’: a drug may exert its effects only in conjunction with use of another drug). Finally, these effects may be antagonistic (‘1 − 1 = 0’: the effects of two or more drugs may cancel each other out).

What are the main classes of drugs of abuse?

Various classifications of drugs have been compiled. There are at least five noteworthy classification perspectives. These classifications are:

1. the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association (APA) 1994)
2. the International Classification of Diseases (for example Ninth Revision: ICD-9 or ICD-9-CM, World Health Organization (WHO) 1998)
3. the US Drug Enforcement Administration (DEA) and National Guard scheme
4. the Julien biomedical-type scheme
5. the Sussman/Ames scheme (a health promotion-behavioural scheme).
General issues pertaining to drug abuse

The DSM-IV (APA 1994) divides drugs of abuse into twelve classes: (1) alcohol, (2) sedative-like drugs, (3) amphetamine-type drugs, (4) cocaine, (5) caffeine, (6) cannabis, (7) hallucinogens, (8) inhalants, (9) nicotine, (10) opioids, (11) phencyclidine (PCP) and (12) ‘other’. It is useful to distinguish these classes for the purpose of medical and psychological treatment recommendations (clinical diagnostic utility). For example, the DSM-IV discusses differences in drugs potential for dependence, abuse, intoxication, withdrawal, psychotic and mood effects (see APA 1994: 177).

The ICD-9 (for example see WHO 1998) divides drugs of abuse or dependence into nine categories: (1) alcohol, (2) opioids, (3) barbiturates and similarly acting sedatives or hypnotics, (4) cocaine, (5) cannabis, (6) amphetamines and other psychostimulants, (7) hallucinogens, (8) tobacco and (9) ‘other’ (for example glue, laxatives). These drugs are divided up to discern abuse, dependence and psychological (for example psychosis) and medical consequences, quite similar to the DSM-IV formulation.

The US Drug Enforcement Administration and the National Guard (1996) divide drugs up by effects into six categories: (1) narcotics (for example opium, heroin, meperidine: twelve types listed), (2) depressants (for example chloral hydrate, barbiturates: five types listed), (3) stimulants (for example cocaine, amphetamines, ritalin: six types listed), (4) hallucinogens (for example peyote, LSD: six types listed), (5) cannabis and (6) steroids. These categories are considered in terms of their abuse potential, safety or dependence liability, and degree of therapeutic benefit (US DEA and National Guard 1996).

Julien (1998), in his text A Primer of Drug Action, divides drugs of abuse by specific neuroanatomical effects and topical interest into nine types. These nine types are: (1) depressants-type 1 (which includes barbiturates, sedative-hypnotics and general anaesthetics), (2) depressants-type 2 (alcohol and inhalants), (3) benzodiazepines and ‘second generation’ anxiolytics, (4) psychostimulants (cocaïne and amphetamines)-type 1, (5) psychostimulants-type 2 (caffeine and nicotine), (6) opioids (analgesics), (7) cannabis, (8) hallucinogens (anticholinergic, catecholaminergic, serotonin-like and PCP types) and (9) steroids (steroids may help build muscles but they can also disrupt mood and may make one angry).

Finally, Sussman/Ames have developed their own system. We divide drugs of abuse by behavioural effects into eight classes: (1) depressants (alcohol, sedatives for relaxation, hypnotics to induce sleep, anxiolytic to reduce anxiety, and anti-convulsants such as barbiturates), (2) PCP, (3) inhalants, (4) stimulants, (5) opiates, (6) hallucinogens, (7) cannabis and (8) ‘other’. All depressants are classified together because they slow down and relax the individual, or knock out an individual. PCP is placed in a separate category because its effects are both depressant and hallucinogen-like, and may precipitate violence. Inhalants generally exert sedative effects, but their administration (sniffed or huffed) is quite different from other depressants. All stimulants tend to ‘speed up’ the individual, make them nervous or more...
Definitions of drug abuse and drug abuse consequences

aware. All opiates relieve pain, and may relax or amotivate the user, whether or not they are derived from opium or are synthetic. All hallucinogens expand one’s cognitive perceptions and may lead to perceptual distortions and easily agitated behaviour. Marijuana may cause one to ‘mellow out’ or alter one’s perceptions. Finally, there are ‘other’ new drugs of abuse, which may or may not fit into one of the previous seven health behaviour-related categories. We mention them in the ‘other’ category because they have short abuse histories (less than 20 years’ duration). Although there appears to be a fair amount of overlap among schemes, there is also some non-overlap. To reduce our shared confusion, please realize that there is no universal scheme. Given that, we provide the following brief review of drug categories based on the Sussman/Ames perspective.

