Chapter 2

Adolescent substance abuse

1. Introduction

Substance abuse is a serious public health problem of huge proportions facing Western civilisation today. In his first opening address to Parliament in 1994, President Mandela specifically singled out substance abuse among social pathologies that needed to be combated (Brewis, 2001: 4). In fact substance abuse is a major cause of crime, poverty, reduced productivity, unemployment, dysfunctional family life, political instability, the escalation of chronic diseases, such as AIDS and TB, injury and premature death. Its sphere of influence reaches across social, racial, cultural, language, religious and gender barriers and, directly or indirectly, affects us all. (Compare National Drug Master Plan, 1999.)

At this point in time, the "war on drugs' is not being won; if anything, we seem to be losing. Rocha-Silva, Mokoko and Malaka (1998: 1) state that there is an increase in the general prevalence of substance-related problems in South Africa. Indeed, the concerning upward trend of substance abuse among adolescents appear to be broad, including youth from different age groups, social classes, geographic regions, and racial/ethnic populations (Botvin, Schinke, & Orlandi, 1995: vii). Accordingly, one in four Grade 7, 10 and 11 learners in a school survey undertaken by UNISA reported getting drunk occasionally during the

course of a typical month (Parry, Pluddemann, Bhana, Matthysen, Potgieter & Gerber, 2000: 1). Concern that this increase in substance use by junior and senior high school students may herald the beginning of a new drug epidemic gives new urgency to the development of effective prevention methods (Botvin, Schinke & Orlandi, 1995: vii). Clearly adolescent substance abuse is a complicated, multifaceted problem that needs careful and thorough attention. However, Gonet (1994: 3) points out that, "Making sense of this overwhelming and emotional-laden issue is extremely difficult and requires careful examination of many factors related to teen drug use."

The purpose of this chapter then, is not to take a moral stand concerning whether or not it is appropriate to use drugs. Instead, the focus is on understanding the nature and prevalence of substance abuse by presenting theoretical and empirical knowledge concerning substance use/abuse among adolescents. This will help provide a context for understanding the real danger of substance abuse to South African youth and the urgent need for prevention efforts.

In order to avoid ambiguity and confusion the chapter opens with the defining of relevant terms and concepts for substance abuse in adolescence. Here after a summary of the effects of various substances is provided in order to explain the abuse potential which is inherent to substances of abuse and to highlight their adverse danger to the abuser. Furthermore an overview of the factors, which are believed to add up, culminating in the development of adolescent substance abuse is provided. A model is outlined, which has been devised by the researcher to explain the interaction between these factors. This is followed by a discussion of the extent of the substance abuse problem in KwaZulu Natal,

the RSA and abroad. However it is important to take note that the statistics, which are mentioned, reflect the paucity of quantitative data, which are available. In fact the very nature of substance abuse results in cover-ups and under-reporting of the problem. Herewith accurate record keeping is further hampered by a lack of sophisticated countrywide infrastructure to record substance abuse statistics. Finally a summary is provided of issues touched on in this chapter.

2. Terms and concepts

The need for the definition of basic concepts is a prerequisite for any disciplined scientific endeavour (De Vos, 1998: 19). Its rationale lies in the powerful role that the clear definition of basic concepts plays in the need to come to grips with any particular field of study, in this case the substance abuse field.

Keeping this in mind the researcher will mainly focus on the description of substance abuse and substance dependence in adolescence. Nevertheless the following terms form a fitting background for this study.

2.1 Drug

According to Stoppard (2000: 10) the term drug refers to "a substance used in medicine or as a stimulant or narcotic". Roper and Bartlett (1994: 5) describe the term drug as: "a dependence producing substance". These descriptions may appear simplistic, but they are basically true.

In this study the term "drug" is used in accordance with the definition provided by the World Health Organization, as quoted in the World Drug Report (1997: 10) of the United Nations Drug Control Programme. It refers to all psychoactive substances, i.e. "any substance that, when taken into a living organism, may modify its perception, mood, cognition, behaviour or motor function" – whether licit (e.g. alcohol, nicotine, sedatives and tranquillisers) or illicit (e.g. cannabis, cocaine, heroin and LSD). (Compare Rocha-Silva, 1999: 1.)

2.2 Youth

For the purpose of this study, the term "youth" is restricted to the adolescent, i.e. age category 11– 21 years.

3. Formulation of a definition of substance abuse in adolescence

There are perhaps as many names or labels for substance abuse as there are definitions from different theoretical perspectives (Bukstein, 1995: 19). Despite efforts to achieve a consensus or convention(s) as to what one should call substance abuse, a wide variety of labels or terminology exist to describe this problem (Gonet, 1994: 14). These labels are often used interchangeably and include: problem use, substance abuse, substance dependence, chemical abuse, chemical dependency, alcoholism and addiction (Daley & Raskin, 1991: 12). However, many of these definitions with different labels may reflect conceptually similar constructs.

Still, Bukstein (1995: 27) points out, "clear, concise operational definitions of adolescent substance abuse or dependence, or even specific diagnostic criteria, are rare". (Compare Perkinson, 1997: 7.) According to Bukstein (1995: 24) it is largely assumed that criteria for adult substance use disorders should apply to adolescents. The assumption is that the substance use disorders in both adolescents and adults represent the same disorder or pathological process. Yet, there are several salient differences between substance use in adolescents and use in adults. These differences include: (a) discontinuity between adolescent problem use and adult abuse and dependency, (b) differences in patterns and consequences of use, and (c) differences in the social, peer and developmental context of use. Thus, underlining the need for developmentally specific criteria, for diagnosis used to define substance abuse in adolescence.

Using this as a departure point in attempting to develop a reliable operational definition of adolescent substance abuse, Gonet (1994: 17) asserts that several variables should be considered, i.e.: (a) extreme levels of drug or alcohol use in terms of quantity and/or frequency of use or frequency of intoxication, (b) criteria-based "symptomatic" use behaviour, and (c) negative consequences presumed to be due to substance use.

The first potential basis for diagnosis, used to define substance abuse, is high levels of quantity and frequency. For instance, Reber (in Oliphant 1990: 19) defines substance abuse as: " The improper use of drugs." Stressing that the usual connotation is that of excessive, irresponsible and self-damaging use of psychoactive and/or addictive drugs. And Gullotta, Adams and Montemayor's (1995: 235) description of drug abuse: "as

taking a drug to such an extent that it greatly increases the danger or impairs the ability of an individual to function or cope with his or her circumstances adequately." Notwithstanding, Bukstein (1995: 25) asserts that this focus on extreme levels of substance use appears to be of limited usefulness when considered by itself. (Compare Gonet, 1994: 17.) In view of data released by the South African Community Epidemiology Network of Drug Use (SACENDU) there is an increase of substance use and abuse among young people (Parry, Pluddeman, Bhana, Matthysen, Potgieter & Gerber, 2000: 1). Currently two out of three children use drugs in South Africa, and children mainly girls, as young as nine are drinking themselves close to death (Fourie, 2001: 8). Accordingly nine out of ten boys under the age of 13 drink secretly. Herewith, one thousand children under 15 are admitted to hospital with acute alcohol poisoning each year in the United Kingdom alone (Stoppard, 2000: 39). Thus, it is clear that assigning pathologic status to behaviour with such a large prevalence can become dubious. As in many of these cases, a range of normal adolescent behaviour and development within the context of a modern society is observed (Bukstein, 1995: 25).

The second potential basis for adolescent diagnoses, used to define substance abuse is based on symptomatic behaviour, offering a way of eliminating a reliance on both quantity and frequency measures, or on more advanced complications of substance abuse such as withdrawal symptoms or medical consequences of use which are rare in adolescents. (Compare Bukstein, 1995: 25; Gonet, 1994: 17.) For instance, Talbot (in Daley & Raskin, 1991: 14) sees substance abuse/dependence as a disease rather than a weakness or symptom of something else. He explicates this position by identifying the major symptoms of the disease as: (a) compulsive drinking or drug use, (b) changing tolerance, (c)

withdrawal, (d) blackouts, (e) physical destruction, (f) psychological destruction, and (g) socio-cultural destruction. (Compare Velleman, 1992: 4.) However, symptomatic behaviour of psychological dependence, such as impairment of control, craving and preoccupation with use, are not well studied in adolescents (Bukstein, 1995: 25).

The third option to consider as a basis for a definition of substance abuse is the presence of negative consequences of use. The Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association, considers substance dependency a major psychiatric disease and base their definitions of abuse, as applied to adolescents, largely on the presence of a pattern of negative consequences. (Compare Boyd, Howard & Zucker: 1995: 149; Bukstein, 1995: 25; Perkinson, 1997: 128; Winger, Hofmann & Woods, 1992: 17.) Herewith the Social Work Dictionary (1999: 470) defines substance abuse as: "A maladaptive pattern of using certain drugs, alcohol, medications, and toxins despite their adverse consequences. Considering substance abuse as less problematic than substance dependence in that tolerance and withdrawal symptoms have not yet occurred." Moreover, the Diagnostic and Statistical Manual is the most official nomenclature and most widely used system of diagnosis used to define substance use problems in adolescents and is accepted across clinical and research settings. The most recent version is the fourth edition or DSM-IV (American Psychiatric Association, 1994).

From a social work perspective, the DSM-IV thus represents a reasonable compromise for categorical diagnoses used to define substance abuse disorders in adolescents.

3.1 Substance abuse

Substance abuse is defined by DSM-IV as a maladaptive pattern of use leading to significant impairment and distress, as shown by at least one of four criteria during a one-year period.

- *Recurrent uses resulting in inability or failure to meet major role obligations at work, school, or home.* This criterion involves substance-use related social, occupational and/or psychological impairment. However, the social worker should be careful to include only those behaviour or areas of dysfunction directly attributable to the adolescent's substance use. The replacement of major role obligations again suggests that substance use has taken over as the focal point of the affected youth's life.

- *Recurrent use in physically hazardous situations.* Driving a motor vehicle or participating in a recreational activity such as swimming while under the influence of a substance are common examples of use in hazardous situations. Recurrent use in such situations is evidence of use despite the risk of harm.

- *Recurrent substance use-related legal problems.* Underage drinking is a status offence where the adolescent is arrested by virtue of age and not necessarily due to immediate risk of danger to self or others. However, a pattern of substance-related offences should be considered a maladaptive pattern of use.

- *Continued use despite continuing or recurrent social or interpersonal problems caused or worsened by the effects of the substance.* This

item continues the general focus of substance abuse, that is, the repeated use of a substance or substances despite negative consequences due to use. Common examples for adolescents are physical fights, conflict with family, peers, or others while under the influence, or conflicts about the adolescent's use. (Compare Bukstein, 1995: 30; Holmes, 1991: 416; Perkinson, 1997: 7,227.)

Substance abuse thus indicates the presence of direct negative consequences of use.

3.2 Substance dependence

Similarly, DSM-IV defines substance dependence as, a maladaptive pattern of substance use, leading to clinically significant impairment or distress with three criteria occurring together at any time in the same 12-month period. The presence or absence of tolerance or withdrawal, indicating with or without physiological dependence, respectively further specifies substance dependence.

- *Tolerance* is defined as the need for significantly increased amounts of a substance to achieve the desired psychoactive effects or the development of decreased effect with the same amount of the substance. Extreme level of tolerance as manifested by use of large quantities of a particular substance is evidence of more advanced levels of use. Tolerance may also represent a compulsion to use to the point of achieving a given desired effect.

Tolerance is very common for many substances and among any substance user who uses beyond very modest levels. While helpful at extreme levels of use, tolerance at low or modest levels of use may have limited utility as a diagnostic criterion to distinguish substance abuse or dependence from non-pathological levels of use.

- *Withdrawals* indicate the presence of the characteristic or specific withdrawal syndrome for that particular substance, or taking the substance or a similar substance – to relief or avoid withdrawal symptoms. The presence of withdrawal symptoms and the continued use of a substance to avoid withdrawal are evidence of true physiological dependence. Significant withdrawal symptoms are rare in adolescents.

- *Substance often taken in larger amounts or over a longer period than the person intended.* This criterion suggests loss of control; that is, once a substance use episode has begun, it becomes difficult, if not impossible, for the adolescent to control use or stop despite any initial intention for control or abstinence.

- *Persistent desire or unsuccessful efforts to cut down or control substance use.* Inability to control substance use through previous efforts to abstain, relapse, or previous treatment experiences, despite recognition of one's excessive or pathological use is another sign of loss of control. Unfortunately, recognition of a problem with substance use or previous efforts by adolescents to quit is infrequent. Many adolescent substance abusers may acknowledge attempts to cut down or even quit in response to pressure from family or peers, or

negative consequences such as arrest for possession of substances or driving while under the influence of a substance.

- *Much time spent in activities necessary to get the substance, using the substance, or recovering from its effects.* Preoccupation with substance use and related behaviour is evidence that substance use is beginning or has already taken over the adolescent's life. In severe cases, virtually all of a person's daily activities also illustrate the preoccupation with substance use.

- *Important social, occupational or recreational activities given up or decreased due to substance use.* The neglect or withdrawal from previously desired and important activities also illustrates the preoccupation with substance use.

- *Continued substance use despite knowledge of having a continuing or recurrent social, psychological, or physical problem that is caused or worsened by the use of the substance.* Meeting this criterion involves surveying a list of negative consequences of use and their repeated occurrence accompanying or following substance use. The adolescent may not specifically admit to experiencing these consequences or may not attribute these consequences to substance use. (Compare Bukstein, 1995: 31; Holmes, 1991: 416; Lewis, Dana & Blevins, 1994: 79; Perkinson, 1997: 227.)

Substance dependence thus represents a level of substance abuse, consisting of a core of negative consequences in addition to signs, symptoms, or behaviour indicating physical dependence, preoccupation with psychoactive substances and/or compulsive use.

4. Effects and consequences of specific substances of abuse

Understanding the primary effects of specific substances of abuse, the routes of administration, and withdrawal symptoms of these substances is necessary for a better understanding of the real dangers that substance abuse holds for adolescents. Bukstein (1995: 121) states that psychoactive substances of abuse are used and abused in order to experience their acute psychoactive effects. Depending on the pharmacological properties of these substances, their use in combination with other substances, the quantity and frequency of use, and the age and baseline physical status of the user; the use of substances can produce a variety of acute, sub-acute, and chronic medical and physical consequences. (Compare Pagliaro & Pagliaro, 1996: 24; Perkinson, 1997: 197; Roper & Bartlett, 1994: 25.) As adolescents are more likely to be novice or inexperienced substance users, the appearance of more noxious substance-related effects may precipitate more extreme levels of distress, including anxiety and agitation (Bukstein, 1995: 121).

