Chapter 2 Definition and theories of substance dependence and abuse

2.1 Introduction

Addictive behaviour has been labelled everything from a moral disorder to a medical disease, yet there is still no universally accepted definition for addiction. Without a clear definition, researchers will continue to struggle to determine addiction prevalence rates, aetiology and the sufficient causes which stimulate recovery. Clinicians face the difficulty of matching appropriate treatment with the addicted populations, and health care legislation will continue to have inconsistent guidelines for health care reimbursement. Researchers and scientists suffer from the lack of a formal working definition of addiction, but so too does the average layperson, as the distinctions among an array of human characteristics (e.g. interest, craving, dedication and compulsion) remain blurred (Shaffer, 1997).

The Diagnostic and Statistical Manual (DSM) IV-TR (APA, 2000) features addiction as a substance use disorder, a cluster of cognitive, behavioural and physiological symptoms co-occurring in an individual despite significant substance-related problems. According to the DSM IV-TR (APA, 2000), substance dependence is a pattern of repeated self-administration of a substance, characterised by, and resulting in tolerance, withdrawal and compulsive drug taking. A person is substance dependant when a maladaptive pattern of substance use incorporating these three characteristics leads to significant impairment and distress occurring at any time within a 12-month period.

Although some clinicians, researchers and policy-makers may argue that they have an all-encompassing definition of addiction, it is more realistic to deduce that they have a working model.
2.2 Theories of addiction

The field of addiction draws upon a variety of disciplines. Psychology, medicine, chemistry, psychiatry, sociology, biology and physiology have all helped shape current understandings of addictive behaviour. Theories derived from biological origins have been popular recently. Such theories attempt to define addictions by identifying the genetic and neurochemical causes of the condition. It is, however, interesting to note that as we understand more about the role of biology in addiction, we see that social and cultural influences appear to play a far greater role. For example, not all people with a genetic vulnerability to addiction will develop the condition, and some people who are not bio-genetically prone will develop addictions. Social and psychological factors therefore continue to play a role in determining how addiction develops (Shaffer, 1997).

2.2.1 Biological theories

Biological theories of addiction include two interacting propositions. They suggest that mechanisms of the brain responsible for reward and punishment are directly affected by drugs. Substances stimulate sensations of pleasure and suppress pain, thus reinforcing the drug-taking behaviour. This does not, however, account for the majority of persons who experiment with drugs and then discontinue their usage. The other proposition is that certain individuals inherit biological mechanisms which predispose them to abuse substances (Fishbein & Pease, 1996).

2.2.1.1 Reward value

Drugs are described as reinforcing substances due to the fact that they reinforce the necessary behaviour to obtain the same sensation. Animal studies in which a lever is used to self-administer drugs illustrates this reward system. Animals will perform the lever-pulling ritual in order to administer cocaine until they die, disregarding personal grooming, dehydration and
starvation. In the case of humans, the procedure is usually more drawn out, yet they too will self-administer to the detriment of their health, family and general well-being (Goldstein & Kalant, 1990).

Within the limbic system of the brain, the nucleus accumbens and prefrontal cortex are thought to be activated by certain drugs. When this happens, neurons within this region turn on adjacent neurons and a signal is consequently transmitted across a reward pathway, initialising feelings of pleasure. These brain structures regulate motivations which encourage us to behave in ways which are fundamentally adaptive, in order to enhance our survival. For this reason, personal accomplishment, eating and sexual behaviour are all repeated behaviours due to the reward centres they stimulate. Within the reward system, related structures control motor behaviour so that our actions can be directed to seeking out such desirable outcomes. In an optimally functioning brain, motivation to eat or engage in sex does not usually pose the problem of becoming compulsive. Drugs do, however, have a far greater impact on brain structures; therefore, they have the ability to override motivations to perform acts which enhance rather than detract from adaptation to the environment (Fishbein & Pease, 1996).

Although the brain has many drug-reactive receptors, the active properties of drugs also contribute to producing addictive behaviour. Drugs working with immediacy and intensity are likely to elicit a powerful reinforcement (Fishbein & Pease, 1996). This would apply in the case of crack cocaine, a drug which acts rapidly on the brain but whose effects also dissipate quickly, encouraging the user to re-administer in order to maintain the effect. Drugs causing physiological tolerance can also contribute to a pattern of abuse. Opiates require users to increase amounts of the drug used, adding to a biological and behavioural habit. Drugs causing withdrawal symptoms can motivate users to repeatedly seek out the substance merely to combat the unpleasant cravings.
2.2.1.2 Genetic factors

Scientific studies have documented that addiction and alcoholism may be genetically transmitted, a proposition the ancient historian, Plutarch, made centuries earlier, stating that “drunkards beget drunkards” (Miller & Toft, 1990).