Depressants
Depressants are generally taken orally and slow down the central nervous system (CNS). Intoxication may include slurred speech, deficient coordination, nystagmus (rapid eye movements), attention or memory impairment, sedation, anxiety reduction and euphoria, and generally lasts four to five hours on a single dose. Alcohol is the most commonly used depressant. Other depressants include alcohol-like barbiturates (for example Seconal, Nembutal), methaqualone (dopers, Quaaludes), sedative-hypnotics (for example Placidil, Doriden) and minor tranquilizers (for example Valium, Librium, Tranxene, Rohypnol). There are also sedative-hypnotic look-alike drugs, which generally contain 25–50 mg of the antihistamine, doxylamine succinate, which is found in Formula 44 and Nyquil.

PCP (phencyclidine)
PCP was originally developed as an animal anaesthetic and tranquilizer, but is no longer used as such. PCP can be smoked or taken orally, and intoxication involves intense analgesia, delirium, stimulant and depressant actions, staggering gait, slurred speech and vertical nystagmus, and it can produce catatonia and paranoia, flushing, coma, violent behaviour and memory loss effects. Some researchers label PCP as a hallucinogen rather than a depressant because of its mixed actions (Winger et al. 1992).

Inhalants
There are four main groups of inhalants: solvents (for example glue, type-writer correction fluid, petrol, antifreeze), aerosols (for example spray paint and cooking spray), amyl nitrite and butyl nitrite (for example Rush, Locker Room – room deodorizers) and anaesthetics (for example nitrous oxide, ‘laughing gas’ – used as a propellant/food additive). Glass vials of amyl nitrite make a distinctive noise when crushed – hence the term ‘poppers’. There are about 23 chemicals involved in inhalant abuse. Inhalants are well-known causes of kidney, brain and liver damage. One of the most preferred inhalants is toluene, which is a solvent used in such adhesives as airplane glue, such aerosols as
spray paint, and such commercial solvents as paint thinner. Its long-term use destroys functioning of the cerebellum. Inhalants are cheap, available, inconspicuous, fast and tend to involve few legal hassles. Use is through huffing, fluting or bagging (through mouth, nose or nose and mouth). Inhalant highs last 5–15 minutes. Inhalant intoxication includes euphoria, headaches, dizziness, nausea and fainting.

Stimulants
Stimulants generally are taken orally, though they may be smoked or injected. They include cocaine (such as freebase and ‘crack’), amphetamines (for example Dexedrine, Benzedrine), methamphetamine (methedrine: ‘speed’, ‘crystal’, ‘ice’, ‘crank’), MDMA (ecstasy), nicotine, caffeine and amphetamine-like products (preludin or ritalin). Stimulants speed up the central nervous system, for as long as two to four hours on a single dose. Intoxication generally includes euphoria, fatigue reduction, a ‘sense’ of mental acuity, energy, emotional lability, restlessness, decreased appetite, irritability, hyper-vigilance, and can include paranoia. Cocaine, despite its different chemical structure, operates in a similar way to other stimulants. For example, both amphetamines and cocaine increase the action of dopamine, although amphetamines stimulate its release whereas cocaine primarily blocks its reuptake. Amphetamines remain in the blood longer than cocaine, and most have more peripheral sympathomimetic (‘electric’) effects than cocaine. The only current primary clinical uses for stimulants are for hyperactivity and narcolepsy and, for a few people, as a means of weight control. This drug category is perhaps the fastest growing category internationally. Stimulants often enter a country through its ‘club scene’ and then become more widely used as a means of keeping people awake while working long hours.