According to Stoppard (2000: 25), drugs can by classified in a number of ways. For the purpose of this study psychoactive substances of abuse are classified in terms of effects and divided into four categories:

- ***Central Nervous System Stimulants***, which have a general arousing effect;

- ***Central Nervous System Depressants***, which have a general sedating effect;

- ***Hallucinogens/psychedelics***, which have a distorting effect on sensory experiences; and

- ***Narcotics***, which have a general arousing, effect. (Compare Holmes, 1991: 417; Lewis, Dana & Blevins, 1994: 59; Pagliaro & Pagliaro, 1996: 2; Perkinson, 1997: 198.)

However, Stoppard (2000: 25) emphasizes that not all substances fit neatly into one category. For example cannabis, relaxes, mellows and some of the modern blends can also trigger hallucinations. Accordingly ecstasy is also halfway between being pure stimulant and pure psychedelic/hallucinogen.

With the above outline of categories in mind and for the sake of easy comparison some of the most prominent substances of abuse is summarised in Table 5. This list was compiled by the researcher after scrutinising attempts of a few authors such as Bukstein (1995: 121–136), Fourie (2001: 62), Ghodse and Maxwell (1990: 31-51), Holmes (1991: 417-432), Lowinson, Ruiz, Millman and Langrod (1992: 144-357), Pagliaro and Pagliaro (1996: 1-31), Perkinson (1997: 197-210), Roper and Bartlett (1994: 25-43), Stoppard (2000: 32-112) and Winger, Hofmann and Woods (1992: 22-160).

Table 5: Substances of abuse categorised by their effects

A. Central Nervous System Stimulants

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Amphetamine Amphetamine is short for ***AlphaMethylPh EneThylAMINE,*** a manmade drug first created over 100 years ago. It is a powerful stimulant that triggers the central nervous system, making a person more alert and energetic. **Street name (Colloquial name):** *Speed, Whizz, Sulphates, Billy, and Uppers.*	Comes as a white powder that looks like salt, or sometimes as a pill or paste. The powder usually comes in a folded paper envelope called a "wrap" that contains about 1 g of powder. However, most wraps only contain about 5 mg of this drug as it is often been "cut" or watered down with sugars, such as glucose and lactose.	Swallowed This drug is least dangerous when swallowed. Snorted, i.e. sniffed up the nose, through a straw or a rolled-up banknote, which produces a faster, more intense effect than swallowing it. Injected Some users inject speed, which is extremely dangerous	Physical effects: - *Low dose* Dilation of pupils of eye; decreased appetite; increased blood pressure, heart rate, blood sugar and respiratory rate. - *Moderate dose* Heart palpitation/ beating; chest pain; tremor; nausea; headache; dizziness; insomnia; blurred vision; constipation or diarrhoea; and urinary retention. - *High dose* Automatic jerking	Drug craving; general fatigue; prolonged sleep (12-24 hours); listlessness; depression and possible suicide.	• Overheating. A body temperature over 38°C will make the user delirious. If he is dehydrated he risk getting heatstroke, which can result in unconsciousness. • Increased heart-rate that can lead to a heart attack. • Liver and kidney failure. This can occur if a high dose of speed is mixed with alcohol. • High blood pressure. Small blood vessels may burst in the brain, leading to paralysis or coma.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
		due to possible overdosing and risk of being infected with HIV/AIDS.	movements; compulsive, stereotyped, repetitive acts. <u>Psychological effects</u>: - *Low dose* Increased mood, sociability, and initiative; improved concentration and "clearer" thinking; increased wakefulness and alertness; decreased fatigue and boredom. - *Moderate dose* Depersonalisation i.e. the user feels as if he is outside of his body, observing himself; restlessness; anxiety; confusion; irritation; inability to concentrate.		• Hyperventilation, the user's breathing may become irregular. • Paranoid psychosis frequently characterised by delusions of persecution that can lead to hostile, aggressive behaviour. • Risk of being infected with HIV/AIDS and hepatitis B or C from shared needles. • Vein blockage can occur from injection, leading to abscesses, ulcers, blocked blood vessels and gangrene. • Death from overdose.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
			- *High dose* Severe paranoid psychosis; fear; hallucinations; delusions; and self-consciousness.		
Cocaine Cocaine is found on the streets as a substance named ***cocaine hydrochloride***. It is made by refining the leaves of the coca bush, which mainly grows in Bolivia, Colombia and Peru. **Street name**: *Coke, Gold dust, Snow, C, Charlie, She, Her, Girl, White girl, Lady, White*	Comes as a white crystalline powder that looks like very fine salt. It is usually bought in a "wrap," containing 1 g of powder, although no one can know how much of that gram is actually cocaine.	Snorted Most users divide the cocaine into " lines" with a razor blade or credit card. Then they sniff it up one nostril through a small tube, or through a rolled-up card or bank note. Swallowed, i.e. to eat cocaine in small amounts mixed with	Cocaine leads to a quality of stimulation and euphoria, which is described as being so good that the compulsion to keep using the drug is greater than for any other known substance. Physical effects: Dilated pupils; cardiac stimulation; paleness and hypertension; rapid, shallow breathing and hypothermia.	Muscle cramps; mental depression; drowsiness; suicidal feelings; vomiting; shaking; weakness; hunger and irritability.	• Paranoid psychosis frequently characterised by delusions of persecution and suspicious, violent behaviour. • Malnutrition and emaciation (lack of sleep and appetite). • Nasal irritation and cold-like symptoms. • Loss of the senses of smell and taste. • Nasal damage. Constriction of the blood vessels results in inadequate nourishment of the tissues with ulceration and even

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
lady, Snort, Toot, Blow, Flake, Nose candy and Columbia (n).		food or drink. Some people rub cocaine on their gums. Because cocaine is also a natural anaesthetic, this causes the gums to go numb. Injected Few users inject cocaine to get a faster and more intense hit but that is very dangerous.	Psychological effects: Extremely marked feeling of euphoria and great power; energy and increased mental ability; sexual stimulation (short-term); sociability; hallucinations following high doses; insomnia; loss of appetite; and anxiety.		perforation of the nasal septum. In other words "snorting" can burn a hole between the nostrils. • Respiratory disease. • Severe exhaustion • Hypertension leading to cerebrovascular accidents (brain haemorrhages). • Sexual dysfunction (impotence). Male users won't be able to get or maintain an erection. • Liver cell damage. • Cardiac problems. • Visual disturbances. • "Cocaine bugs", i.e. a crawling, itching sensation as if insects were burrowing under the skin. • Severe depression and possible suicide once the effects of the drug wear off.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
					• Ruptured placenta, spontaneous abortion, or birth defects and neurological problem in the neonate if pregnancy occurs. • Bowel problems. • Risk of being infected with HIV/AIDS and hepatitis B or C from shared needles. • Vein blockage can occur from injection, leading to abscesses, ulcers, blocked blood vessels and gangrene. • Convulsions and death from over dosage.
Cocaine crystals/Crack Crack is derived from the	Crack crystals look like small rocks. Some of the "pieces" look like grains of	Smoked Crack is generally smoked by placing the	Intense euphoria and a great surge of energy; an incredible sense of well-being and	Drug cravings; increased appetite; irritability; apathy;	• Paranoid psychosis frequently characterised by delusions of persecution and

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
processing of cocaine hydrochloride (HCL) with ammonia or bicarbonate of soda. The result is crack crystals. **Street name**: *Rock, Wash, Stone, Roxanne, Cloud, Flake, Nuggets, and Nine.*	sand, although normally they are as much as 2 cm across. They vary in colour from pale yellow or pink to white.	rock into a pipe, glass tube or bottleneck filled with a metallic screen and vapoured with a lighter. Injected Few users inject crack, which is extremely dangerous due to possible overdosing and risk of being infected with HIV/AIDS.	power. Duration: 5 – 15 minutes	depression; paranoia; anxiety; suicidal ideas; loss of libido; cramps in muscles; loss of energy; shaking; palpitations; sweating; irregular breathing and insomnia or excessive sleep.	suspicious, violent behaviour. • Severe depression and possible suicide once the effects of the drug wear off. • Crack keratitis. As cocaine is a local anaesthetic, corneas may inadvertently be anaesthetized. When rubbing the eye, the user may damage the cornea. • Dilated pupils with loss of accommodation (adjustment) resulting in impaired vision. • Constriction of the blood vessels results in inadequate nourishment of the tissues with ulceration and even perforation of the nasal septum.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
					• Loss of sense of smell and nosebleeds. • Erosions on the enamel of the upper front teeth. • Problems swallowing. • Possible heart attack. • Strokes. A clot in the brain can mean permanent brain damage or paralysis or even death. • Elevation in blood pressure. • Sudden death. • Susceptibility to respiratory infections, which leads to bleeding in the lungs with coughing up of blood. • During pregnancy - foetal damage. • Risk of being infected with HIV/AIDS and hepatitis B or C from shared needles.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
					• Vein blockage can occur from injection, leading to abscesses, ulcers, blocked blood vessels.
Tobacco Tobacco leaves contain one of the most powerful poisons known to man – nicotine. In cigarette smoke it is absorbed directly from the mouth and because the smoke is alkaline it dissolves instantly in saliva. It is then carried through the mouth's lining into the bloodstream and straight to the brain.	The dried leaves of the tobacco plant are processed into tobacco for cigarettes, pipes or cigars. Tobacco is also sold as snuff, a fine powder that is sniffed. Tobacco sold in blocks is sometimes chewed, although this form is rarely used in South Africa nowadays.	Tobacco is normally smoked.	Increased heart rate and blood pressure; drop in skin temperature; increased respiration; nausea, diarrhoea and vomiting; CNS stimulation but paradoxically relaxation can occur in habitual users; and inhibition of stomach contractions.	Craving; headache; nausea or increased appetite; constipation or diarrhoea; sweating; tremor; hypertension; fatigue; insomnia; irritability; anxiety; restlessness; depression; feelings of hostility and inability to concentrate.	• Lung cancer. Years of smoking can cause lung cancer, but it can be less than six months from diagnosis to death. • Fatal heart disease. Nicotine can cause heart attacks. • Stroke. A clot in the brain can mean permanent brain damage or paralysis or even death. • Gangrene: Arteries can get blocked which can lead to gangrene and eventually to amputation.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Street name: *Cigs, Fags, Rollies, Snouts and Tabs.*					• Emphysema and bronchitis. The air passages in the lungs become clogged, narrow and damaged. • Cancer of the mouth, throat, bladder, pancreas, kidney, cervix and breast. • Stomach ulcers. • Worsening of asthma.

B. Central Nervous System Depressants

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Alcohol (Ethanol) Alcohol is an intoxicating substance made from fermented	There are many different forms of alcohol available. The most common include beer, spirits, wine and	Swallowed Alcohol is taken orally.	Suppression of higher brain functions (inhibitions, cognitive function, reason, logic, and judgement);	Nausea and vomiting; tremors (the shakes); sweating; flushing; headache;	• Damage to organs, such as liver, kidney, and nervous system. • Lack of alertness. • Blackouts and coma.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
starches and, although it gives an initial lift, it is actually a depressant drug. **Street name (Colloquial name):** *Juice, Dop, Booze, Bevies, Drink, Jars, Tinnies and Liquor.*	liqueurs.		reduced co-ordination; sedation; respiratory suppression; convulsions; and hypothermia.	nervousness; agitation; increased blood pressure and pulse rate; fever; electrolyte disturbances; sleep disturbances; aggression; delirium; intermittent hallucinations and seizures.	• Convulsions. • Death (from over-dosage). • Memory dysfunction. • Severe physical dependence. • More likely to have careless and unprotected sex, thereby risking becoming pregnant or getting a sexually transmitted disease. • Self-neglect. • During pregnancy – potentially damaging of the foetus. • Suicide • Alcohol has high sugar content, so anyone with diabetes is advised to avoid it altogether. • Psychological complications, including depression, anxiety, and poor self-esteem.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
					• Violent behaviour, including assault and rape. • Delinquency and criminal behaviour. • Social problems e.g. arguments with family members. • Abusive and aggressive behaviour (physical and psychological). • Accidents e.g. drowning, road traffic accidents and industrial accidents. • Psychotic disorders.
Barbiturates Primarily hypnotic drugs, barbiturates work by depressing the central nervous system. In small amounts they calm you	Come either as tablets or gel capsules for swallowing. The most common forms are: - *Sodium amytal, i.e.*	This drug is swallowed or injected. Injection can lead to vein blockages, overdosing or risk of becoming	Relieves insomnia, anxiety and tension; sedation; hypnosis; narcosis (general anaesthesia); coma; respiratory suppression; and death.	Craving; insomnia; anxiety; panic attacks; restlessness; tremors; weakness; loss of appetite, nausea and vomiting;	• Could lead to mental sluggishness. • Lack of alertness. • Depression and intense tiredness. • Mood swings often leading to violent or strange behaviour.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
down and in higher amounts make you sleep. They belong to a 19th-century group of drugs and, until the 1950s, when safer alternatives were found, were prescribed for people who couldn't sleep or who had nervous disorders. **Street name**: *Barbs, Depressants, Downers, Sleepers, and Barbies.*	bright blue capsules containing 60 mg of the drug. - *Seconal, i.e.* orange capsules containing 50 mg of the drug. - *Tuinal, i.e.* blue and orange capsules containing 50 mg of amytal and 50 mg of seconal.	infected with HIV/AIDS and hepatitis B or C.	Duration: Several hours, usually less than 24 hours	abdominal cramps; paranoid feelings of persecution; disorientation and delirium; seizures; cardiovascular collapse and death.	• Bronchitis or pneumonia. Both conditions may result from heavy use, and both can be fatal. • Hypothermia. Barbiturates cause the blood vessels near the skin to dilate so you lose heat. With heavy use, the metabolism becomes so slow that the body is unable to respond to the cold. Hypothermia can be fatal. • Severe physiological dependence. • Risk of becoming infected with HIV/AIDS and hepatitis B or C from sharing needles and other equipment. • Coma and death from over dosage.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
					• Vein blockage can occur from injection, leading to abscesses, ulcers, blocked blood vessels.
Tranquillizers Tranquillizers are prescribed for people who suffer from anxiety or those who have difficulty sleeping. Modern tranquillizers are based on the ***benzodiazepine*** group of drugs that largely replaced barbiturates in the 1950s. **Street name**: *Downers, Tranx, Benzos, Blockers,*	There are many different brands of tranquillizer available on prescription. The following are a few favoured by illegal street-users: Nitrazepam (e.g. Mogadon) Nitrazepam is a long-acting *benzodiazepine hypnotic*. It is an oval white tablet and was used as a sleeping pill in the 1970s and 1980.	Swallowed This drug is usually taken orally. Injected Some users take the drug by grinding up the pills into a powder, dissolving it in water and injecting the liquid.	Relieves stress and anxiety; decreases heart rate; lowers blood pressure; and leads to slow, shallow breathing and drowsiness. If misused by taking a high quantity: Extreme mood swings, paranoia, hangover, depression and chronic fatigue.	Tremors; vertigo (dizziness); sleep disturbances; anxiety, palpitations (heart-beating); panic attacks; increased sensory perception; irritability; headache; muscle spasms; metallic taste; depression; auditory hallucinations; convulsions; and rarely transient "psychotic" episodes;	• Mental deterioration. • Lack of alertness. • Risk of being infected with HIV/AIDS and hepatitis B or C from shared needles. • Vein blockage can occur from injection, leading to abscesses, ulcers, blocked blood vessels and gangrene. • Overdose, coma and death.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Chewies, Jellies, Eggs, Rugby balls, Temazzies, M&Ms and Blockbusters.	Temazepam (e.g. Normison) Temazepam is another *benzodiazepine hypnotic*, but it only lasts 6 – 8 hours. It is legally prescribed in pill form, but gel capsules do turn up on the streets from abroad. Temazepam is one of the most commonly abused tranquillizers. It is sometimes used as a cheap alternative to heroin. Diazepam (e.g. Valium) Diazepam is a *benzodiazepine anxiolytic*, which means it,			seizures and increased sexual function. Contra indications: Depression	