Certain individuals have the tendency to develop addiction when exposed to alcohol or drugs, whereas this unique interaction with neurochemicals usually does not occur in the non-addict’s brain. Genetic vulnerability plays a role in this interaction (Miller & Toft, 1990). Research has shown that more than 50% of alcoholics have a family history of alcoholism, where at least one family member is also an alcoholic (Goodwin, 1985).

Genetic studies have focused on adoption samples, looking at the role of the biological parent in contributing to a person’s addictive temperament. Studies in several countries have consistently shown that children reared in non-alcoholic families whose biological parents had histories of alcoholism also developed alcoholism. In accordance with this, alcoholism in children’s foster parents did not tend to lead foster children to develop alcoholism (Goodwin, 1985).

A study by True et al. (1990) deduced that monozygotic twins have a stronger concordance for alcohol abuse than do dizygotic twins, estimating .55 prevalence rates for monozygotic twins.

2.2.1.3 Neuroadaptation

Although drugs have a strong correlation with addiction, addiction is not simply a property of drugs. Addiction appears to have more to do with the relationship between the person and their object of addiction. Drugs may have the ability to produce physical dependence and an abstinence syndrome, a neuroadaptation, yet recent evidence suggests that neuroadaptation can also
result from behaviour such as gambling, where no psychoactive substance is ingested (Shaffer, 1997).

Neuroadaptation, the term denoting tolerance and withdrawal, is not the same as addiction and can result from a variety of repetitive behaviours. People who use pain killers post-operatively may never display addictive behaviours despite being physically dependant on the medication. Similarly, stopping drug abuse will not end addiction, since addictive behaviour frequently exists in the absence of drug abuse, as is the case in gambling or sex addiction. Addiction is, therefore, a quantitative change in behaviour patterns: issues which had once been a priority become less significant, while less frequent behaviours become more dominant.

2.2.2 Psychological theories

The search for a predictive addictive personality is yet to find particular individual characteristics which consistently predict the development of addiction. The one common denominator across a variety of studies is the predominance of psychopathology among drug-abusing people. Psychological characteristics tend to be stable over time and also seem inherent in families, therefore making transmission from one generation to the next by genetic means plausible. Psychological characteristics cannot be responsible for forming addiction in isolation, as it is the interaction of personality traits with the physical and social environment which contributes to predicting addictive behaviours (Sutker & Allain, 1988).

Studies focusing predominantly on psychological traits accounting for addiction have consistently shown that antisocial personality, impulsivity, affective disorder and anxiety are more prevalent amongst substance abusers than in the general population (Shedler & Block, 1990).

Substance abusers and persons with antisocial personality disorder share a considerable number of traits. Their behaviour is often sensation seeking,
impulsive, aggressive, risky, immature and lacking a response to threats of punishment. Antisocial personalities are prone to seeking out immediate gratification, they have little self control and have a psychological need for stimulation, and are therefore susceptible to drug abuse as this can satisfy such a need (Regier et al., 1990). Antisocial behaviours frequently manifest prior to drug abuse, suggesting that drug abuse may be a symptom of antisocial personality disorder. It is important to note that individuals with antisocial personality disorder are considered to be at higher risk for substance abuse than persons without the disorder.

Anxiety disorders – and especially phobias – are reported to be prevalent amongst people with substance abuse problems, suggesting that such individuals may be attempting to self-medicate a pre-existing condition (Regier et al., 1990). Further evidence to support the theory that substance abusers may be attempting to self-medicate, is the fact that persons with anxiety disorders may suffer from neurochemical imbalances, particularly within the serotonergic system, a system whose neurotransmitters are influenced by drugs of abuse. Substances which can allow the user temporary relief from stressful situations, relieve anxiety and elevate mood are, therefore, very attractive for persons susceptible to anxiety (Fishbein & Pease, 1996).

Similarly, depression is also explained by a neurochemical imbalance. A depressive state can be elevated by substances influencing brain chemicals responsible for depression. A depressed person abusing substances not only gains relief from depressive symptoms, but also induces biological reinforcement by stimulating brain systems responsible for depression. This temporarily self-corrects an underlying neurochemical imbalance (Fishbein & Pease, 1996). Depression has been found to be disproportionately represented amongst substance-abusing populations (Regier et al., 1990). Such findings are causal and resultant, as depression is frequently reported to be present prior to substance abuse and in other cases as a result of severe substance abuse. Depression amongst substance abusers can thus be drug-
induced or a condition exacerbated by the use of substances (Regier et al., 1990).

2.2.2.1 Psychodynamic theories
According to classical psychoanalytical theory, an individual uses substance as a defence against unacceptable and aggressive impulses. Freud described addictions to alcohol, morphine and tobacco as a substitute for what he described as the most primal addiction, masturbation (Straussner, 1993). Early psychoanalytic views also posited the condition of alcoholism as fixation in, and regression to, the oral stage of development, a response to neurotic conflict between dependence and anger (Fenichel, 1945).