Ecstasy (3,4-methylenedioxy-N-methylamphetamine; MDMA), synthesized in 1914 as an appetite suppressant, is also called ‘XTC’ and ‘Adam’. There are numerous names for specific concoctions. It is a ring-substituted amphetamine congener of the methoxylated amphetamines; one structural congener is MDA (methylenedioxyamphetamine). It exerts an amphetamine-like reaction: the heart rate goes up, there may be an occurrence of tremor, tight jaws, grinding of teeth, back pain, numbness of extremities, feeling cold and – for some people – nausea, nystagmus, heart attacks, seizures and possibly death. Positive reactions include enhancement of communication or intimacy; it generally is not an aphrodisiac, as some folklore suggests. Some people might classify MDMA as a hallucinogen (it may produce perceptual changes such as increased sensitivity to light; it acts on serotonergic neurotransmission), but its effects primarily are stimulation (for example it increases heart rate and awareness). Chronic abuse of MDMA may produce long-term damage to serotonin containing neurons in the brain (National Institute on Drug Abuse (NIDA) 1999a).

There are several legal stimulants. Caffeine, of course, is contained in coffee. Ephedrine is a stimulant contained in Vicks Inhaler or Sudafed, and is five times weaker thanamphetamine. Chemically, it is levo-methamphetamine,
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an isomeric form of the street drug, d-methamphetamine. Phenylpropanolamine is an antihistamine and diet aid, with ephedrine-like action. Propylhexedrine is found in decongestant inhalers (for example Dristan). Nicotine is contained in tobacco products (cigarettes, cigars, pipes and smokeless tobacco). There are also two stimulant plants – betel nut and khat. There are five active alkaloids in betel nut; khat’s main ingredient is cathinone, which is chemically similar to amphetamine.

Opiates
Opiates include some 20 alkaloids that act on opiate receptors, and generally are taken orally or injected, although they can also be inhaled. Some are derived from the opium poppy, whereas others are synthetic. Opiates include morphine, codeine and thebaine (all of natural origin); heroin, hydrocodone, hydromorphone and oxycodone (all semi-synthetic); and meperidine, fentanyl and pentazocine (all synthetic). Intoxication generally includes slurred speech, analgesia, slowed respiration, drowsiness, euphoria and possibly itching. The effects of one dose may last around three hours. There are approximately half a million opiate addicts in the United States alone.

Hallucinogens
Hallucinogens generally are taken orally and include indole (serotonin-like) alkylamines such as LSD, DMT (N, N-dimethyltryptamine) and psilocybin (‘magic mushrooms’: 4-phosphoryloxy-N, N-dimethyltryptamine); and catecholamine-like phenylalkylamines such as mescaline (peyote: trimethoxyphenethylamine) and DOM (di-methoxy-methamphetamine, also known as STP). There are more than a hundred natural or synthetic hallucinogens. Intoxication generally includes sensory changes experienced as visual illusions and hallucinations, alteration of experience of external stimuli and thoughts, and can involve paranoia and thoughts of losing one’s mind. The effects of hallucinogens may last an average of twelve hours (for LSD). Street substitutions include amphetamines, PCP, strychnine (strong stimulant used in rat poison) and anticholinergic hallucinogens that are rarely sold directly on the ‘street’ (scopolamine and stropine; for example, belladonna or deadly nightshade, jimsonweed).

Cannabis
Cannabis (delta-9-tetrahydrocannabinol) generally is smoked, though it can be taken orally, and it produces a sense of well-being and relaxation, loss of temporal awareness and impairment of short-term memory. Cannabis also can produce anxiety and a sense of derealization. Effects may last around five hours for a single dose. The lethal to effective dose is 1000:1, although lung damage and short-term memory problems are documented consequences of use. Marijuana occurs in leaf and resin (hash, hash oil) forms, and a synthetic form of THC-9, marinol, which is used as an oral pill clinical adjunct for glaucoma and cancer.
General issues pertaining to drug abuse

Other
There are many drugs that could be considered as additional categories of use. One might call these ‘other’ categories. Perhaps these categories will become ‘official’ by the DEA or other organizations. The anabolic-androgenic steroids are one such ‘other’ category. It is a recognized and separate category in the US DEA/National Coast Guard and Julien’s schemes, though not in the DSM-IV, ICD-9 or Sussman/Ames schemes. These approximately eighteen different products exert their effects by overwhelming the hypothalamic-pituitary hormonal system, creating abnormally high testosterone hormone levels that lead to such peripheral effects as increased muscle mass and aggression. These drugs generally are taken orally, but they also may be injected intramuscularly. These drugs may be useful in recovery from trauma. There are, however, numerous negative consequences of use, including high blood pressure, potential heart attacks, liver tumours, transient infertility, tendon degeneration, acne and severe mood swings. Between 4 and 11 per cent of teenage males and 1 to 3 per cent of teenage females in the United States had tried steroids in the mid-1990s; this is a drug category on which to keep an international watchful eye.