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
	reduces anxiety. It is a small white, yellow or blue tablet, of which white is the weakest and blue the strongest. It can last up to 24 hours. Lorazepam (e.g. Ativan) Lorazepam is an anxiolytic like diazepam, but it only lasts 4-6 hours.				
Rohypnol Rohypnol is a powerful tranquillizer. It is a relative of Valium; only it is much stronger and potently depressive. Even a very	Usually white, easily crushable, odourless, soluble and tasteless tablets.	Some users take Rohypnol knowingly, but it is notorious for being used to spike the drinks of unsuspecting females.	One tablet can make the user feel dizzy, nauseous, feverish and disorientated. More than one tablet will cause instant drunkenness and memory loss.	Confusion, serious convulsions and hallucinations, impaired motor skills, skin reactions, dizziness, uninhibited behaviour, impaired judgement,	• May produce extremely low blood pressure, respiratory depression, and difficulty in breathing, coma or even death.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
small dose makes the user feel sleepy and dopey. Rohypnol is generally prescribed as a sleeping pill for severe insomnia. **Street name**: *Roofies, Roaches, The forget pill, La Rochas, Trip-and-Fall, Pappas, Potatoes and The date-rape drug.*		This way a man can have sex without the woman remembering or being in control of what's happening.	Other effects include: Drowsiness, memory impairment, dizziness, nightmares, headaches and psychomotor impairment. Paradoxically it can induce excitability or aggressive behaviour in some users. Duration: Up to eight hours	reduced levels of consciousness combined with visual and gastrointestinal disturbances.	
Mandrax The active ingredient in Mandrax is ***methaqualone*** - a synthetic chemical substance, and	Originally the legal Mandrax tablet was white, flat and marked with the trademark letters MX. Today these tablets are very	Swallowed Mandrax can be taken orally. Smoked Users can smoke	Feelings of relaxation, seduction, relief of tension, blurred vision, impaired thinking, slurred speech, impaired perception of	Restlessness; aggression; insomnia; moodiness; lethargy (drowsiness); irritability; nausea; decreased	• Damage to the brain and memory. • Personality changes. • Convulsions. • Respiratory and circulatory collapse. • Abnormal heart rhythms.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
a central nervous system depressant originally used to treat sleeping disorders. **Street name:** *Buttons, Whites, Ludes, MX, Mandies, Pop outs, Germans, Golf sticks, One siders, Ewings, Double kicks, Shiny tops, Soapies, Omo and Surf.*	rare and the drug now comes in tablets, capsules and powder form.	Mandrax as a "white pipe" with cannabis.	space and time, slowed reflexes and breathing, reduced sensitivity to pain, nausea, vomiting, impaired concentration, restlessness, drowsiness, dizziness and emotional instability are experienced. Duration: 4 – 8 hours	appetite; headaches; seizures; hallucinations; depression; abdominal pain and tremors.	• Impairment of liver function. • Chronic intoxication (headache, impaired vision, slurred speech). • Depression. • Disturbed sleep patterns. • Marked impairment of ability to drive and operate machinery which may lead to accidents. • Chronic respiratory disease. • Eye damage. • Blood disorders. • Impairment of epilepsy control. • Potentially damaging to the unborn baby. • Coma and death due to overdose.

C. Central Nervous System Stimulants Hallucinogens

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Ecstasy The popular dance drug ecstasy is the chemical ***Methylene DioxyMeth-Amphetamines*** (MDMA). It's a stimulant with hallucinogenic tendencies. Ecstasy is described as an empathogen as it releases mood-altering chemicals, such as serotonin and L-dopa, and generates feelings of love and friendliness. Because it is also a hallucinogen, the world becomes	Ecstasy tablets come in different sizes and colours and often have logos such as doves on them. MDMA may be cut with other chemicals, such as dog-worming pills or talcum powder, to bulk out the tablet. Powerful drugs, such as ketamine or selegaline (used to treat Parkinson's disease) are also added giving unexpected side effects. When different colour "doves"	Swallowed Ecstasy is taken orally.	Increased energy; decreased appetite; changes in tactile perception; hypertension; anxiety; panic attacks; hypothermia and psychosis. Duration: The effect begins after about 30 minutes. Peak in an hour and last for 2-3 hours.	Nausea; mental depression; aggression; drowsiness; loss of appetite and possible suicide.	• Temperature control. Body temperature could rise well above normal leading to delirium and hallucinations. • Brain swelling: Drinking to much water too quickly can cause the brain to swell, leading to unconsciousness and rapid death (within 12hours). • The rush of brain chemicals can trigger nightmare hallucinations. • Liver and kidney failure. • Physical exhaustion leading to collapse, dehydration and irregular heart beat.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
surreal, highly coloured and distorted. **Street name (Colloquial name):** *Ecstasy, "E", Adam, Eve, Banana milkshake, Torpedo, Yellow callies, Swallows, Strawberry's, Cloud A, X, Love doves, XTC, Clarity, Disco Biscuits, Shamrocks, and MDMA.*	were analysed, one contained as little as 29mg MDMA, another had as much as 170mg, and one had none at all.				• Brain damage. Ecstasy can interrupt blood flow to the brain and cause a stroke, resulting in paralysis, dementia (loss of memory and the ability to think clearly) and Parkinson's disease (when the body shakes and twitches uncontrollably).
Cannabis Most cannabis comes from a plant called ***Cannabis sativa*** that is mainly found in	There are three forms of cannabis: herbal, resin and the least common hash oil.	Smoked Most users smoke cannabis on its own or mixed with tobacco in a hand-rolled cigarette.	Cannabis mainly causes hallucinogenic (mind-distorting) effects, but also has euphoriant and sedative properties.	Restlessness; aggression; insomnia; moodiness; sweating; lethargy (drowsiness); irritability; nausea;	• Acute paranoia and panic reactions. • Psychomotor impairment and related motor vehicle crashes. • Habituation, i.e. psychological dependence.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Asia and South America. The most active chemical in cannabis is called *delta9-Tetrahydro cannabinol (THC).* **Street name for herbal:** *Dagga, Grass, Marijuana, Boom, Dope, Draw, Puff, Blow, Weed, Gear, Spliff, Ganja, Herb, Poison, Durban poison, Swazi sticks, Arms, Bankies, Zol, Skyf and Joint.* **Street name for resin:** *Hash, Pot, Dope, Shit, Black, Gold,*	Herbal This is the most common form of cannabis, made from the dried leaves and flowers of the plant. It looks like the kind of coarsely chopped dried herbs used for cooking. The colour is usually greenish-brown and it has a sweet herbal smell. Resin Resin is made by compressing the sap on the leaves and stem of the plant into blocks. The colour varies from almost black through to a pale golden brown. Some forms of resin	The smoke is usually inhaled more deeply and held down for longer than with a normal cigarette. Some people smoke cannabis in a pipe, called a "Bhong" that cools the smoke before it is inhaled. Eaten Some people add cannabis to foods, such as biscuits to make hash-cakes.	Physical effects: Increased heart rate; red eyes; increased appetite that decrease after long-term use; a craving for sweet foods (the munchies); a dry mouth and thirst. Short-term CNS effects: Altered time and distance perception; short-term memory loss; impairment of ability to concentrate; elation; reduced anxiety; a feeling of well-being; increased sociability; enhancement of pleasant sensations and sensory perceptions. Sedation and a	decreased appetite; headaches and sudden loss of weight because of the elimination of retained body fluid.	• Chronic learning disabilities (e.g. disruption of short-term memory). • Damage to the reproductive system – low sperm count in males and menstrual irregularities in females. • Disturbance in immunity – leading to a predisposition to disease and illness. • Chronic respiratory irritation and disease (e.g. asthma and bronchitis). • Heart problems. • Cannabis psychosis characterised by mental confusion, delusions and thought disorders. • A-motivational syndrome characterised by apathy, lethargy; and reduced

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Brown, Slate and Squidgy. **Street name for hash oil:** *Honey, Oil and Diesel.*	are hard and brittle, like charcoal, while others are as soft as liquorice. Resin is usually mixed with tobacco in a hand-rolled cigarette but, like herbal, it can be eaten when added to foods. Hash oil Hash oil is formed when cannabis resin is dissolved in a solvent, filtered and allowed to evaporate. The colour varies from black to green, and smells strongly of rotting vegetables. It is either smeared on cigarette papers or mixed		sleepy dream-like state if the cannabis user is alone; irritability; agitation; anxiety; panic; aggression; paranoia and psychosis. Duration: Several hours for occasional use, days and even weeks for severe effects		ambition.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
	with tobacco and smoked.				
Ketamine Ketamine is a dissociative anaesthetic, which means it detaches the mind from the body. It is used as a horse tranquillizer and is related to the veterinary anaesthetic. PCP, also known as angel dust. **Street name:** *K, Special K and Vitamin K.*	On prescription Ketamine comes as a clear liquid, but on the street it is a white powder or tablet. The powder is bought in a paper "wrap", similar to speed, and can be swallowed or inhaled ("snorted").	Swallowed Ketamine tablets are usually taken orally. Snorted Some users take the drug by grinding up the pills into a powder. Then they inhale or sniff it up one nostril. Injected Some users inject Ketamine. This is extremely dangerous.	There is an initial rush that may happen within 30 seconds if the drug is injected, or 20-30 minutes if swallowed. Then it is rapidly downhill for about the next three hours. The body is numb and paralysed. There is sickness, vomiting and a loss of co-ordination, making the simplest tasks impossible. Feelings of being weightless and of being separated from the body. Terrifying hallucinations can occur; with limbs feeling as though	Nausea; mental depression; aggression; and drowsiness.	• Brain damage. • Slows heart rate and breathing. • Risk of becoming infected with HIV/AIDS and hepatitis B or C from sharing needles and other equipment. • Vein blockage can occur from injection, leading to abscesses, ulcers and blocked blood vessels. • It is easy to overdose as the potency varies so you never know how much you're taking.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
			they are growing and shrinking, there is tunnel vision and faces look distorted.		
PCP ***Phencyclidine*** (PCP) was originally designed to be used as an anaesthetic, but because it caused confusion and delirium its use was abandoned. PCP is now only used on animals and even then rarely. Some PCP users may be unaware they have taken the drug because it is sometimes a hidden ingredient of ecstasy and cannabis resin.	PCP is a white, impure, crystalline powder.	PCP is swallowed, snorted, smoked or – rarely – injected. Sometimes it is mixed with cannabis and tobacco and smoked like a joint, or occasionally as skinny brown roll-ups that have been dipped in liquid PCP.	PCP possesses hallucinogenic - sedative and analgesic properties. Physical effects: Increased blood pressure; sweating; nausea; numbness; floating sensation; relaxation; warmth and tingling; increased heart rate; lethargy; and slowed reflexes. Cognitive effects: Altered body image; altered perception of time and space; impaired immediate- and r	Alternate periods of sleeping and wakefulness, followed by memory loss; anxiety, panic attacks, paranoia and depression.	• Coma: Mild, moderate or severe. • Catatonic syndrome, i.e. rigidity, staring, negativism, possible violence and stupor. • Toxic psychosis, i.e. a condition in which an individual shows signs from detachment of reality. • Self-injury because of a loss of pain and perception. A feeling of invulnerability and a bizarre tendency towards self-mutilation. • Bizarre mutilation and injury of others, even when the PCP user has shown no tendency to any