Modern psychoanalysts, who focus on ego, self psychology and object relations, view substance abuse as a means of providing internal homeostasis, substituting for a basic lack of sense of integration of the self. In this regard, substance abuse is seen as a regression to, or fixation at, primary narcissism, in an effort to overcome a deficiency in the sense of self (Kaufman, 1985).

Kaufman (1985) furthermore states that substance abusers in therapy consistently use the defence of turning passive conflicts into active ones. The addicted individual fears disappointment as the main theme of life, does everything possible to initially enlist help, yet then turns the scenario around to ‘prove’ that the therapist is helpless and defeated. Closely related to this is the defence of externalisation, turning the internal struggle into an external battle. In this defence, the substance abuser resorts to external action in order to support the denial of inner conflict; rejection and punishment, which are not only suspected from the outside world, but also provoked.

2.2.3 Social components

The most basic prerequisite for substance use is availability and exposure to the substance. Research has shown that media exposure to cigarettes can be
more influential than peer group pressure (Pierce & Gilpin, 1995). Apart from media exposure, the friends, family and environments which individuals are exposed to can shape how they view drug use.

Research by Dishion, Patterson & Reid (1998) shows that drug-addicted parents spend less time with their children than do non-substance-abusing parents. In such instances, children also tend to develop friendships with peers who support substance use. The acceptance of substance use as a normal part of life seems to contribute to a perpetuating cycle beyond the biological dimensions of substance abuse.

2.2.4 Disease concept of addiction

The idea that addiction is a disease is only partially accepted. The confusion regarding the disease concept is due to a lack of understanding of scientific evidence, as well as ideas of moral judgement, free will and the stigma of addiction (Miller & Toft, 1990). In the late eighteenth century, the founder of the American Psychiatric Association, Dr Benjamin Rush, identified alcoholism/addiction as a disease where the substance serves as the cause, and loss of control over consumption is the characteristic symptom. Total abstinence then becomes the only cure. In 1956, the American Medical Association officially declared alcoholism and addiction as a disease, yet in practice not all physicians accept this position.

The disease concept received its definitive statement from Elvin Jellinek, a research professor in applied physiology. In 1960 he published a scholarly book, *The Disease Concept of Alcoholism*, concluding that the majority of evidence favours seeing alcoholism as a disease. In Jellinek’s view, alcoholism is an addiction as well as a disease, yet he also stated that the term alcoholic addiction would never gain favour because of the stigma attached to the word *addiction* (Miller & Toft, 1990).
Dorland’s Illustrated Medical Dictionary (1988) states that a disease is a deviation from the normal structure or functioning of a body part or system in the body. The deviation can be recognised as a combination of symptoms, but the cause and outcome of the disease is not always clear.

### 2.3 Treatment of addiction

#### 2.3.1 Alcoholics Anonymous

The Minnesota Model of treatment and the philosophy underlying the disease concept of alcoholism, proposed in the 1950s by E.M Jellinek, was based on the principles of Alcoholics Anonymous (AA) (Benshoff & Janikowski, 2000).

The origins of AA can be traced back to 1935 when Bill Wilson, a hopeless alcoholic met with another desperate alcoholic, Dr Bob Smith. After their first meeting Dr Bob Smith is noted to have said that his talk with Bill Wilson was the first time he had conversed with someone who knew what he was talking about, because the latter was also an alcoholic. Dr Smith felt understood and sensed that they spoke the same language. Through their experience they found that they were able to support each other and help other alcoholics attain and maintain sobriety. Bill Wilson had been a former member of the Oxford Group, an international movement in the 1920s and 1930s based on the spiritual teachings of early Christians. The 12 steps which came to be the foundation of the AA programme can be traced back to derivatives of this movement (Straussner, 1993).

AA developed the Twelve Step programme of recovery, a programme which views alcoholism as a physical, mental and spiritual illness which can be dealt with using a predominantly spiritual solution (McElrath, 1997). AA members attend group meetings with fellow alcoholics regularly and base their success on the fact that one alcoholic can best understand and help another alcoholic. Participation and membership is voluntary, with the only requirement for membership being the desire to stop drinking. There are no administration
forms, no fees or dues and no individual history is documented (Benshoff & Janikowski, 2000).

The 12 Steps are sequential spiritual principles which form the basis for governing the life of the recovering alcoholic. AA dogma holds that recovery cannot begin until the individual accepts the notion of powerlessness over alcohol, and the steps which follow reinforce the idea that alcohol consumption is an insane, egocentric behaviour leading to self-harm and harm to others. Members continually review and re-work the steps as a way of maintaining the recovery process. AA members refer to themselves as recovering alcoholics and never as recovered from the disease. The belief is that alcoholism and addiction are lifelong processes for which there is no cure. Only the 12-Step treatment can keep the disease in remission (McCready & Delaney, 1995).