Also among the ‘other’ categories, there are different types of drugs that have become popular in public circles, and are referred to as designer drugs. Some of these drugs may have been newly synthesized, but probably most of them have been around for a while, have received renewed popularity, and may or may not have become associated with one of the above-presented established drug use classification categories (for example see NIDA 1999a). For example, GHB (gamma-hydroxybutrate) is a drug that was synthesized in 1960 – perhaps for use as an anaesthetic, and at present is considered a treatment option for narcolepsy. GHB acts on the dopaminergic system by stimulating dopamine production and by preventing release at the synapse. It comes in a powder or liquid form, generally is taken orally (1.5–3 grams powder) and it provides alcohol-like CNS depressant effects, including sedation, subjective relaxation and possibly increased gregarious behaviour. It also has growth hormone releasing effects. It may produce psychotic symptoms, coma and seizures, and is a recent nightclub-goer ‘date rape’ type drug (NIDA 1999a). It can be lethal when mixed with other depressants, and ‘home made’ forms tend to be mixed with trace poisons (for example heavy metals, lye and industrial solvents).

As another example, Ketamine (Special K) is an anaesthetic that has been approved for human use since 1970. It is produced in liquid form or as a white powder that is injected, snorted or smoked with marijuana or tobacco. At high doses it can produce dream-like states, hallucinations, delirium, impaired motor functions, depression and potentially fatal respiratory problems (NIDA 1999a). The US DEA currently anticipates future synthetic drugs of abuse (Cooper 2000: http://designer-drugs.com/synth/index.html), including derivatives of LSD, tryptamines, phenylakylamines (for example mescaline), PCP, stimulants, sedatives-depressants and analgesics.
Definitions of drug abuse and drug abuse consequences

Consequences of taking drugs of abuse
We shall discuss some of the drugs mentioned above in subsequent chapters. For the purposes of this chapter, it is sufficient to mention that some of these drugs are very likely to have lethal consequences, whereas others are not; some produce recognizable withdrawal symptoms whereas others do not; some drugs seem to have a high addiction-potential, whereas others do not. However, all of these drugs can be abused. All of these drugs can lead to drug abuse. Table 1.1 shows thirteen direct consequences of the Sussman/Ames categories of drugs (plus the anabolic steroids). All of these drug types are associated with the production of psychotic symptoms (for example paranoid ideation) and injury (accidents, violence). At least five of eight categories are associated with cardiovascular diseases or financial problems. Otherwise, each drug class is associated with a unique but deadly set of potential consequences. The next section provides a working definition of drug abuse.

Drug abuse and drug dependence
Drug use pertains simply to use of a drug. A drug may be injected, smoked, sniffed, huffed (inhaled), swallowed or sometimes absorbed through the skin. Drug misuse means not using a drug in the manner in which it was intended or prescribed. For example, one may use a pain medication for fun rather than for pain control, one may use too much, or one may use too often. Drug abuse may be defined as the accumulation of negative consequences resulting from drug misuse (Newcomb and Bentler 1989; APA 1994; Sussman et al. 1997a).

A formal definition of substance abuse disorder is provided by the DSM-IV (APA 1994). Drug abuse is a maladaptive pattern of drug use leading to clinically significant impairment or distress, as manifested by one or more of four symptoms or criteria occurring within a 12-month period.

1 Recurrent drug use may result in a failure to fulfil major role obligations at work, school or home. Repeated absences, tardiness, poor performance, suspensions or neglect of duties in major life domains suggest that use has crossed over into abuse.

2 Recurrent drug use in situations in which it is physically hazardous is a sign of abuse. Operating machinery, driving a car, swimming or even walking in a dangerous area while under the influence indicate drug abuse.

3 Recurrent drug-related legal problems, such as arrests for disorderly conduct or DUI (‘driving under the influence’) arrests, are indicative of abuse.

4 Recurrent use despite having persistent or recurrent social or interpersonal problems, caused or exacerbated by the effects of the drug, is indicative of abuse. For example, getting into arguments or fights with others, passing out at others’ houses, or acting inappropriately in front of others is indicative of abuse.
### Table 1.1 Long-term consequences of different categories of drugs of abuse

<table>
<thead>
<tr>
<th>Drug type</th>
<th>Consequences</th>
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<tr>
<td></td>
<td>Withdrawal</td>
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<td>Depressants</td>
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<td>PCP</td>
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<td>Inhalants</td>
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<td>Stimulants</td>
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<td>Opiates</td>
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<td>Hallucinogens</td>
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<td>Cannabis</td>
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<td>Steroids</td>
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*Note*
1. PNS stands for peripheral nervous system; as with other consequences, indicates damage to the PNS.