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Street name: *Angel dust, PCP, Elephant tranquillizer, Rocket fuel, Zombie, Whack,* *Embalming fluid, Peace pill and hog.*			recent memory; decreased concentration; paranoid thoughts; delusions; disordered and confused thoughts. Behaviour effects: Blank staring; catatonic immobility and violence. Duration: Quick acting and very short, the psychosis may last weeks		aggressive behaviour prior to use. • Acute brain syndrome: disorientation, confusion, and loss of recent memory, inappropriate behaviour and violence. • Risk of becoming infected with HIV/AIDS and hepatitis B or C from sharing needles and other equipment. • Vein blockage can occur from injection, leading to abscesses, ulcers and blocked blood vessels.
LSD Acid (LSD or ***Lysergic acid diethylamide***) is a powerful,	LSD is a transparent crystal in its pure form, but on the street it looks different.	LSD can be swallowed, taken sublingual i.e. under the tongue, or	Physical effects: Rapid pulse and increased blood pressure; marked dilation of pupils of eye; bloodshot,	Flashbacks; perspiration and shakes.	• Neurological damage. • Anxiety. • Depression. • Paranoia.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
mind-altering drug, meaning that it affects the brain, causing hallucinations that alter the perception of the world and make images more intense. **Street name:** *Caps, Acid, Penguins, Candy, Strawberry fields, Sonic hedgehogs, Microdots, White lighting, Smarties, California sunshine, Trips, Tabs and Blotters.*	Acid is almost always soaked into small squares of blotting paper, called tabs, blotters or pieces. Tabs come in sheets of over a hundred. Each tab is about 5 mm square and has a picture or design on it that varies according to fashion (e.g. strawberries or penguins). A small square of paper, whatever the picture, is pretty much a guarantee that it will be acid. Microdots This is small coloured pills that have been impregnated	transdermal i.e. through the skin.	watery eyes; flushed skin; the short hairs standing on end; salivation; tremor and loss of co-ordination. Psychological effects: Depersonalisation - the user feels as if he is outside of his body, observing himself; prominent visual hallucinations; altered perception; time sense is lost; the user feels as if he is in contact with the universe and has access to and an understanding of all supernatural things; synesthesias occur, i.e. sounds are experienced as colours, visual stimuli are		• The unleashing of underlying psychiatric disorders. • Social withdrawal. • Flashbacks during which the user suddenly goes on a trip without using LSD. The danger of accidents then recurs. They may occur several times a day for about 18 months after LSD use has stopped. • Toxic psychosis, i.e. a condition in which an individual shows signs of detachment from reality and which requires medical intervention, commonly associated with LSD abuse.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
	with acid, but they are not as common as tabs. They are only 2 - 3 mm across and can be different colours. They often contain high doses of acid.		interpreted as music; mood swings occur and judgement is severely impaired (e.g. believing himself able to fly, the user may throw himself of a high building). Duration: Start 30 minutes after taking it, peak after two hours and may last 8 – 12 hours. Flashbacks may occur for several years.		
Mushrooms Mushrooms are similar in effect to acid as they contain chemicals that can trigger hallucinations. They are wild	There are two types of mushrooms: Liberty Cap and Fly Agaric. Liberty Cap This is a small pale yellow to light brown	Both fresh and dried mushrooms are eaten raw, cooked or boiled up into a tea. Smoked Dried	Hallucinations, euphoria; feel detached from the world; exited and engrossed in whatever they are doing; lose track of time; some experience a spiritual journey	Stomach pains, vomiting, diarrhoea, and drowsiness.	• Accidents due to distorted observations. • Psychiatric disorders. As a mind-altering drug mushrooms can unlock mental illnesses.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
mushrooms (fungi) from two main plant groups: the *psilocybe group* and the *amanita species*. Most common in South Africa is the Fly Agaric, which contains the hallucinogen ***ibotenic acid***. The Liberty Cap, which contains the hallucinogen ***psylocybin*** – has only been recorded once in South Africa. **Street name:** *Mushroom, Magic mushroom, Shrooms and Mushies.*	fungus with a slender stem and conical cap. In the UK, Liberty Cap mushrooms grow abundantly in early autumn on open grassland, parks and roadside verges. However, it is rare in South Africa. **Fly Agaric** Fly Agaric is a larger bright red mushroom with white spots and a thick white stalk that grows in undisturbed woodland and is found in early autumn. Once picked, the mushrooms are usually dried to preserve them.	mushrooms are smoked in a rolled cigarette or pipe.	and a sense of spiritual enlightenment; respiratory suppression; convulsion and coma. Duration: Several hours		• Respiratory failure, unconsciousness and death.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
	The Liberty Cap is dried whole and the pale cap darkens to brown or black. The dried cap of the Fly Agaric is cut into sections and the dried lumps turn brown. Once dried, both types are difficult to distinguish from other mushrooms.				
Poppers This is a group of quick-acting drugs (***alkyl nitrites),*** of which amyl nitrite; butyl nitrite and isobutyl nitrite are the most widely available. Poppers evaporate at	Small bottles, or occasionally glass vials, of clear gold-coloured liquid that is inhaled (sniffed) from the bottle or from a cloth soaked in it. Fresh poppers smell sweet and fruity, but the	Poppers are inhaled from the bottle or a cloth soaked in it.	Rapid, but short-lived high. A burst of energy, and a rushing sensation because the heart starts beating faster. Light-headedness as blood pressure is reduced; dizziness, loss of balance and fainting; a sense that time has	Chills; hallucinations and depression, anxiety; delirium; headaches; muscular cramps; abdominal pains and hostile outbursts.	• Damage to the brain, liver, kidneys, respiratory tract and heart. • Respiratory depression, suffocation and death. • Cardiac arrest. • Nitrites are caustic, which means they will burn skin if spilt.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
room temperature and are inhaled. They are stimulants but the rush lasts minutes, hence the name poppers. **Street name:** *Amyl, Rush, Rave, Stage, Liquid Gold, Stud and Ram.*	stale chemical smells like old socks.		slowed down; lowering of sexual inhibition and possibly sexual arousal.		• Increased sexual arousal and decreased sexual inhibitions. The risk of contracting HIV/AIDS and other sexually transmitted diseases. • Inhaling vapours increases the pressure on eyeballs so it is very dangerous if you suffer from an eye condition, such as glaucoma. • Regular use can lead to skin problems around the nose and mouth.
Solvents Most solvents are volatile substances, which means they give off a vapour and evaporate when	Some of the most commonly abused and most dangerous substances are: Liquid petroleum gases (butane and propane)	There are several ways in which solvents are abused and they all amount to inhaling the vapours they	Euphoria; excitement; talkativeness; clumsiness; perceptual distortion; delusions; hallucinations; emotional	Chills; hallucinations and depression; anxiety; delirium; headaches; muscular cramps; abdominal	• Chronic headaches and nervousness. • Severe damage may occur to the brain, liver, kidneys, respiratory tract and heart. • Short-term memory loss.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
in contact with air. The most common term associated with solvent abuse is "glue-sniffing," but glue is just one of many products that are "sniffed". A whole range of household items, such as aerosols, correcting fluid and nail polish are abused. **Street name:** *Glue, Gas Huff and Aerosols*.	found in many aerosols, fuel for camping stoves and lamps as well as in gas refills for cigarette lighters. Solvents (benzene and hexane) in nail polish and its remover, correcting fluid and dry-cleaning fluids. Solvent-based glues (toluene and hexane) often used for model building.	give of. Inhaled Solvents are poured on to a piece of cloth or into a plastic bag. Most dangerous, is spraying the aerosol straight into the mouth which can freeze up the throat and the air passages so that breathing stops.	outbursts; aggressive behaviour; feeling of detachment; emotional disinhibition; vomiting; coughing; sneezing; salivation; convulsion, drowsiness; and coma. Duration: Minutes to hours depending on substance source	pains; hostile outbursts; mood swings and skin rashes (the skin around the mouth and nose becomes irritated).	• Respiratory depression and suffocation may occur if the user loses consciousness whilst inhaling from a rag or plastic bag. • Death, due to the above. • Cardiac arrest. • Accidents or serious injury because of risk-taking behaviour or suicides.

D. Central Nervous System Narcotic analgesics

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Heroin Heroin ***(diamorphine hydrochloride)*** is produced by processing raw opium, a natural substance found in oriental opium poppies. Because heroin is a narcotic analgesic, it numbs the brain and body and kills pain. **Street name (Colloquial name):** *"H", Dougee, Horse, Smack, Heroin, China white, Thai white, Scag, Brown sugar and Mexican brown.*	Heroin comes in three forms: brown, china white and pharmaceutical heroin. Brown The most common form of heroin. This is in fact a *diamorphine* base, in other words the *hydrochloride* bit has been removed. It is a brown powder, although the colour can vary from creamy white to dark coffee. The lighter the colour, the higher the heroin content. Brown is low-	Heroin is taken orally, smoked, snorted or injected - intravenously (mainlining), intra-muscularly or subcutaneouly (under the skin). Orally Chewing heroin gum is not a common way of administering the drug. Injected Injection is the practical and efficient way to administer low-purity heroin.	Euphoria and waves of incredible well-being. All pain – physical and mental – disappears. In small quantities heroin makes people very talkative, energized, impassioned and confident. Larger quantities send people into a trancelike state – they lose themselves in an interior world and they can't and don't want to communicate with anyone. A mellow, chilled-out feeling that makes the world look rosy follows	Develop within 3 – 48 hours Peak at 72 hours Duration 7 – 10 days. 8 – 12 hours Diaphoresis (sweating); nausea; anxiety; lachrymation (shed tears); nasal irritation and cold-like symptoms; yawing; and irritability. 12 – 48 hours Vomiting; loss of appetite; gooseflesh; dilated pupils; sneezing; abdominal spasms; diarrhoea; chills; flushing;	• Nausea and vomiting. First-time users could easily be sick and pass out, there's a real risk to choke on vomit. • Abscesses, sores and open wounds. With heavy use, these develop at injection sites. • Crime: Often the only way to pay for a habit is to steal, and addicts will steal from just about anywhere. • Mental deterioration. • Impotence. • Sterility. • Menstrual irregularity. • Can harm developing foetus. • Threat of spreading diseases (sharing needles).

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
	grade, messy, dirty stuff. The heroin content varies from 10 - 60 per cent. Brown is smoked and should never be injected. China white Found as grey granules that look a little like instant coffee. China white is smoked but can also be injected. Pharmaceutical heroin: This is pure heroin for medical use. It comes as a pure white powder or tablets, or as ampoules of clear liquid.	Heroin is mixed with water and citric acid in a spoon and heated until it becomes a clear brown solution. The solution is drawn up in a syringe, often using a cigarette filter to filter out impurities. Snorted Higher purity heroin can be snorted like cocaine. Smoked "Chasing the dragon" or "puff the white dragon" is street terms to describe a way of smoking heroin. It	the initial rush. The heroin effect starts to wear off after 1 - 2 hours, depending on tolerance levels. It will have worn of completely after anything from 3 - 6 hours.	yawning - more intense; elevated temperature, pulse, respirations, and blood pressure; lower back pain, pain in neck and extremities; weight loss; dehydration; acid-base imbalance and depression.	• Liver, kidney, heart problems. • Impairment of nervous system. • Overdose – coma and death.

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
		usually involves placing powdered heroin on aluminium foil and heating it from below with a lighter. The heroin turns to a sticky liquid and wriggles around like a Chinese dragon. Fumes are given off and are inhaled sometimes through a rolled up newspaper, magazine or tube. Heroin can also be smoked by using a pipe (Hubble Bubbly) or a glass tube, much like the use of crack.			

Drug	Form	Mode of use	Effects	Withdrawal	Dangers
Methadone Methadone is a man-made chemical that has similar properties to opiates such as heroin. Most of the information on heroin goes for methadone as well. It is often used by doctors to wean addicts off heroin on a controlled regimen. **Street name:** *Dolly, Doll, Red Rock, Phy-Amps and PHY.*	Methadone comes as tablets and ampoules of clear, injectable liquid. Both are prescribed under the trade name Physeptone. It's also found as brown, orange or green linctus of varying strengths or as a mixture known as DTF, which comes in the same colours as the linctus, but is stronger.	Swallowed This drug is taken orally, i.e. swallowed. Injected It can also be injected.	The effects of methadone are similar to heroin, but it is not as powerful. There is no intense hit, which is why heroin users don't like it as much. The effects are longer lasting than heroin – pain relief and feelings of well-being can last up to 24 hours. However nausea and vomiting, severe constipation, stomach and back pain and loss of sexual drive follows.	Methadone withdrawal is similar to heroin withdrawal. Duration: Up to six weeks or more. .	• Cardiac arrest. • Risk of becoming infected with HIV/AIDS and hepatitis B or C from sharing needles and other equipment. • Vein blockage can occur from injection, leading to abscesses, ulcers and blocked blood vessels. • Overdose – coma and death.

5. Theories of adolescent substance use and abuse

There is a plethora of theories that attempt to account for the reason why adolescents use/abuse substances. In fact, several hundred theories purporting to explain substance use by both youth and adults have been published during the last decades of the twentieth century (Pagliaro & Pagliaro, 1996: 31). According to Boyd, Howard and Zucker (1995: 199) many of these theories use concepts that may have different labels but reflect conceptually similar underlying constructs. In fact, many etiological theories provide elements for a comprehensive meta-theory of substance use/abuse, including: theory of dynamic lifetime interplay, psychological theory, cognitive-affective theories, cognitive-behavioural theory, problem behaviour theory, economic theory, social cognitive/ learning theory, symbolic interactionism theory, social control theory and availability theory. Dimensions of all these theories are reflected in the model of substance use and abuse as shown in Figure 2 (page 117).

A comprehensive review of all these theoretical approaches is beyond the scope of this study. Hence the core propositions from those theories that most influenced the researcher's approach to youth substance use/abuse are briefly reviewed.

5.1 Theory of dynamic lifetime interplay

Tarter and Mezzich (1992) proposed the theory of dynamic lifetime interplay and focus on genetic and social environmental effects on the development of substance abuse among children, adolescents and adults.

According to Tarter and Mezzich (1992: 149-177), a genetic predisposition (ranging from low to high) is assumed to be normally distributed in the general population. Substance abuse, as a complex behavioural disorder, is thought to have its genetic basis in the addictive effects of many genes located on several chromosomes. (Compare Pagliaro & Pagliaro, 1996: 93; Schaffer, 1994: 3; Velleman, 1992: 11.) This concurs with genetic theorists that believe that substance abuse is an inherited disease. (Compare Daley & Raskin, 1991: 16; Winger, Hofmann & Woods, 1992: 7.) That is, it affects a large number of people, and it has a cluster of symptoms, a predetermined outcome and a prescribed treatment. However, Tarter and Mezzich (1992) emphasize that genetic susceptibility is neither a necessary nor a sufficient condition for an adverse outcome. Genetic linkage shows that some individuals might be more vulnerable to developing substance dependence, not that they certainly would develop dependency.

In fact, a person who has high genetic vulnerability (i.e. who has many of the genes) can be protected from a substance abuse outcome by a protective social environment (e.g. low drug availability, cultural sanctions, and strong social support). On the other hand, a person who has low genetic susceptibility may have such an adverse outcome where drug exposure is high and the social environment is conducive (Pagliaro & Pagliaro, 1996: 93).

Tarter and Mezzich (1992: 161) argue that a substance abuse outcome can theoretically occur at any stage in life because it is contingent on the dynamic interplay among genetic and social environmental factors: Not only does the individual predisposed to drug abuse react to social environmental contingencies, but such persons seek out specific social

environmental circumstances (e.g. high stimulus intensity and/or non-normative peers). The quality of these interactions additionally determines outcome throughout the life span. Therefore, there is some degree of risk for an adverse outcome at any stage in life. Depending on the changing contingencies involved in gene-environment interactions, the triggering of a drug abuse disorder at one stage in the life span (e.g. adolescence) may be different from the precipitating factors at another stage (e.g. late adulthood).

This theory emphasizes genetic individuality, idiosyncratic developmental history, and unique micro and macro- social environmental effects, the theory implies also that everyone in a given population is theoretically at risk for substance abuse, an outcome contingent on changes in either the individual or the social environment.

The implication of this theory on prevention can thus be to change the social environmental conditions. In other words incorporating a community-change strategy.