In AA, the path which leads each member to alcoholism is irrelevant. The defined goal is to stop drinking all together and to work the steps, accept a Higher Power into one’s life and change behaviour, so that sobriety can be maintained. An AA member who no longer drinks is regarded as a recovering alcoholic who is never fully cured. This acknowledges the principle that alcoholism is a life-long illness which can only be arrested (Fishbein & Pease, 1996).

AA’s growth and sustenance is based on the principle of promotion rather than attraction. Any form of publicity is against AA’s tradition of placing “principles before personalities” (Twelve Steps and Twelve Traditions, 1952). Anonymity is the spiritual foundation of all the traditions, as it creates an atmosphere of trust and allows members the immediacy and freedom to share thoughts and feelings without fear of rejection or betrayal. The programme has grown to an extent that most towns in the developed world have daily AA or Narcotics Anonymous (NA) meetings and a telephone network service to help with immediate intervention. Part of an individual’s programme is to help others who have willingly joined the fellowship on their own accord. A mode of doing this is through sponsorship; a mutually beneficial relationship in which a
long-term member provides voluntary guidance to a newcomer. Twelve-Step programmes are self-supporting, as one of their traditions is to not lend the AA name to other causes or solicit outside funding. Instead, the fellowship supports itself through voluntary contributions collected during meetings and through the sale of publications providing inspiration, education and information (Straussner, 1993).

2.3.2 The Minnesota Model

The Minnesota Model of addiction treatment is interwoven with the practice and philosophy of AA, and the Minnesota Model has been the dominant model of treatment in the United States for the past 30 years. This model also asserts that alcoholism and addiction are treatable diseases which follow specific aetiologies, symptoms, progression and outcomes (Doweiko, 1996; Fisher & Harrison, 1997; Jung, 1994; Miller & Hester, 1995).

The Minnesota Model is based on two core beliefs for meaningful recovery: persons need complete abstinence from all mood-altering and mind-altering substances, and following the programme provides a holistic improvement of life. The approach is client-centred, maintaining that the resources for recovery lie within the addict, with treatment providing the therapeutic atmosphere and opportunity to discover the potential within the individual. In line with the AA philosophy, addicts seeking treatment need to recognise personal choice and responsibility in all their affairs and are encouraged to develop peer relationships with other recovering addicts (Cook, 1998; Stinchfield & Owen, 1998).

A large proportion of the work in the Minnesota Model of treatment is achieved through the process of group therapy. Counsellors (who are frequently in recovery from their own addictions), as well as members of the peer group are used to clarify definitions of reality and feelings. They also serve the purpose of confronting members who are in denial (Cook, 1998).
The client population in a treatment centre employing this model is homogenous, as all clients have the same disease. All problems relating to addiction are seen to be originally derived from the disease of chemical dependency. The disease is viewed as progressive and is chiefly characterised by a loss of control over the substance and denial of the negative consequences. Although the Minnesota Model has evolved and treatment facilities have added individually tailored aspects to their programmes, the Minnesota Model relies on the principles of the Twelve-Step programme as the pathway to recovery. Clients are expected to attend Twelve-Step groups whilst in treatment and are encouraged to continue attendance for life. In line with the disease concept of addiction, addiction is seen as a family disease and therefore requires family education and treatment where possible (Straussner, 1993).

While the Minnesota Model was developed for the treatment of alcoholism, it soon became the leading paradigm for treating all forms of dependency, despite the reality that little research existed regarding its efficacy with dependencies other than alcohol. The model brought together treatment professionals from a variety of disciplines, including social work, medicine, psychology, counselling and recreation and stressed the need for standardisation of treatment (Doweiko, 1996).

2.3.3 Treatment programme in this research

The treatment programme used for this research is the Self Help Addiction Recovery Programme (S.H.A.R.P). S.H.A.R.P. is a private secondary care in-patient treatment centre for addicted populations in need of extended care after completing a detoxification or primary care treatment. The programme duration extends over 13 weeks, during which time clients are expected to follow the Minnesota Model of treatment. Expectations of the programme include compliance with group therapy, individual therapy, psycho-education, attendance of Alcoholics Anonymous and Narcotics Anonymous meetings
and family therapy participation, where possible. Clients enter the programme on a voluntary basis unless placed there under a committal.

Premature termination of treatment can be voluntary or due to non-compliance with programme expectations. This would include: sexual relations with fellow clients, using substances, absconding, threatening or violent behaviour, and refusal to participate in daily activities.