For additional reading see APA 1994; Julien 1998
In summary, drug use that leads to decrements in performance of major life roles, dangerous action, legal problems or social problems indicates abuse. There are seven other criteria that, if met, constitute substance dependence. A diagnosis of substance dependence, a more severe disorder, would subsume a diagnosis of substance abuse. The criteria for substance dependence provided by the DSM-IV (APA 1994) include a maladaptive pattern of drug use, leading to clinically significant impairment of distress, as manifested by three or more of the following seven symptoms occurring in the same twelve-month period.

1. **Tolerance** is experienced. There is either a need for markedly increased amounts of the drug to achieve the desired drug effect or a markedly diminished effect with continued use of the same amount of the drug.

2. Withdrawal is experienced. Either a characteristic withdrawal syndrome occurs when an individual stops using the drug, or the same or a similar drug is taken to relieve or avoid the syndrome.

3. The drug is often taken in larger amounts or over a longer period than was intended. For example, an alcohol-dependent woman may intend to drink only two drinks on a given evening but may end up having fifteen drinks. Alternatively, she may decide to ‘party’ over the weekend; however, the party lasts for two weeks until she runs out of money.

4. There is a persistent desire or unsuccessful efforts to cut down or control drug use. For example, an alcohol-dependent man may decide to become a controlled drinker. He may intend to drink only two drinks every evening; however, he ends up having fifteen drinks on some evenings, maybe two drinks on some evenings, and maybe twenty drinks on other evenings – to his own dismay.

5. A great deal of time is spent on activities necessary to obtaining the drug, use the drug, or recover from its effects. For example, a person may travel long distances or search all day to ‘score’ a drug, may use the drug throughout the night, and then may miss work the next day to recover and catch some rest. In this scenario, two days were spent for one ‘high’.

6. Important social, occupational or recreational activities are given up or reduced because of drug use. For example, the drug abuser may be very high, ‘passed out’ or ‘hung over’ much of the time, and thus may not visit family and friends as they did before becoming a drug abuser.

7. The drug continues to be used despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or worsened by the drug. For example, someone who becomes very paranoid after continued methamphetamine use, and is hospitalized but continues to use it, shows this last symptom.

The definitions of drug abuse and dependence provided above were developed primarily to identify adult drug abusers, individuals from the ages of 18 to 65 years.
Withdrawal symptoms, also known as the abstinence syndrome, consist of adjustment in physical functioning and behaviour attributed to overactivity of the nervous system. These symptoms are experienced when physically dependent persons cease their drug use. Withdrawal symptoms vary from drug to drug. Alcohol, sedative, hypnotic or anxiolytic withdrawal may involve autonomic reactivity, increased hand tremor, insomnia, nausea or vomiting, transient illusions or hallucinations, psychomotor agitation, anxiety, or grand mal seizures. Amphetamine or cocaine withdrawal includes fatigue, unpleasant and vivid dreams, insomnia or hypersomnia, increased appetite, or psychomotor retardation or agitation. Opioid withdrawal includes dysphoric mood, nausea or vomiting, muscle aches, tearing, rhinorrhea (that is runny nose), sweating, diarrhoea, yawning, fever or insomnia. Nicotine withdrawal includes depressed, anxious or irritable mood, insomnia, difficulty concentrating, restlessness, decreased heart rate, constipation, sweating and increased appetite. PCP has no or few withdrawal symptoms, although its use is associated with anxiety, rage, seizures and induction of psychotic disorder. Caffeine has few withdrawal symptoms, except perhaps for some fatigue, difficulty concentrating, and headache. While not recognized until recently by researchers (APA 1994), even to the dismay of generations of chronic users (Marijuana Anonymous 1995), cannabis has a few withdrawal symptoms – fatigue, difficulty concentrating, stomach pains, some agitation, perhaps anger, and vivid dreams, especially among chronic users (Zickler 2000). Hallucinogens are not known to have withdrawal symptoms, although flashbacks (high-like states) occur in some people who have stopped using these drugs.