5.2 Psychological theory: Life Process Programme (LPP) Theory of Natural Recovery

Psychological theories attempting to explain adolescent substance use and abuse cover a very wide range of theoretical perspectives (Bukstein, 1995: 11). The researcher chooses to discuss only one late modern period (1961-1995) psychological theory, i.e. Peele, Brodsky and Arnold's (1991) **Life Process Programme (LPP) Theory of Natural Recovery**.

This cognitively based psychological theory addresses the use of alcohol and other substances in addition to other "destructive habits", e.g. co-dependence, gambling, overeating, excessive exercise, love, sex and shopping. The focus is on self-help and, in regard to children and adolescents, the role of parents in instilling (directly or by example) healthy rather than addictive habits in their children (Pagliaro & Pagliaro, 1996: 84).

The Life Process Programme Theory proposes the following:

(a) Belonging to a supportive social group, one with pro-social values that do not support addictive excesses makes it unlikely that a person will get addicted.

(b) Having a job and a family provides most people with a structure in life and a sense of value; conversely, addictions result when people's lives are structured and made to seem worthwhile by activities that harm them or those close to them, detract from their environments and relationships, and deepen their feelings of self-doubt.

(c) Addictive activities, although a part of essential human experiences, subvert and substitute for genuine satisfactions.

(d) The addictive cycle is the self-feeding reliance on feelings that the addiction makes harder to get in any other way (masking anxieties with substance use and not dealing with them constructively and depending more and more on the substance of abuse for this purpose as health is undermined).

(e) Addiction is not an accident, but a consequence of the confluence of forces in people's lives, of their needs and available ways of satisfying them (Pagliaro & Pagliaro, 1996: 85).

A non-disease self-help or therapist-assisted approach is thus provided whilst the natural processes of recovery, including building on individual strengths and developing and using those offered by the community is empathized. Rather than lifelong, treatment is finite. People are seen as evolving beings that require individualized treatment that is client centred. The development of coping abilities is seen as essential to the process of becoming non-addicted. In this regard, the goal of treatment is personal efficacy, which is developed through motivation, identification of personal values, and development of life skills and life involvements, including those inherent in family, work and community (Peele, Brodsky & Arnold, 1991: 167).

The Life Process Programme (LPP) draws on the personal strengths and resources available to the addicted person. In essence the LPP is a values-based approach (Pagliaro & Pagliaro, 1996: 85). Developing and living by a set of values, expanding connections to the world, and aiming for and accomplishing worthwhile goals are key factors in the LPP. As described by Peele, Brodsky and Arnold (1991: 168): "The Life Process Programme presents a recipe for change through toning down overblown and frightening rhetoric about addictions and by instead appealing to the strength, intelligence, and instinct for self-preservation in every person".

The clear prevention implication of this theory is thus to build on protective factors as protective factors mediate or moderate the effects of exposure to risk (Hawkins, Catalano & Miller, 1992: 86). Building on the adolescent's individual strengths (e.g. increasing social- and self-competency skills) and developing and using those offered by the community can deter drug use/abuse.

5.3 Cognitive-affective theories of substance use

Cognitive-affective theories of substance use focus on how perceptions about the costs and benefits of substance use contribute to adolescents' decisions to use various substances (Petraitis, Flay & Miller, 1995: 68). These theories share the assumptions that (a) the primary causes of decisions to use substances lie in the substance-specific expectations and perceptions held by adolescents, and (b) the effects of all other variables – including, for example, adolescents' personality traits or involvement with peers who use substances – are mediated through their effects on substance-specific cognitions, evaluations, and decisions (Boyd, Howard & Zucker, 1995: 200).

Among the most encompassing of these theories is the Theory of Reasoned Action. According to Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA), substance use is determined exclusively by an adolescent's decisions or reasoned intentions to engage in substance-specific behaviour (Petraitis, Flay & Miller, 1995: 69). In turn, these decisions are determined exclusively by two cognitive determinants. First, the theory of reasoned action claims that intentions are affected by adolescents' attitudes regarding their own substance use. Adapting a

value-expectancy approach to attitudes, Ajzen and Fishbein (1980) posited that substance-specific attitudes are a mathematical function of both the personal consequences (i.e. costs and benefits) that adolescents expect from substance use and the affective value they place on those consequences. (Compare Bukstein, 1995: 14.) Presumably, youth should hold positive attitudes toward substance use if the expected benefits of substances are valued more than the expected costs. Secondly, the theory of reasoned action claims that decisions are affected by an adolescent's beliefs regarding the social norms surrounding substance use (Petraitis, Flay & Miller, 1995: 69). According to this theory, social normative beliefs are based on an adolescent's perception that others want him or her to use substances and on the adolescent's affective motivation to comply with (or desire to please) the substance-specific wishes of those people. Presumably, youths will feel strong pressure to use substances if they believe, rightly or wrongly, that important friends and family members endorse substance use. They might also feel strong pressure to use substances if they overestimate the prevalence of substance use among peers and adults in general (Petraitis, Flay & Miller, 1995: 69). The roots of substance use are thus found in adolescents' beliefs about substances.

The key to preventing use/abuse can thus be through persuasive messages that directly target substance specific beliefs. Four beliefs are particularly important. First, persuasive messages should increase adolescents' expectations regarding the adverse consequences of substance use (e.g. health dangers) and decrease their expectations regarding the potential benefits of substance use (e.g. social approval or coping with stress). Second, messages should alter adolescents' evaluations of the apparent costs and benefits of substance use,

somehow giving more potent evaluations of the costs and less potent evaluations of the benefits. For instance, messages could present the health risks of substance use as "more costly" and evaluate them more strongly by graphically depicting substance-specific risks. Third, messages should challenge adolescents' perceptions concerning the normative nature of substance use, perhaps challenging any inflated estimates of the prevalence of substance use among peers. Finally, messages should provide adolescents with information and skills that directly promote feelings of refusal self-efficacy and, as a result, indirectly prevent substance use/abuse (Boyd, Howard & Zucker, 1995: 201).

5.4 Cognitive-behavioural theory of adolescent chemical dependency

According to Ross's (1994: 7) cognitive-behavioural theory, substance use, abuse and dependency among adolescents occur when a distinct set of priori beliefs (i.e. beliefs around a perception of the environment that helps people make sense of their external experience) results in a multitude of self-defeating emotional responses. These responses activate a distinct set of posteriori beliefs (i.e. beliefs around autonomically mediated responses, or emotions, that helps people to make sense out of their internal experiences) that, in turn, activate a distinct set of self-defeating behavioural responses. (Compare Pagliaro & Pagliaro, 1996: 94.)

Hence critical factors in the adolescent's environment (e.g. family, peer culture, media and ready availability of substances of abuse) influence his priori beliefs. These beliefs and subsequent feelings create a distinct mind

set conducive to substance use, abuse and when left unchallenged, habitual substance usage (Pagliaro & Pagliaro, 1996: 95). Over time, the behaviour of substance use reinforces a set of posteriori beliefs. According to these beliefs, substance use is a way to seek stimulation, gain self- and peer acceptance and avoid/escape responsibility (Ross, 1994: 7). With repeated substance use, the adolescent eventually develops an erroneous obsessive thinking pattern (what was once "a way" eventually becomes "the only way" to seek stimulation, gain self- and peer acceptance and avoid/escape responsibility). As use continues, the adolescent also finds that he or she is faced with such behavioural consequences as the violation of well-learned ethical, value and legal standards; deterioration of cognitive, affective and behavioural functioning; and the emergence of more pronounced psychological defences (Ross, 1994: 7). As the addictive personality develops, an added set of priori beliefs emerge that concern the fear of discovery and possible punishment. This additional internal dialogue significantly increases the adolescent's anxiety level and creates an increased demand for emotional relief. The obsession becomes greater as the temporary emotional relief provided by substance use reinforces the erroneous, a posteriori belief that the only way to find relief from unpleasant feelings is to get high (Pagliaro & Pagliaro, 1996: 95). As this addictive process continues to repeat itself, a distinct personality pattern and cognitive structure emerge. The latter ultimately maintains a cauldron of emotional pain and self-defeating behaviour patterns that culminate in physical deterioration of the body, emotional instability and spiritual bankruptcy. (Compare Pagliaro & Pagliaro, 1996: 95; Ross, 1994: 8.)

The implication of the cognitive-behavioural theory of adolescent chemical dependency on prevention can be cognitive "reprogramming" (Boyd, Howard & Zucker, 1995: 201) so that the beliefs that constitute a self-defeating personality and cognitive structure are changed and alternative methods is provided to achieve valued states.

5.5 Problem behaviour theory

Jessor and Jessor's (1977) problem behaviour theory is classified as an eclectic theory integrating psychological (personality/learning/social psychology) and sociological (anomie) orientations (Pagliaro & Pagliaro, 1996: 54). According to Petraitis, Flay and Miller (1995: 76) this theory not only addresses the causes of substance use but also addresses the causes of myriad behaviour that are considered especially problematic for adolescents, including sexual activity, political protest, alcohol use, illicit drug use and criminal behaviour. (Compare Pagliaro & Pagliaro, 1996: 54.) Because many of these behaviour are accepted among adults but forbidden among adolescents, they might "appeal to many adolescents as a rite of passage that constitutes a symbolic assertion of maturity" (McGuire, 1991: 181). Problem behaviour theory asserts that adolescents who are prone to one problem behaviour (e.g. delinquency) are also prone to other problem behaviour (e.g. cannabis use) (Schinke, Botvin & Orlandi, 1991: 15).

This theory starts with the assumption that susceptibility to problem behaviour results from the interaction of the person and the social environment (Bukstein, 1995: 14). The social environment is divided into proximal and distal structures. Within the distal structure of perceived

social environment, the variables that indicate whether a youth is parent oriented or peer oriented are the most significant (Pagliaro & Pagliaro, 1996: 56). Problem behaviour theory contends that adolescents are at risk for substance use if they are unattached to their parents, are close to their peers, and are more influenced by their peers than their parents (Petraitis, Flay & Miller, 1995: 76). In the proximal structure of perceived social environment, the variables referring to peer models and support for problem behaviour are most important. (Compare Jessor & Jessor, 1977: 237; Pagliaro & Pagliaro, 1996: 56; Petraitis, Flay & Miller, 1995: 76.) Together they suggest the character of a problem-prone environment; adolescents who are likely to engage in problem behaviour perceive less compatibility between the expectations that their parents and their friends hold for them, they acknowledge greater influence of friends relative to parents, they perceive greater support for problem behaviour among their friends, and they have more friends who provide models for engaging in problem behaviour. (Compare Jessor & Jessor, 1977: 237; Pagliaro & Pagliaro, 1996: 56.) Problem behaviour theory thus asserts that adolescents are at risk for substance use if they have friends who use substances or they believe their friends and parents approve of substance use.

Problem behaviour theory then divides characteristics of the person into distal, intermediate, and proximal categories. The most distal characteristics are grouped in the personal belief structure, a structure that contends that adolescents will be at risk for substance use if they:
a) Are socially critically and culturally alienated (i.e. committed to conventional values), (b) have low self-esteem and feel they have little to risk through deviant behaviour, and (c) they have an external locus of control, believing that their conventional behaviour are not socially

rewarded and their deviant behaviour are not socially punished. More intermediate causes of substance use are grouped in the motivational instigation structure and concern the direction of adolescents' dominant goals, expectations and personal values. Through this structure, problem behaviour theory contends that adolescents will be at risk for substance use if they (d) highly value their involvement with peers, seek independence from parents, and devalue academic achievement, or (e) have low expectations for academic achievement. (Compare Pagliaro & Pagliaro, 1996: 56; Petraitis, Flay & Miller, 1995: 77.) Finally the most proximal of the intrapersonal causes of substance use falls into the personal control structure. This structure focuses on attitudes toward deviant behaviour and proposes that adolescents will be at risk for substance use if they are generally tolerant of any deviant behaviour or believe that the benefits of substance use outweigh the costs (Petraitis, Flay & Miller, 1995: 77).

Hence, in relation to the personality system as a whole, the adolescent who is less likely to engage in problem behaviour is one who values academic achievement and expects to do well academically, who is not concerned much with independence, who treats society as unproblematic rather than as deserving of criticism and reshaping, who maintains a religious involvement and is more uncompromising about transgression, and who finds little that is positive in problem behaviour relative to the negative consequences of engaging in it. (Compare Jessor & Jessor, 1977: 237; Pagliaro & Pagliaro, 1996: 56.) The adolescent who is more likely to engage in problem behaviour shows an opposite personality pattern – a concern with personal autonomy, a relative lack of interest in the goals of conventional institutions (such as school and

church) a jaundiced view of the larger society and a more tolerant attitude about transgression (Pagliaro & Pagliaro, 1996: 56).

Problem behaviour theory sharply focuses on how environmental and intrapersonal, i.e. personality traits, affect adolescent substance use. One-way to deter substance use/abuse can thus be to:

(a) Promote conventional behaviour and perceptions that substance use is unacceptable and unsupported by significant others,
(b) Family enrichment,
(c) Evaluation of the costs and benefits of substance use, and
(d) Development of self-efficacy.

5.6 Economic theory of alcohol use

According to Boyd, Howard and Zucker (1995: 201) the economic theory of alcohol use state that individuals make rational decisions to consume products in which they find utility. Consumers do not consume an infinite amount of alcohol, but rather they make decisions on whether to consume a drink on the basis of a balance of the expected utility from consuming it and the costs of doing so (Grossman, Chaloupka, Saffer & Laixuthai, 1994: 340). Thus, consumption of alcohol is tied to (a) a decision to drink, and (b) the costs of the product in relation to the amount of disposable income available.

Adolescents take many things into account in making the decision to drink alcohol, and many of those considerations are related to social expectations and influences concerning substance use, not just direct economic costs and benefits (Boyd, Howard & Zucker, 1995: 202).

According to Fischhoff and Quadrel (1994: 229) adolescents frequently make decisions that do not appear rational to an outside observer. They do not know all alternatives available to them, do not fully understand the expected consequences of each alternative, and do not always choose the action that optimises their gain at minimum cost. (Compare Boyd, Howard & Zucker, 1995: 202.) Yet, for the most part, adolescent behaviour is functional and not arbitrary or capricious.

However alcohol consumption is price elastic and young people are the most responsive to an increase in price by reducing consumption (Grossman, Chaloupka, Saffer & Laixuthai, 1994: 347). According to Boyd, Howard and Zucker (1995: 229) a fundamental principle of this theory is that of the downward sloping demand curve, i.e.: As the price of any goods rises, consumption of those goods falls. Some economists have argued that the consumption of potentially addictive goods, such as alcohol, might be an exception to that rule. Numerous studies confirm, however, that this principle does apply to the demand for alcoholic beverages. (Compare Manning, Blumberg & Moulton, 1992.)