2.3.4 Medication as an adjunct to addiction treatment

According to Straussner (1993), as the Minnesota Model evolved, specific components were identified and integrated into a continuum of care. Detoxification was distinguished from rehabilitation and treatment was extended into a period of aftercare, during which gradual integration back into the client’s life was supported by the treatment centre. The differentiation of treatment therefore allows for specific stages of management by the different components of the interdisciplinary staff.

Treatment such as the Minnesota Model is abstinence based and is founded on the premise that addiction is the primary disease. This philosophy incorporates the notion that the particular drug or drink is of little importance; it is rather the disease which needs treatment. Dual-diagnosis clients need, therefore, to be treated by informed medical staff who will not prescribe mind-altering and mood-altering substances, but who will treat symptoms accordingly with appropriate medication.

Antidepressants have frequently been used with success to treat comorbid depression in substance abusers (Nunes et al., 1994). There is also evidence that such drugs may help to treat some underlying mechanisms of addiction, particularly in nicotine, alcohol and cocaine dependence. According to Pettenati (2001), antidepressants are administered in alcohol dependence on the basis that serotonin (5-HT) neurotransmitter system is involved in the consumption of alcohol. The link between these two variables has been
demonstrated in neuropathological examination of alcohol-preferring animals and the application of pharmacological probes that affect the 5-HT. In addition to this, dysfunction of the 5-HT system has also been implicated in alcohol disorders.

Antidepressants and dopaminergic agonists have been widely investigated in cocaine dependence (Gawin & Ellinwood, 1988). The use of cocaine produces an increase in the intracellular content of dopamine, serotonin, and norepinephrine levels by blocking the presynaptic reuptake of the substances. Chronic cocaine abuse leads to down-regulation of monoamine systems, craving and depressive symptoms after cocaine use, and may be related to this down-regulation mechanism. Studies suggest that increased monoamine concentrations due to the action of antidepressants could help to alleviate cocaine abstinence symptoms, as well as relieve dysphoria and craving. Many antidepressants have been studied as potential therapeutic drugs for cocaine dependence disorder. Presently, their use has not been sufficiently substantiated (Lima et al., 2003).

In a comprehensive study by Lima et al. (2003), it was found that SSRI antidepressants had little effect in treating cocaine dependence without comorbid depression, yet some results significantly favoured the use of tricyclic antidepressants, particularly Desipramine. The data did, however, favour the use of antidepressants other than SSRI’s in treating alcoholism.

Cocaine dependence has been associated with a high prevalence of mood disorders (Rounsaville et al., 1991), yet few studies assess the efficacy of any antidepressant agent in cocaine-dependent patients with comorbid depression. Cocaine dependence with comorbid depression may have additional features which make it resistant to standard antidepressant treatment. Compared with non-depressed cocaine-dependent patients, those with a comorbid major depression disorder appear to have more overall psychiatric problems, poorer psychosocial functioning, and a higher frequency of personality psychopathology. This combination suggests a poor prognosis for abstinence and treatment retention (Schmitz et al., 2000).
Lima et al., (2003) found the use of antidepressant drugs in the treatment of opioid dependant patients with comorbid depression to be insignificant. In general, the improvement of depressive symptoms did not mean a reduction in drug abuse. The study, therefore, suggested that clients with substance abuse problems and comorbid depression needed both disorders to be treated concomitantly.

2.4 Literature on premature termination

Treatment success has been measured by counting the number of individuals who complete residential programmes (Edwards & Taylor, 1994; Eklunk, Melin, Hiltunen, & Borg, 1994).

Outcome data over time has led researchers to conclude that treatment for chemical dependency does improve a substance abuser’s chances of recovery. In one of the first reviews of treatment outcome, Emrick (1975) found that at follow-up of at least 6 months’ duration, 14% of the no-treatment groups were abstinent, in contrast with 28% of those who were treated. Since this study it has become increasingly important to identify which factors contribute to maximising the efficiency of treatment.

Treatment effectiveness is limited by premature drop-out. This continues to be a widespread problem, increasing the likelihood of relapse, and exacerbating health, financial and legal consequences (Agosti, Nunes & Ocepek-Welikson, 1996; Alterman, McKay, Mulvaney & McLellan, 1996; Brewer, Catalano, Haggerty, Gainey & Flemming, 1998). Although there is more literature on client and programme-related factors predictive of early drop-out, there is a lack of consistency in describing treatment modality. Most literature merely refers to treatment as being long-term residential, out-patient or inpatient. There is also no agreement on whether or not the specific features of a treatment programme improve client retention (Simpson, Joe, Rowan-Szal, & Greener 1995; Sweet & Noones, 1989). What appears to be consistent is that
Retention in treatment is associated with positive treatment outcome, reduced psychosocial problems and greater abstinence, compared to those who drop out prematurely (Baekland & Lundwall, 1975). A recent article published by the US National Institute on Drug Abuse (NIDA, 2005) concurs with these findings more than 30 years previously, stating that treatment is even helpful to those who drop out prematurely, yet the best outcomes are seen by those who complete treatment.