The next few sections examine terms associated with drug abuse (for example craving and addiction concern). Finally, the physical appearance of the drug abuser is mentioned as an applied social psychological issue.

Craving

While noted by the DSM-IV as central to drug abuse, the concept of craving is not officially a separate indicator of drug abuse. Perhaps it should be, though it may be difficult to measure. Craving refers to the myriad of urges and obsessions that drug abusers may talk about regarding obtaining and using a drug. But what does this phenomenon reflect? Craving may be the result of classical conditioning to drug-related stimuli (Sussman et al. 1990b), post-synaptic neurotransmitter supersensitivity, or may reflect interpretations of the experience of withdrawal or implicit cognitive processes (a cognitive construct), but it does seem central to differentiating the drug user from the drug abuser. For example, the alcohol drinker may drink a glass of wine, but not finish it. They may comment on the flavour, but other topics are important. The alcohol abuser tends to drink all of the wine in the glass; if not, they may have noted salivating on that occasion and feeling badly about not finishing the wine. They may not remember other events, but may recall not finishing the glass of wine long after the event.
While craving is associated with drug abuse, it is not clear whether or not craving is associated with relapse. Littrell (1991) completed a careful review of the alcohol craving literature. In sum, she found that craving was related to expectancies regarding alcohol, demonstrated conditioning-like characteristics (for example salivation when seeing alcohol-related cues), but that craving-related relapse was highly correlated with negative affectivity. In other words, as opposed to being some innate phenomenon, craving may reflect an anticipatory reaction, classically conditioned or involving higher-order cognitive processes, to diminishing negative affect by drinking.

Research on craving continues. Conditioned craving and cue exposure have received interest in drug relapse prevention research (for example Sussman et al. 1990b). Most simply stated, conditioned craving refers to classical conditioning to drug-related stimuli. Drug cues (exteroceptive or interoceptive) that have been repeatedly paired with drug-taking experiences may come to serve as conditioned stimuli. Unless extinction of the responses to these cues occurs, exposure to the conditioned stimuli will elicit a conditioned anticipatory response (craving), leading to potential use or relapse. Repeated exposure to drug cues without any use occurring (flooding) can result in extinction of the conditioned response. Researchers have assessed conditioned craving or flooding efficacy primarily in small-scale studies (see Sussman et al. 1990b). Some research evidence suggests that cue-conditioned responses (CCRs) may be more important than outcome expectancies in determining subsequent drinking in alcoholics, at least relative to non-alcoholics (Cooney et al. 1987, 1991). However, some researchers have questioned the relative importance to relapse of CCRs versus expectancies of positive alcohol use outcomes.

The relevance of cognition

One impediment to appreciating the potential importance of CCRs has been making traditional Pavlovian theory the explanatory focus. Reactivity is elicited upon the sight of preferred alcohol beverages or of other related stimuli through stimulus generalization. How could such a process explain the complexity of relapse, including relapse that might begin under conditions where no drug cues are obviously available? Consideration of cognitive representations of drug cues and drug-related concepts are relevant here. Indeed, a crucial factor in subjective urges and thoughts about alcohol or other drugs may be the set of key cognitive concepts (categories of drug-related stimuli) that elicit the urges and thoughts. Concepts that are potent in causing urges and thoughts regarding alcohol or other drugs are ones that are retrieved frequently, and with ease. Ease and frequency of retrieval are brought about by the fact that the key concepts have become imbedded in over-determined cognitive structures, in which each of many related concepts can invoke the retrieval of the key concepts (Sussman et al. 1990b). Given current lack of
clarity regarding the notion of craving, this term will continue to be considered an important feature of drug abuse, but not one that can be considered an objective criterion.

**Addiction concern**

Does the person who is abusing drugs recognize that they have a problem? Some treatment providers may believe that the drug abuser does not recognize the severity of the problem, and does not recognize the value of a sober life (Littrell 1991). Alternatively, drug abusers may recognize that they have a problem, but fail to recognize the extent of damage they are inflicting on themselves or others, know how to cope with life stresses without using drugs, or lack self-efficacy to change. An individual’s recognition that they may have a drug problem is viewed by the recovery movement (for example Alcoholics Anonymous or AA), as well as those in behaviour therapy oriented cessation practice (for example De Leon et al. 1994), as the first step in recovery. In other words, once someone contemplates that their drug use may become a serious problem – that they may have become a drug abuser, addict or alcoholic – attempts at cessation are more likely to occur. The earlier a drug abuser attains that awareness, the sooner recovery can begin. One may refer to this drug abuse awareness as an *addiction concern*.