The studies just mentioned focus on the consumption of alcoholic beverages by adults or by all segments of the population. Yet there are reasons to believe that alcohol consumption by young people may be more sensitive to price than alcohol consumption by adults (Boyd, Howard & Zucker, 1995: 229). One factor is that the fraction of disposable income that a youthful drinker spends on alcohol probably exceeds the corresponding fraction of an adult drinker's income. A second factor is that bandwagon or peer effects are much more important in the case of youth drinking than in the case of adult drinking. Thus, a rise in price would curtail youth consumption directly and indirectly through its impact

on peer consumption. Finally, youths are more likely to discount the future consequences of their current actions than adults (Grossman, Chaloupka, Saffer & Laixuthai, 1994: 341). Youth are thus the most responsive to an increase in price by reducing their consumption.

Prevention efforts based on such an economic or decision-making model must recognize the functionality of substance use/abuse from an adolescent's perspective and encourage a broader awareness of the negative consequences of use/abuse and of normative expectations that not using/abusing substances has positive outcomes (Boyd, Howard & Zucker, 1995: 202). Finally, an important way to reduce youth alcohol use may be to increase its direct cost through increased taxes and prices as well as to increase its indirect cost by reducing its accessibility to youth (Grossman, Chaloupka, Saffer & Laixuthai, 1994: 345).

5.7 Social cognitive/learning theory of substance use

As with cognitive-affective theories, Bandura's (1986) social cognitive/learning theory (in Petraitis, Flay & Miller, 1995: 70) assumes that substance-specific cognitions are the strongest predictors of adolescent substance use. However, the social cognitive/learning theory does not assume that the roots of substance use originate in an adolescent's own substance specific cognitions. Rather, social cognitive/learning theory assumes that substance use originate in the substance-specific attitudes and behaviour of people who serve as an adolescent's role models, especially close friends and parents who use substances (Botvin, Schinke & Orlandi, 1995: 179).

Specifically, social cognitive/learning theory asserts that an adolescent's involvement with substance-using role models is likely to have three sequential effects, beginning with the observation and imitation of substance-specific behaviour, continuing with social reinforcement (i.e. encouragement and support) to substance use, and culminating in an adolescent's expectation of positive social and physiological consequences from future substance use. (Compare Bukstein, 1995: 13; Petraitis, Flay & Miller, 1995: 70.) Thus, observing parents use alcohol to relax or observing peers smoke cannabis to smooth social interaction will shape adolescents' beliefs about the consequences of, and their attitude toward, their substance use (Lewis, Dana & Blevins, 1994: 173).

This theory, include the concept of self-efficacy. Bandura as quoted by Petraitis, Flay and Miller (1995: 71) has posited that role models can shape both use self-efficacy and refusal self-efficacy. For instance, observing peers buy and inhale cannabis cigarettes can provide adolescents with the necessary knowledge and skills to obtain and use cannabis. Conversely, observing a close friend resist the pressures to use alcohol can boost an adolescent's refusal skills and self-efficacy by displaying the necessary skills to avoid using alcohol (Boyd, Howard & Zucker, 1995: 202).

Moreover, adolescents probably do not have to observe substance use among influential role models for substance use to be socially modelled and reinforced. In fact, simply hearing influential role models speak favourably about substance use and people who use substances might promote the onset of substance use. Therefore, the causes of substance use might be found among (a) substance use by parents, close friends and other role models, and (b) favourable statements or attitudes towards substance use by such role models, especially close friends and

admired peers who endorse substance use. (Compare Bukstein, 1995: 13; Petraitis, Flay & Miller, 1995: 70.)

The social cognitive/learning theory thus assume that substance specific beliefs are the most immediate and direct causes of adolescent substance use and that expectations about the personal consequences of substance use are critical beliefs. However, unlike the cognitive-affective theories, which suggest that the key to prevention is to alter adolescents' substance-specific beliefs, the social cognitive/learning theory suggest that a key to prevention lies in (a) making substance-using role models less salient and substance-abstaining role models more salient, (b) focussing on social skills training, and (c) emphasising the negative social consequences of substance use (Boyd, Howard & Zucker, 1995: 203).

5.8 Symbolic interactionism theory of substance use/abuse

This theory posits that people respond to events and objects in terms of the meanings they attribute to them (Pagliaro & Pagliaro, 1996: 66). Socialization (both childhood and lifelong) is the process of learning the socially shared sets of meanings attached to events, objects and language. Humans have the capacity for role taking – for imagining the attitudes and perceptions of others and being able to anticipate how they will respond to specific actions. One's behaviour is directly affected by such anticipated actions on the part of others (Boyd, Howard & Zucker, 1995: 204). The meanings attached to specific behaviour are acquired from society as a whole (i.e. the generalized other) as well as specific reference to others or reference groups. Social norms affecting substance

use/abuse are derived from interaction with individuals and groups in society, as well as from role models for appropriate behaviour in specific settings (Bukstein, 1995: 13). Role models and other dimensions of the social environment that define norms around substance use/abuse are not only reflected in interactions between individuals, they are also reflected in a wide range of community and societal structures and practices related to substance use. (Compare Boyd, Howard & Zucker, 1995: 203; Bukstein, 1995: 13.) The presence and active marketing of legal substances (i.e. alcohol, tobacco) throughout the social environment experienced by youth through family, friends, advertising, and media programming therefore help define socially shared meanings that substance use is an expected behaviour (Boyd, Howard & Zucker, 1995: 204).

This theory suggests that efforts to reduce substance use/abuse must involve multiple social structures, including the youths themselves, that are both proximal and distal to the adolescent, including the family, local community, mass media, marketing practices and institutional and public policies related to specific substances (Hawkins, Catalano & Miller, 1992: 87).

5.9 Social control theory of substance use among adolescents

Like social learning theories, Elliott's (1985) social control theory (in Petraitis, Flay & Miller, 1995: 71) assume that emotional attachments to peers who use substances is a primary cause of adolescent substance use. However, unlike social learning theories, this theory focuses on the causes of those attachments, specifically targeting weak conventional bonds to society

and institutions and individuals who discourage deviant behaviour, including substance use. (Compare Boyd, Howard & Zucker, 1995: 204.)

This theory is based, in large part, on classic sociological theories of control, which argue that the deviant impulses that all people presumably share are often held in check or controlled by strong bonds to conventional society, families, schools, and religions (Pagliaro & Pagliaro, 1996: 50). However, for some adolescents, such controlling influences are missing. Consequently, adolescents who have weak conventional bonds will not feel controlled by or compelled to adhere to conventional standards of behaviour (Boyd, Howard & Zucker, 1995: 204).

The social control theory focuses on three possible causes of weak commitment to conventional society and weak attachment to conventional role models (Hawkins, Catalano & Miller, 1992: 87). One of those causes is strain, which is defined as the discrepancy between adolescents' aspirations (e.g. academic or occupational goals) and their perceptions of the opportunities to achieve those aspirations (Petraitis, Flay & Miller, 1995: 72). Social control theory asserts that adolescents who feel that their academic or career aspirations are being frustrated by their educational and occupational options will feel uncommitted to conventional society and, consequently, will become more attached to deviant peers who use substances and encourage substance use (Hawkins, Catalano & Miller, 1992: 87). Furthermore, some adolescents might feel strain at home because they want but are not receiving closer relationships with their parents. According to this theory, strain at home will (a) weaken attachments with parents who generally oppose substance use, and (b) encourage attachments with peers who more frequently encourage substance use (Petraitis, Flay & Miller, 1995: 72).

Thus, social control theory includes school strain, occupational strain, and home strain among the first causes of weak commitment to conventional society.

A second cause is social disorganization, which represents "the weakness or breakdown of established institutions", or the inability of "local institutions to control the behaviour of the residents" (Farrington, Loeber, Elliott, Hawkins, Kandel, Klein, McCord, Rowe & Tremblay, 1990: 310). As such, social control theory implies that adolescents feel uncommitted to conventional society if they come from disorganized neighbourhoods where crime and unemployment are common, where schools are ineffective, and where failed social institutions offer adolescents little hope for the future. They might also feel less attachment to parents if they come from disorganized families where, for instance, only one parent is present or the parents have divorced. (Compare Hawkins, Catalano & Miller, 1992: 87; Pagliaro & Pagliaro 1996: 50.)

Finally, social control theory asserts that conventional commitments and attachments to conventional role models are the result of effective socialization into conventional society. Even if adolescents (a) do not feel strain because of frustrated interpersonal, educational, and occupation opportunities, and (b) do not come from disorganized neighbourhoods and families, they might still become attached to substance-using peers if they have not been socialized (presumably by parents) to adopt conventional standards. (Compare Boyd, Howard & Zucker, 1995: 204; Hawkins, Catalano & Miller, 1992: 87; Petraitis, Flay & Miller, 1995: 72.)

Attachment to substance using peers (and by implication substance use) is thus caused by (a) frustrated academic and occupational

expectations, (b) inadequate social and academic skills, (c) weak attachment to and inadequate reinforcement from parents and other conventional role models, (d) disorganized neighbourhoods and families, and (e) improper socialization.

Consequently all of these factors can be potential pieces of adolescent substance use/abuse prevention programmes. For instance, programmes might deter adolescent substance use by teaching parents how to reinforce and socialize their children.

5.10 Availability theory of substance use

The availability theory of substance use focus on how the availability of addictive substances contributes to substance use (and by implication abuse) (Velleman, 1992: 13). This theory contends that adolescents are at risk for substance use/abuse because drugs are available, (compare Ghodse & Maxwell, 1990: 26; Schaffer, 1994: 3) directly affecting their opportunities to use. Accordingly, Boyd, Howard and Zucker (1995: 205) state that the amount and pattern of substance use is affected by the degree to which substances are accessible to people. Rocha-Silva (1998: 3) supports this view, and states that the level of availability of and demand for (particular) drugs in a community tends to positively correlate with the general level of drug use in that community. Consequently availability may vary and is usually associated with substance use.

Boyd, Howard and Zucker (1995: 205) divide substance availability into three categories: physical availability, economic availability, and legal availability. Physical availability is described as the amount, diversity and

proximity of substances in the environment. Economic availability is defined as the degree to which acquisition and consumption of substances requires expenditure of resources in relation to resources available (e.g. the cost/price of substances in relation to disposable income). Legal availability is set forth as the degree to which purchase and consumption of substances is limited by law. (Compare Hawkins, Catalano & Miller, 1992: 81; Schaffer, 1994: 3.) Through this division, availability theory suggest that adolescents will be at risk for substance use/abuse if (a) substances are physical available in the youth's social-environment, (b) substances are affordable, and (c) laws and social norms express tolerance for substance use.

The availability theory thus assumes that substance availability is the strongest predictor of substance use, were availability is seen as: (a) a direct cause of substance use, and (b) an indirect cause of substance use as availability creates substance-specific perceptions.

The implication of this theory on prevention can be to create barriers to young people's substance use by reducing access and availability through public policies, excise taxes and physical restraints.

(Also see Chapter 3, page 180 were availability of substances is described as a risk factor for adolescent substance use/abuse.)

5.11 Integration of theories

The preceding review discussed ten theories purporting to explain adolescent substance use. These were:

(a) Dynamic Lifetime Interplay theory, that links genetic and social environmental effects to the development of substance abuse;

(b) The Life Process Programme theory, which presents substance use and dependence as a consequence of the confluence of forces in people's lives, i.e. their needs and available ways of satisfying them;

(c) Cognitive-affective theory; which describes how decision-making processes contribute to adolescent substance use;

(d) Cognitive behavioural theory, which details how beliefs that constitute a self-defeating personality and cognitive structure, effects substance use;

(e) Problem behaviour theory, that focuses on environmental and personality traits that affect adolescent substance use;

(f) Economic theory, which ties substance use to (i) a decision to use the substance, and (ii) the costs of the product in relation to the amount of disposable income available;

(g) Social cognitive/learning theory, which emphasizes the effects of substance-using role models;

(h) Symbolic interactionism theory, which searches for the roots of substance use in the adolescent's interaction with multiple social structures;

(i) Social control theory, which details how various factors promote withdrawal from conventional society, detachment from parents, and attachment to substance-using peers; and

(j) The availability theory that links adolescent substance use to substance availability (physical, economic and legal).

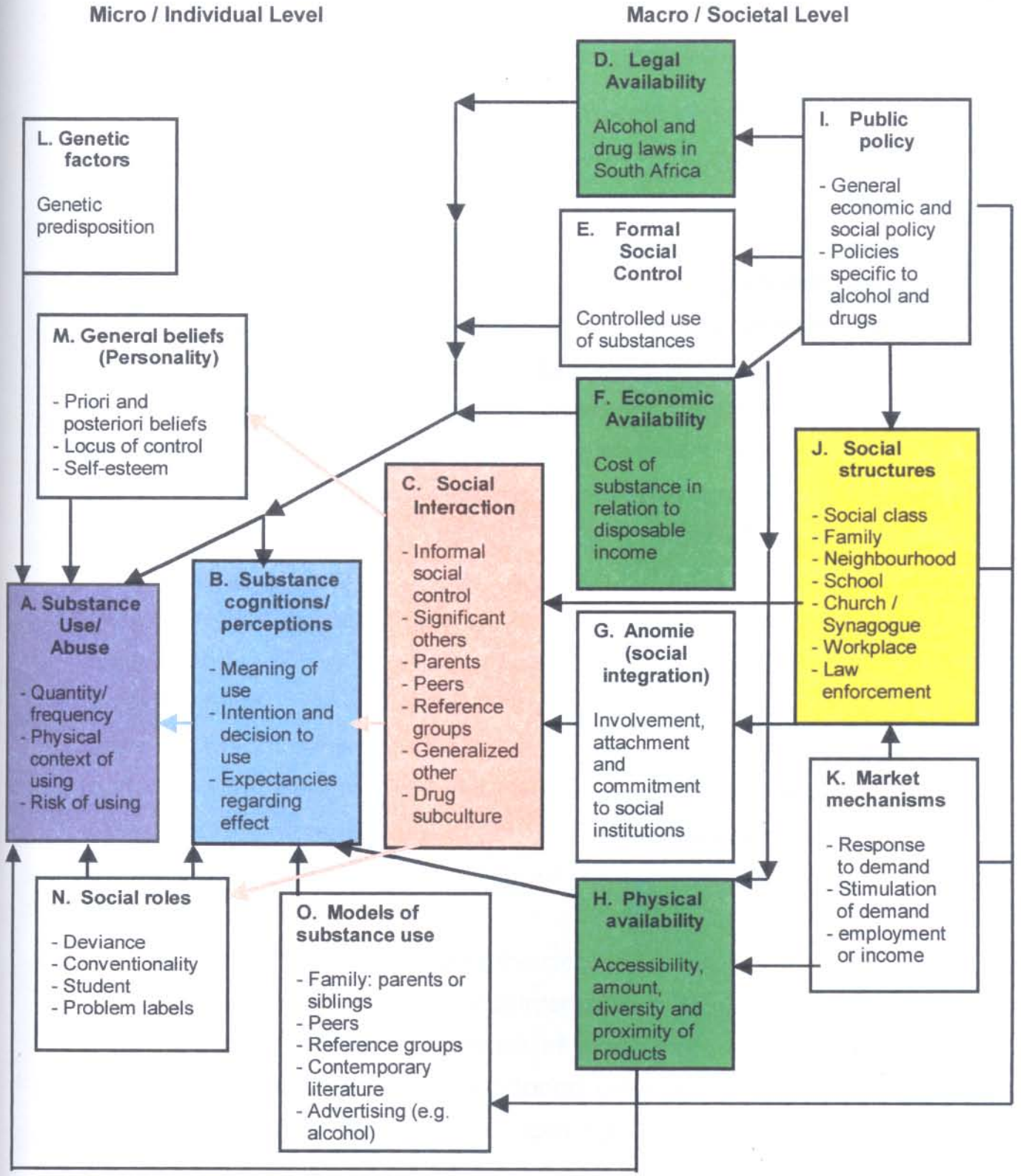
These theories all implicate a long and diverse list of causal and contributory factors, that theoretically lead to adolescent substance use