2.4.1 Demographic variables predicting attrition

Research suggests that several client-related variables relate to lack of treatment engagement. Early attrition rates have been shown in clients with current unemployment, a lower level of education, longer drug careers and a higher number of previous treatments (Brower, Blow, Hill & Mudd, 1994; Claus, Kindleberger & Dugan, 2002).

Gender and racial/ethnic factors appear to yield mixed results, with some studies showing poorer retention figures for women and African American clients (McCaul, Svikis & Moore, 2001; Mertens & Weisner, 2000), whereas other studies show no significant differences (Fiorentine, Anglin, Gil-Rivas & Taylor, 1997; McCance-Katz, Carrol & Rousanville, 1999).

In a study of factors associated with immediate drop-out from an out-patient treatment centre in Rio de Janeiro, Camacho and Passos (2000) analysed data from 468 clients. A negative association was found between immediately dropping out (coming only once to the facility) and female gender, being white and clients currently on medication. A positive association was found to exist between clients with a parental death in childhood, a history of mental health in the family and addiction to alcohol combined with the use of other illicit substances.

Vourakis (2005) attempted to draw correlations between drug-dependant adolescents and treatment completion, finding that several pre-treatment
variables affected completion statistics. The major variable associated with completion was **first-time admission** to treatment. (Factors associated with non-completion included: adolescents with a history of fire setting, sex for drugs, or addicted parents.) Contrary to Vourakis’ (2005) findings, Perneger, Mino & Del Rio (1997) found that ‘**veteran junkies**’ or clients with long and severe histories of substance abuse were more likely to stay in treatment for the duration of the programme. The research differences may be due to the fact that this study was conducted at a methadone maintenance clinic where long-term substance abusers may be enrolled in order to obtain methadone.

A study of clients’ pre-treatment and in-treatment revealed that events during the programme are crucial for patient retention (Magura, Nwakeze and Demsky, 1998). This study demonstrated that in-treatment variables are better predictors of retention than pre-treatment variables. Only 2 of 16 pre-treatment variables compared with 5 of 6 in-treatment variables had significant effects on retention in the full multivariate model. The pre-treatment variables associated with retention included age (older clients were better retained) and involvement with the criminal justice system (those not involved with the criminal justice system were better retained).

### 2.4.1.2 Gender

The evidence which follows suggests that alcohol and drug consumption is different in men and women and that their treatment compliance also differs. This has several implications effecting treatment outcomes.

Far more research has been done on the differential effects of alcohol on gender than the effects of drugs. According to Straussner (1985), the way in which women’s bodies handle alcohol and the manner in which alcoholism progresses are significantly different to that of men. Women’s bodies have more fatty tissue and less muscle tissue, allowing them to absorb alcohol faster and become intoxicated more quickly when compared with men of the same body weight.
Within fewer years of drinking and with lower levels of alcohol intake than men, women can suffer from a fatty liver, hepatic cirrhosis, hypertension, anaemia, gastrointestinal haemorrhage and malnutrition. Women are also more likely to experience negative moods. They also are more likely to drink to relieve tension and depression, and have more bouts of solitary drinking than men (Blume, 1988).

Straussner (1993) found that men are more likely to drink in order to be sociable, whereas women’s drinking and especially drug usage is more likely related to self-medication or a means to escape current problems, tension and anxiety.

Studies of women in treatment suggest that women who abuse alcohol or drugs are more likely to come from families with alcohol or psychiatric problems. Such women were usually found to have poor relationships with their mothers and to have exhibited more emotional and behavioural problems as children than had substance-abusing men (Forth-Finegan, 1991).

Women also have a greater tendency than men to abuse prescription medication. Data from Davis (1990) showed that 80% of all amphetamines, 71% of all anti-depressants and 60% of all tranquilisers are prescribed for women. In conjunction with this, drug-related hospital emergencies for men are more likely to be from using street drugs, while women attending to hospital emergencies usually do so because of prescription medication problems.

It appears that men and women have differential responses to substance abuse treatment programmes. Rate of entry into treatment, retention and completion of treatment programmes are significantly lower for women than for men (Blume, 1990; Stevens, Arbiter & Glider, 1989).

A contributing factor for poor treatment response and early drop out may that traditional treatment models have been designed by men and primarily cater for male populations. Such programmes are notorious for using an
aggressively confrontational approach with clients in an effort to break through denial systems – systems common to sociopathic characteristics. Non-compliance to treatment regulations is usually more punitive rather than explorative, and this method appears more suited to male clients. Evidence suggests that males are more likely to respond with denial to their substance abuse, whereas women are more inclined to experience acute shame and guilt in acknowledging their drug use. Confrontational approaches therefore only serve to enhance shame and guilt but could also be counterproductive in the treatment of women (Nelson-Zlupko, Kauffman & Martha Morrison, 1995).