Three variables have been found to be strong correlates of addiction concern (Sussman and Dent 1996). First, the greater the level of someone’s current drug use, and expectation that they will continue to use drugs, the greater the level of addiction concern. Apparently, drug abusers do not exhibit a simple, invariant denial of their problem. Rather, they hold a more equivocating stance regarding the consequences of their drug use (see also W. Miller and Rollnick 1991). Second, a lack of general assertiveness may influence drug use through inhibiting creation of new prosocial, anti-drug-oriented bonds leading to greater addiction concern. Finally, individuals who place lower importance on health as a value are relatively likely to be concerned about becoming an addict or alcoholic. They do appear to be equivocating in their thinking. On the one hand they do not think that health is an important value. On the other hand, they worry more about aspects of their health (that is their drug use). One may speculate that anti-drug, pro-health social influences might help ‘raise the bottom’ (that is stop continued use) among those with relatively high addiction concern.

**Social psychology and drug abuse: do they look like drug abusers?**

One interesting social psychological issue is whether or not one can tell that a person is a drug abuser just by looking at them. Drug abuse is often
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masked as something else. The drug abuser may come into contact with the treatment system through a variety of channels – as a comatose or psychotic patient at a hospital, an employee who is having work relationship problems, or as the perpetrator of a car accident, as examples. It would be helpful to treatment agents if there were some visual signs that the person might be abusing drugs. In most cases, the drug abuser is not likely to look like a movie portrayal of some crazed derelict. Alternatively, arguably, everyone at a rave who sucks on a pacifier may look like an ecstasy addict.

What physical features are telltale signs of drug abuse? Facial features are strongly related to prolonged alcoholism. Redness of the eyes and nose and wrinkles on the face and neck are commonly associated with sustained alcohol abuse. The most pronounced effects of chronic alcohol use include dilation of the vessels of the skin, a chronic flushed appearance and thinning of the skin due to serious liver damage. Heavy and chronic use of alcohol can also precipitate a condition called ‘rosacea’, which includes flushing and inflammation especially of the nose and middle portion of the face. Small blood vessels with a corkscrew shape may also fill the whites of the eyes.

With respect to body features, an awkward posture, being underweight or overweight, and poor grooming may also be present in drug abusers. However, these body features are not exclusive to drug abusers. They are also seen among schizophrenics and those who are severely or moderately depressed. It is important to emphasize that these body characteristics are a consequence of specific behaviours that, when performed (for example maintaining clean clothes), result in positive changes in appearance.

Sussman et al. (1990a) investigated changes in appearance among a group of drug abusers observed at admission and six weeks later as they stood individually in front of the nurses’ station (getting ready to get their blood pressure checked) at a private inpatient chemical dependency facility. These drug abusers were from middle-class backgrounds. They did not demonstrate the low-bottom characteristics of the skid-row drunk. Features that seemed unique about them included a slightly leaned over posture, wrinkles under the eyes and a frozen facial expression. The only changes that were observed over the six-week period – six weeks of sobriety – was an improvement in posture and reduction in wrinkles under the eyes. In some cases, weight changes were also observed, but not for a majority of the sample. One interesting physical feature that was not observed as a change was the existence of a neutral but frozen facial expression. It is not clear whether such a lack of animation is due to the impact of drug use, lack of socialization, confusion over the inpatient experience, typical behaviour near a nurses’ station, or other reasons. However, it is likely that if their lack of expression remained constant as these patients were discharged into the community, it might lead them to be ignored by others – and could precipitate relapse. Education in how to smile may be an important pre-discharge learning modality for drug abusers.
Summary

Drug use is drug use. Using drugs for unwarranted reasons is drug misuse. Using drugs as a means to learn how to live life is drug abuse. Decrements in performance of major roles, dangerous action and legal and social problems may be indicators of drug abuse. Drug dependence is being described when tolerance and withdrawal are experienced, when someone loses the ability to predict and control their drug use, and when consequences pile up. People in Alcoholics Anonymous and Narcotics Anonymous (NA) often say that the person takes the drink or drug, then the drink or drug takes the next drink or drug, and then the drink or drug takes the person.