and abuse. However the diversity of theories and causes is not surprising given that substance use/abuse has a complex etiology. In fact, the more research findings allow us to understand about the nature of adolescent substance use/abuse, the more complex the factors underlying its development appear to be. Schinke, Botvin and Orlandi (1991: 14) concur with this by stating: "there is a multitude of interrelated causes for substance abuse with no single factor both a necessary and sufficient condition for the initiation of substance use or abuse". (Compare Roper & Bartlett, 1994: 11.) Moreover Petraitis, Flay and Miller (1995: 79) argue that a thorough understanding of any behaviour must be based on a comprehensive and integrative analysis of: (a) the broad social environment surrounding the behaviour, (b) the more immediate social situation or context in which the behaviour occurs, (c) the characteristics of the person performing the behaviour, (d) the behaviour itself and closely related behaviour, and (e) the interaction among all of these. (Compare Pagliaro & Pagliaro, 1996: 91.)

In partial alignment with this argument, Wagenaar and Perry's (1994: 319-345) integrated theory of drinking behaviour was adapted and changed by the researcher in an effort to explain the etiology of youth substance use and abuse. The resulting model is the researcher's superimpositions on Wagenaar and Perry's (1994: 319-345) material and propose that substance use/abuse is the result of reciprocal effects among the individual person and the person's environment by focussing on the centrality of social interaction.

Figure 2 illustrates the proposed model.

Figure 2: An integrated model of adolescent substance use/abuse



Road map to Figure 2: An integrated model of adolescent substance use/abuse

In this integrated model, substance abuse is directly affected by the adolescent's personal cognitions and perceptions regarding substances (path B-A in Figure 2). This is in line with cognitive-affective and social learning theories, that all assume that the roots of adolescent substance abuse are found in the adolescent's beliefs and expectations about substances. Suggesting that adolescents will abuse substances if they expect the substance to have reinforcing positive effects, high in relation to costs. These perceptions about substances are a direct result of social interactions with significant others in the youth's environment (path C-B), observation of environmental models (path O-B) and formal social controls (path E-B).

Furthermore, factors affecting substance use/abuse do not all operate through the mediating influence of cognitive/perceptual variables; they have direct effects as well. In accordance with the availability theory, it is stated that legal availability (path D-A and D-B), economic availability (path F-A and F-B) and physical availability (path H-A and H-B) of substances therefore directly affect substance use/abuse; and also operate indirectly by creating perceptions.

Social structures, that is modified by the degree to which the adolescent are integrated into them, affect social interaction patterns (paths J-C and J-G-C) and affect exposure to models of substance use (path J-O). In addition, however, exposure to substance using models is importantly affected by: (a) public policy concerning media advertising and

depiction of substance use/abuse in media programming (path I-O) and (b) market mechanisms that respond to and stimulate demand for substances (path K-O). Public policy also directly affects formal social controls (I-E), as well as the legal, economic, and physical availability of substances (I-D, I-F, I-H, respectively), all of which in turn affect substance use/abuse directly (path D-A, E-A, F-A and H-A) as well as through their influence on the meanings and perceptions of substance use (path D-B, E-B, F-B and H-B).

Genetic factors also play a direct role (L-A) on substance use/abuse, although such effects are minor for the majority of substance users. Substance use/abuse is contingent on the dynamic interplay among genetic and environmental factors, i.e. low drug availability (path D-A, F-A & H-A), cultural sanctions and strong social support (E-A).

In addition, social interaction influences the adolescent's social roles (path C-N). Herewith social roles, such as deviant or problem, as well as other widespread social roles (e.g. student) affect substance use/abuse directly by offering more opportunities to use substances (N-A), and they affect substance use indirectly by occupying such roles on substance-related cognitions and perceptions (N-B-A).

General beliefs (priori and posteriori beliefs) and eventually personality characteristics, may be correlated with substance use/abuse (path M-A). These beliefs are primarily the result of the cumulation of past and current socialization (path C-M); in other words, they result from past and current experience in social interactions (e.g. family and peer culture), which are in turn influenced by a variety of social and institutional structures (J-C-M; I-J-C-M and K-J-C-M). Hence critical factors in the youth's environment

(e.g. family, peer culture, media and ready availability of substances of abuse) influences his beliefs and they (the beliefs) affect substance use/abuse.

6. Magnitude of the problem

6.1 Global illicit drug consumption trends

Reliable, systematic and comparable data to assess the global drug problem, and to monitor progress is not readily available. The following information is based on data obtained primarily from the annual reports sent by Governments, from Europe, Australia, United States of America, Africa, Russian Federation, Asia and China, to the United Nations International Drug Control Programme in 1999, supplemented by other sources when necessary and where available (United Nations Office for Drug Control and Crime Prevention, 2000: 1). However this should contribute to a scientifically valid assessment of the global drug consumption trends.

- Abuse of opiates has become a global phenomenon. Almost two thirds of the countries reporting trends to the United Nations Office for Drug Control and Crime Prevention in 1999 indicated rising consumption. Developing countries and countries in transition are notably affected. In developed countries, by contrast, opiate abuse is stable or even declining.

- The main opiates markets are still in and/or close to the countries of production in Asia and the "traditional" consumer markets of Europe,

Australia and, to a lesser extent North America. Consumption in Latin America and in Africa, though rising, still appears to be comparatively low.

- More than two thirds of all countries reporting abuse trends to the United Nations Office for Drug Control and Crime Prevention in 1999, witnessed an increase in cocaine consumption, most of the rest indicated a stabilisation. Declines in cocaine abuse are reported by the United States of America, the world's largest cocaine market, and by a few countries in Southeast Asia and Western Africa.

- Abuse of cocaine is still concentrated in the Americas, though it has also started to spread more widely in Europe, Australia and Western and Southern Africa. In most parts of Asia, by contrast, it is still very limited.

- Cannabis remains the most widespread drug of abuse and its consumption is reported to be increasing globally, although there are some recent reports of stabilisation or declines, notably in North America, the Russian Federation, China and other Asian countries.

- Abuse of amphetamine-type stimulants shows first signs of stabilisation in Western Europe and North America but is increasing in East and South East Asia.

- Diffusion of drug injecting to an increasing number of developing countries and the accompanying risk of HIV infection remains a serious global concern. Injecting drug use appears to be the main, or a major, mode of transmission for HIV infection in North Africa and the

Middle East, East Asia and the Pacific, Latin America, Eastern Europe, Central Asia, Western Europe, and North America (United Nations Office for Drug Control and Crime Prevention, 2000:7).

6.2 Substance abuse in South Africa

South Africa's drug problems are nothing new. According to Gonet (1994: 3) they are merely the latest versions of old scenarios. Locally recorded statistics reveal that 2 out of every 3 children are currently using drugs (Fourie, 2001: 8). In fact, about one in four Grade 7, 10 and 11 learners in a school survey undertaken by UNISA reported getting drunk occasionally during the course of a typical month (Parry, Pluddemann, Bhana, Matthysen, Potgieter & Gerber, 2000: 1).

Moreover, Brewis (2001: 6) emphasizes that alcohol is the dominant substance of abuse in South Africa and has a major impact on individuals and society, particularly in the area of violence and traffic-related trauma. (Compare Rocha-Silva, Mokoko & Malaka, 1998: 2.) Herewith, alcohol dominates treatment admissions with between 51% and 79% across Cape Town, Durban, Port Elizabeth, Mpumalanga and Gauteng involving alcohol as the primary substance of abuse. Added to this, between 4% and 25% of psychiatric patients in selected psychiatric hospitals in Cape Town, Gauteng and Port Elisabeth had alcohol-related psychiatric discharge diagnoses. In Port Elizabeth, 92% of trauma patients had positive breath-alcohol (up from 79% in the first half of 2000). Likewise, the proportion of mortuary cases in 2000 with blood alcohol concentrations 0.05 g/100ml ranged from 37% in KwaZulu Natal, to 48% in Cape Town to 64% in Port Elizabeth. Also, between 6% (Gauteng) and 23% (Cape Town) of persons arrested for a variety of crimes reported

being under the influence of alcohol at the time of their arrest (Parry, Pluddemann, Bhana, Matthysen, Potgieter & Gerber, 2000: 1).

In addition to this, Brewis (2001: 6) emphasizes that the use of cannabis and Mandrax alone or in combination ("white-pipes"), are the most prevalently abused illicit drugs in South Africa. (Compare Rocha-Silva, Mokoko & Malaka, 1998: 2.) This trend, however, is not necessarily reflected in the demand for treatment as a total of 13% (Mpumalanga) and 32% (Cape Town) of patients attending specialist treatment centres had cannabis and/or Mandrax as primary drugs of abuse. Whilst, likewise, about 20% of trauma patients in Port Elizabeth tested positive for cannabis (down from 43% in 1999) and 11% tested positive for Mandrax (Parry *et al.*, 2000: 1). However, note also needs to be taken, that the proportion of arrests for dealing in cannabis showed an increase in Port Elizabeth and Gauteng but declined in KwaZulu Natal and Mpumalanga. Arrests for dealing in Mandrax increased in Durban, Port Elizabeth and Mpumalanga, but decreased in Cape Town and Gauteng (Parry *et al.*, 2001: 1). Seizures of cannabis (dealing and possession) increased in KwaZulu Natal, Gauteng and Port Elizabeth. In Durban 11.5 tons of hashish was seized. Mandrax seizures increased as well, and over 2 million tablets were seized nationally in the second half of 2000. The price of cannabis has remained stable at R1-R2/stop, while the price of Mandrax has increased slightly in KwaZulu Natal and Port Elizabeth. In Durban and Mpumalanga, over 90% of the value of drug seizures by SANAB and the Organized Crime Unit (in Port Elizabeth) can be attributed to cannabis. (Compare Parry *et al.*, 2000: 1; Parry *et al.*, 2001: 2.) Notwithstanding, the use of drugs tend to intertwine with a lifestyle of crime. Parry *et al.*, (2000: 2) confirm this by stating that cannabis and Mandrax use is high among persons arrested for a range of crimes in Cape Town, KwaZulu Natal and

Gauteng. They explain that between 24% (Gauteng) and 50% (Cape Town) of arrestees tested positive for cannabis, and between 5% (Gauteng) and 32% (Cape Town) of arrestees tested positive for Mandrax. Moreover, Fourie (2001: 31) points out that the number of 12 – 17 year olds using cannabis has doubled during the past four years. (Compare Brewis, 2001: 7.) Whilst the average age of risk for a boy to experiment with cannabis is presently 11 years old, to an age of 15 years in the past (Fourie, 2001: 31). Accordingly, a UNISA school survey, found that about one-third of respondents admitted having smoked cannabis, 23% of them being under the age of 12 (Parry *et al.*, 2001: 2). Confirmative of this, a "Rave Safe" survey in Johannesburg found that three-quarters of respondents had tried cannabis and 13% had tried Mandrax at least once (Parry *et al.*, 2000: 2). It seems, Fourie (2001: 31) concludes, that at the end of their school career 65% of all South African teenagers would already have encountered cannabis in one form or another.

Fourie (2001: 9) also notices that over-the-counter and prescription medicines, such as slimming tablets (e.g. Nobese), headache medications and analgesics (e.g. Stopayne, codeine products) and benzodiazepines (e.g. Valium, Ritalin) appear to be the most commonly abused medicines in Cape Town, KwaZulu Natal, Port Elizabeth, Gauteng and Mpumalanga. (Compare Parry *et al.*, 2001: 3; Rocha-Silva, Mokoko & Malaka, 1998: 2.) In general the proportion of persons having the named medicines as their primary drug of abuse across the mentioned provinces ranged from 0% to 4% of treatment admissions for the first part of 2001. Of persons arrested for a range of crimes, across Cape Town, KwaZulu Natal, Port Elizabeth, Gauteng and Mpumalanga, 4% tested positive for benzodiazepines (up from 1% in the first half of 2000). Yet, the biggest increase was noted in Cape Town where 13% of arrestees tested positive

for benzodiazepines compared to 2% in the first half of 2000 (Parry *et al.*, 2001: 3).