Treatment centres are also traditionally disproportionately staffed by males, and the proportion of males in positions of authority usually far outweighs the representation of women. This allows less chance for women to identify with female role models. This combined with the reliance of most treatment centres on the 12-Step philosophy can hinder women’s self-esteem. AA was developed by alcohol-dependent men and is grounded in patriarchal thinking. Treatment centres can, therefore, discourage self-reliance amongst women (Berenson, 1991).

Women frequently cite child and family responsibilities as major obstacles to entering treatment programmes and frequently leave treatment programmes for similar reasons. It seems that for women from lower socio-economic backgrounds, alternative child / family care is unaffordable, and women who are able to make alternative child care arrangements often face resistance or hostility from family members who rely on women to be available (Nelson-Zlupko, Kauffman & Martha Morrison, 1995).

Men and woman in treatment centres who suffer from dual disorders tend to have differential outcomes. In a study by Compton, Cottler, Jacobs, Ben-Abdallah and Spitznagel (2003), it was found that amongst men, major depression and the number of psychiatric disorders predicted significantly worse treatment responses and more drop-outs. Generalised anxiety disorder in men and anti-social personality disorder, found to be more prevalent in men, tended to predict the worst responses for dual-diagnosed clients.
Amongst women, no psychiatric diagnosis had any significance regarding treatment retention or outcome. It was, however, found that women with phobias had better treatment responses than women without phobias.

### 2.4.2 External factors

NIDA (2005) states that most addiction treatment facilities have high drop-out rates which can be traced back to external factors. Clients associating with friends or family who are actively engaged in criminal activities or drug use are linked with premature drop-out. Similarly, clients pressured by family, friends, the criminal justice system or employment requirements to complete treatment tend to adhere to their treatment requirements.

### 2.4.3 Legal history

A significant proportion of persons arrested for criminal activities also test positive for drug use, a correlation which has become well documented. Crime and drugs appear to frequently contribute to each other (Hohman et al., 2000). The Drug Use Forecasting (DUF) Programme in America found that between 51-83% of men test positive for at least one drug at the time of arrest. The DUF noted that prisoners serving a drug-related sentence more than tripled between 1980 and 1994, estimating that about 74% of the American prison population was in need of treatment for substance dependence (Hohman et al. 2000).

Studies also indicate that inmates who do not participate in or complete substance-abuse programmes are more likely to be rearrested than those who complete treatment (Lang & Belenko, 2000). It has also been noted by Miller (1995) that less criminal involvement is linked to treatment retention.

In the study carried out by Hohman et al. in 2000, the researchers attempted to investigate the characteristics of clients who successfully complete post-incarceration substance-abuse treatment programmes. Several variables from
the sample contrasted with variables typically associated with premature termination of treatment in non-prisoner samples. These included race, marital status, education and drug of choice.

In accordance with non-prisoner samples, prisoners who remained in treatment the longest had a higher likelihood of programme completion. The type of programme they engaged with did, nevertheless, not have an impact on the outcome. Inmates who had fewer prior treatment experiences (‘debutants’) were also more likely to complete their respective programmes. Abstinence 30 days prior to the treatment programmes was also related to better treatment retention (Hohman et al. 2000).

In a study assessing 150 felony drug offenders diverted from prison to a community-based residential drug treatment alternative to prison programme, Lang and Belenko (2000) used intake data to predict retention variables. Logistic regression results found that completers had more social conformity and close friends, less drug convictions, less unprotected sex and a more stable employment history. Clients who completed programmes were more likely to have no psychiatric history, but were likely to report a higher alcohol consumption history than counterparts.

### 2.4.4 Psycho-social variables

Psychological and attitudinal variables, such as lower perception of treatment benefits, avoidance coping and poor social support, have also been shown to relate to low levels of treatment retention (Fiorentine, Nakashima & Anglin, 1999).

Bell (2002) identifies necessary factors in pre-treatment in order to promote treatment retention and in most instances a meaningful recovery thereafter. Her findings seem to link with the original disease model of alcoholism first proposed by Jellenik in 1960. According to Bell, pre-treatment is the initial stage of recovery and may last for several years. It is during this stage that
individuals begin to acknowledge the consequences of their drug abuse and struggle with the issue of controlling their usage. During this stage, addicts begin to accept the fact that lifestyle changes will have to accompany abstinence. The pre-treatment phase consists of a series of tasks which necessitate moving to the next phase of recovery, an appropriate treatment centre. Pre-treatment tasks include:

- developing a history of problems related to addiction
- recognising a pattern of addiction-related problems
- attempting to control the use of substances
- attempting abstinence without help
- experiencing a motivational crisis, and
- agreeing to enter a treatment programme.