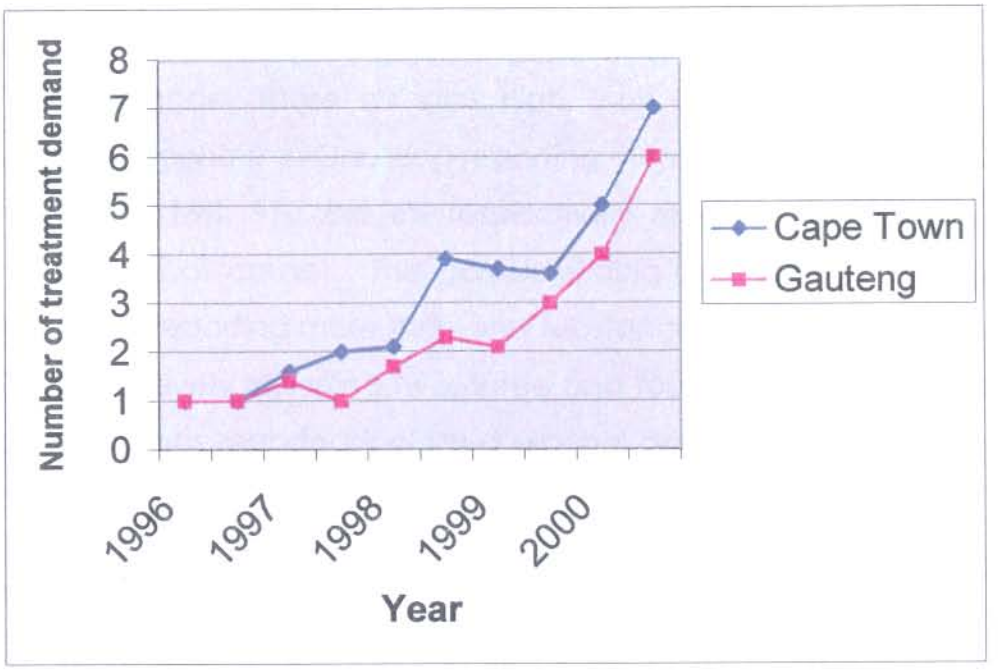
With regard to cocaine, the United States Drug Enforcement Administration (CDEA) identified cocaine/crack as the fastest growing drug of abuse in South Africa at the moment. This estimation is confirmed by statistics of the South African Police. The cocaine mass the South African Narcotics Bureau (SANAB) confiscated in 1994 was 69 563 kilograms powder and in 1998 a total of 635 208 kilograms powder and 3 825 crack/rocks, i.e. a refined form of cocaine (Fourie, 2001: 23). Accordingly there is a noticeable increase in the proportion of people in treatment whose primary substance of abuse is cocaine or crack (Fourie, 2001: 23). Herewith the SAPS Forencis science laboratories receive an estimated average of 600 samples a month to analyse. In 1993 cocaine cases formed 1% of the total number of cases. In 1998 it was 10%. One amphetamine-related case was investigated in 1993 compared to 200 cases in 1998. The magnitude of the problem is further illustrated by Fourie's (2001: 9) statement that ecstasy and cocaine related cases is especially a problem in Cape Town as is the growing number of clandestine factories, i.e. illegal laboratories. Ecstasy has been available to South African youth since 1993 as part of the rave scene. Use and dealing in ecstasy has increased during the last 5 years by approximately 70% (Fourie, 2001: 77). According to Parry *et al.*, (2000: 2) 20% of ravers studied in Gauteng report weekly use of Ecstasy. However, the treatment demands for Ecstasy as the primary drug of abuse is low and fairly stable (under 2%), but like LSD it often appears as the secondary drug of abuse. One change of note is the decrease in the mean age of persons in treatment whose primary drug of abuse is Ecstasy in Cape Town from 23 to 19 years and in KwaZulu Natal from 24 to 21 years. Herewith 11% of the

rave party attendees studied in Gauteng reported weekly use of LSD (Parry *et al.*, 2000: 3). The use of LSD in Rave clubs is common among 18 – 23 year olds (Fourie, 2001: 47). According to Parry *et al.*, (2000: 3) the Forensic Science Laboratory, Police nationally seized over 2900 units of LSD during the second half of 2000.

Furthermore, heroin abuse is escalating and becoming a serious problem in South Africa. (Compare Fourie, 2001: 54; Roper & Bartlett, 1994: 31.) Statistics of the South African Narcotics Bureau (1999) of confiscation and arrests on heroin confirms this by showing an upward curve over the last 5 years (Fourie, 2001: 52). According to Parry *et al.*, (2000: 2) the amount of heroin seized during January to June 2000 increased from 1.2 kilograms to over 14 kilograms in the second half of the year. Accordingly the South African Police Forensic Science Laboratory (FSL) in Pretoria reported an increase in heroin-related cases in all the provinces (Fourie, 2001: 31). In fact, there has been a dramatic increase in treatment demand for heroin as a primary drug of abuse over time in Cape Town and Gauteng (Figure 3), particularly among persons less than 20 years of age. Most heroin is sniffed ("chasing the dragon"), but between 31% (Gauteng) and 47% (Cape Town) of persons having heroin as their primary drug of abuse report some injection use (Parry *et al.*, 2001: 2).

Figure 3 shows the treatment demand for heroin in Cape Town and Gauteng.

Figure 3: Treatment demand for heroin (%)



Club drugs in general appear to be entrenched in the youth culture. Most concerns relate to the quality of the drugs being sold, and the possibility of ecstasy users using other drugs in combination, or moving on to other harder drugs. Other drugs used to varying degrees by ravers include LSD, cannabis, poppers, cocaine, diet pills, magic mushrooms, Speed and Mandrax (Parry *et al.*, 2000: 1). Persons attending rave parties appear to be aware of the negative consequences associated with use of club drugs but use them anyway.

Solvent use is also quite common among the South African youth, especially within certain subgroups such as street children (Brewis, 2001: 7). Enjoyment/fun, mood-change and coping are common reasons for using

solvents except that the very poor also use it to counter hunger pains and the cold in winter. The age of onset tends to be earlier than in the case of other drugs i.e. 6 - 12 years (Compare Brewis, 2001: 7; Roper & Bartlett, 1994: 14.)

Poly-substance abuse remains high, with 31% of patients in specialist treatment centres in Gauteng reporting more than one primary substance of abuse (16%, 9% and 6% respectively reporting two, three and four substances of abuse). The corresponding percentages for Cape Town were 40% reporting more than one substance of abuse with 26%, 12% and 2% respectively reporting two, three and four substances of abuse. Drug combinations reported included alcohol and various illicit drugs, alcohol and analgesics and benzodiazepines, cocaine and cannabis, and Speed and Ecstasy (in a single pill) (Parry *et al.*, 2001: 2).

The following regional differences were noted:

- The level of substance use, as well as the range of drugs used, is higher in Cape Town and Gauteng as compared to KwaZulu Natal, Port Elizabeth and Mpumalanga.
- Alcohol-related mortality is substantially higher in Port Elizabeth than in Cape Town, Gauteng and KwaZulu Natal.
- The use of Mandrax is more common in Cape Town and Port Elizabeth than in Gauteng, Mpumalanga and KwaZulu Natal.
- In more rural Mpumalanga the main substances abused are alcohol and dagga (Parry *et al.*, 2001: 3).

Most importantly, in the light of the above-mentioned prevalence of substance use/abuse, the next step is to move from this wider context of

substance use in South Africa to substance use/abuse patterns and trends in KwaZulu Natal.

6.3 Substance abuse in KwaZulu Natal

The following research findings on substance abuse patterns and trends among KwaZulu Natal youth is primarily based on data obtained from the surveillance reports of: (a) Rocha-Silva's (1998) recent study on substance use among young South Africans (10 - 24 years); and (b) the South African Community Epidemiology Network on Drug Use (SACENDU), i.e. an alcohol and other drug sentinel surveillance system operational in South Africa, and more specifically in KwaZulu Natal. The system, operational since 1996, monitors trends in substance use and associated consequences on a six-monthly basis using multi-source information from specialist treatment centres (50+), psychiatric hospitals, mortuaries, trauma units, and the police (SA Narcotics Bureau), Organised Crime Units and Forensic Science Laboratories (FSL). Other data sources are included when available (Parry *et al.*, 2001: 1).

Herewith, a few background notes on data restrictiveness are also appropriate. Indeed, where data is restrictive, a special attempt is made to "extrapolate", e.g. from licit to illicit drug- taking patterns/trends or from adult to youthful drug use. This is done in the light of indications that in KwaZulu Natal as in South Africa and in many other countries (World Drug Report, 1997), (a) drug taking is dominated by licit drugs (e.g. alcohol and tobacco use), (b) licit and illicit drug use frequently intertwine and indeed, generally reflect one another, and (c) youthful drug use generally emulates adult patterns/trends (Rocha-Silva, 1998: 1). The information on

substance use/abuse patterns and trends among KwaZulu Natal youth thus follows.

- Alcohol in general appears to be the most popular substance of abuse among the youth in KwaZulu Natal. However, youngsters who drink tend to concentrate in the older age group, i.e. mid- to late adolescence. Furthermore, as is the case among adults, drinking tends to be mainly a male phenomenon among young people. Paralleling adult patterns, drinking seems to have been more common among historically advantaged than disadvantaged youth (Flisher, Ziervogel, Chalton & Robertson, 1993: 481). Furthermore, although there is reason to believe that, in line with adult trends, drinking rates among historically advantaged youth remained fairly stable during the 1980s, it is not possible to tell whether this trend is still intact, and what the position is regarding disadvantaged youth, specifically because of incomplete information (Rocha-Silva, 1998: 5). However, the prevalence of drinking among historically disadvantaged youth may have increased given the progressive increase in the prevalence of drinking among adults and indications that youthful drinking tends to parallel, at least in general terms, adult patterns. Thus, as among adults, alcohol remains the most popular drug of abuse among KwaZulu Natal youth.

- Tobacco use is also fairly common among KwaZulu Natal youth, although generally to a lesser extent than drinking. Paralleling drinking patterns, tobacco use appears to be mainly a male phenomenon, to be more common among historically advantaged than disadvantaged (African) youth to increase in popularity in the

late teens and to be markedly less common among youth than among adults.

- Herewith, cannabis is the most commonly used illicit drug among KwaZulu Natal youth. Accordingly, research in, for example, the United Kingdom (Plant & Plant, 1992: 40-48), the United States of America (Steinberg, 1993: 428-432) and countries in Africa (Mwenesi, 1995, Selassie & Gebre, 1995) reflects a more or less similar pattern. Indeed, in terms of studies that have been conducted more or less between the mid-1970s and mid-1980s among final-year high school pupils in Durban and among historically advantaged males of more or less the age category mid-adolescence to mid-twenties, the prevalence for lifetime cannabis use (used it at some time in their life) may be between 10% and 20% (Du Toit, 1991). Studies conducted between 1989 and 1991 (a) in the Cape Peninsula (Flisher *et al.*, 1993) among high school pupils, and (b) among Std. 8 and Std 10 pupils of historically advantaged background (Department of Education and Culture, 1990), however, suggest a prevalence below 10% (between 4% and 8%) with regard to lifetime use of cannabis. This lower prevalence may relate to the lower age group in the latter studies. This possibility makes sense in the light of evidence that the prevalence of cannabis use (e.g. lifetime use) among young people increases with age and educational level. However, it is also possible that the prevalence of lifetime cannabis use among the youth declined during the 1980s and beginning of the 1990s, particularly if cognisance is taken of the mid- to late- 1980s trend in countries such as the United States of America towards a lowering in the prevalence of youthful cannabis use (Rocha-Silva, 1998: 7). It is

important to note, though, that the latter trend in the United States of America seems to have turned upward at the beginning of the 1990s. Fourie (2001: 31) confirms this trend by pointing out that the number of 12 – 17 year olds using cannabis in South Africa, and thus KwaZulu Natal, has doubled during the past four years.

- Apart from cannabis and to some extent in line with trends overseas and in the rest of South Africa (World Drug Report, 1997) the use of solvents seems fairly common among young people in KwaZulu Natal. Indeed, available studies (Flisher *et al.*, 1993; Rocha-Silva *et al.*, 1996) showed that the prevalence for lifetime solvent use was generally in the order of between 5% and 10%, studies between the mid-1970s and mid-1980s among final-year high school pupils in Durban generally pointed towards a somewhat higher rate. For example the 1989 study (Department of Education and Culture, 1990) among Std 8 and Std 10 pupils of historically advantaged background reported 8% lifetime users of solvents; a more or less similar figure (7,4%) was documented in the 1994 Human Science Research Council (HSRC) survey (Rocha-Silva *et al.*, 1996). However, in Du Toit's (1991) 1985 survey among final-year high school pupils in Durban nearly one-quarter (23%) of the pupils of historically advantaged background admitted lifetime solvent use. In line with reports in other African countries, the use of solvents has been found to be most common among street children (Rocha-Silva, 1998: 8).

- The use of substances other than alcohol, tobacco, cannabis and solvents is also not uncommon among KwaZulu Natal youth, although to a lesser extent (generally lower than 5%) than in the

case of cannabis and solvents. According to Parry *et al.*, (2001: 2) the abuse of over-the-counter medicines, such as slimming tablets, analgesics (especially products containing codeine), and benzodiazepines (e.g. valium) continues to be a problem. Rocha-Silva (1998: 8) also noted: "The drugs most commonly used seem to be from the tranquilo-sedative group as well as stimulants such as amphetamines and to a lesser extent LSD." For example, in a study (Van der Burgh, 1984) of young historically advantaged males, 4% admitted to lifetime use of barbiturates/sedatives, 3% to the use of stimulants (amphetamines), 2% to LSD and 1% to heroin and/or opium and/or pethidine use. In Du Toit's (1991) study among final-year high school pupils in Durban in 1985, between 2% and 8% (particularly historically advantaged pupils) admitted the use of stimulants (amphetamines) and between 1% and 2% the use of LSD. The Department of Education and Culture's (1990) study among historically advantaged Std 8 and Std 10 pupils found that 2% had used barbiturates/sedatives at some time in their life.

- There has been a dramatic increase in treatment demand for cocaine over time in KwaZulu Natal, particularly among persons less than 20 years of age.

- Finally, little is known about the extent of <u>drug injection</u> among KwaZulu Natal youth. The findings of a 1991/1992 national survey (Rocha-Silva, 1993) among persons in drug-related treatment (metropolitan centres), however, suggest that with regard to at least historically advantaged South African youth, the injection of drugs, if it occurs, mostly manifests during late adolescence to early adulthood and generally as part of polydrug use. Indeed, the

injection of drugs generally seems to go hand in hand with the use of alcohol, cannabis, white pipe (mixture of cannabis and methaqualone) and, to a lesser extent, sedatives and tranquilizers. Several pain relievers (e.g. opium, pethidine and particularly wellconal) and, to a lesser extent, cocaine and heroin seem to be particularly popular as injection drugs.

7. Summary

Substance abuse is a public health concern that has reached epidemic proportions; two out of every three children is currently using drugs in South Africa.

This chapter underscores the multifaceted and complex nature of adolescent drug use and abuse. More specifically a basis for a definition of substance abuse was provided and specific effects and consequences of certain substances of abuse reviewed. Hereafter different theories attempting to explain the causes of substance abuse was discussed. Indeed attempting to integrate some of the existing theories, by proposing a model to explain the interaction between these factors. Lastly information about the magnitude of substance abuse in KwaZulu Natal, South Africa as well as abroad was provided, confirming that alcohol is still the most popular drug of abuse in KwaZulu Natal, South Africa.

Chapter 3 will focus on adolescence: development, risk and consequences.