Examples of similar phases of addiction prior to treatment can be found in the basic text of Alcoholics Anonymous (1955).

### 2.4.4.1 Personality disorders

It is a well-established fact that clients suffering from dual psychiatric diagnoses are difficult to treat. Such patients are expensive to treat and they are relapse-prone. They are also more prone to relapse due to under-diagnosis, misdiagnosis and over-diagnosis. Surveys of relapse-prone chemical dependency clients show that 85% of them have a co-existing personality disorder or other mental disorder (Gorski, 1994).

Co-morbidity of substance abuse and personality disorders is significant both because of their frequency and impact. In some cases, the personality disorder precedes the abuse of substances and in other cases, the abuse of substances reinforces the personality disorder. In either case the course of the substance abuse and subsequent treatment outcomes are affected (Skinstad & Swain, 2001).
Apart from increasing a person’s vulnerability to substance abuse, personality disorders are shown to predispose individuals to develop chemical dependency at a younger age. Such individuals have a poorer prognosis in general; they are more likely to attempt suicide and are more prone to dropping out of treatment entirely (Nace, 1990). According to Nace, the rate of personality disorders among chemically dependant persons seeking treatment is about 50% whereas others (Carrol, 1990) have noted a rate of up to 79%. Twelve-Step programmes such as AA and NA appear to make provision for persons with such disorders. Steps Four, Six and Ten directly address the concept of changing ‘defects of character’ (Daley, Moss & Campbell, 1993).

2.4.4.1.1 Anti-social personality disorder

According to Hesselbrock, Meyer and Keener (1985), antisocial personality disorder appears to be the most common coexisting personality disorder for people with chemical dependency. Their studies suggest that up to 40% of the chemically dependant meet the criteria for antisocial personality disorder and conversely, 83% of individuals with antisocial personality disorder meet the criteria for chemical dependence. Hesselbrock et al. (1985) also note that persons with such a personality disorder are more likely to enter treatment only when they can thereby meet their own needs, or are forced into treatment by the legal system.

Daley, Moss and Campbell (1993), state that antisocial-personality-disordered people seeking treatment are typically in treatment to postpone legal procedures, strengthen their defence in criminal cases, or in instances where they have a co-occurrence of depression. With this in mind, such persons would be likely to adhere to treatment expectancies and complete relevant treatment programmes as they would serve an ulterior motive.

In a recent study of 13 different treatment centres in Europe, Ravndal, Vaglum and Lauritzen (2005) found the presence of antisocial personality disorder to be negatively associated with completion. Research followed a consecutive sample of more than 300 clients from admission to completion or drop-out.
Although all treatment centres were in-patient settings, their modalities and duration of stay varied. From the study the presence of personality disorder consistently predicted treatment drop-out. The most frequently occurring personality disorder was antisocial personality disorder.

In a study carried out to determine attrition rates from the client’s point of view, focusing on staff and programme functioning, few of the commonly reported demographic risk factors related to subjective reasons for drop-out. The study did, however, reveal that the presence of personality pathology showed consistent associations. Anti-social, histrionic, borderline and narcissistic symptoms and related maladaptive traits were strongly linked to programme expectations and staff conflicts. The study further highlights the influence that personality pathology has on treatment retention (Ball, Carroll, Canning-Ball & Rounsaville, 2005).

2.4.4.1.2 Borderline personality disorder

Individuals with borderline personalities are highly prone to difficulties in managing their feelings and impulses. These problems, together with feelings of imminent abandonment, can lead to substance abuse. Despite the prominent co-morbidity of substance abuse, borderline individuals tend to have differing substance abuse patterns. Their abuse of substances appears to be intermittent and even absent when they are enacting other compulsive behaviours such as eating, gambling or love relationships (Evans & Sullivan, 1990). This suggests that the borderline person may be more prone to addictive / compulsive behaviour in general and that substance abuse may merely be a component of this behaviour.

Research suggests that the borderline individual who abuses substances is frequently mismanaged. Mental health practitioners tend to overlook the person’s use of substances, as it is seen as a form of self-medication for underlying personality deficits. Substance abuse treatment staff, on the other hand, often ignore the personality problems as their focus is on the substance abuse (Straussner, 1993).
According to Straussner (1993), borderline persons, therefore, find it difficult to maintain a stable sobriety, or they resort to other dysfunctional behaviours in order to cope with their feelings. For the most part, borderline individuals constitute a high proportion of treatment failures. They struggle to cope without the assistance drugs provide by removing them from their feelings. They abscond from rehabilitation centres, or their erratic behaviour is seen as non-compliance and results in premature discharge. Contrary to such findings, Straussner (1993) also notes that borderline people may function better when they are in structured treatment settings. Straussner (1993) also cites the lack of stress usually experienced by the borderline through structured daily responsibilities and the absence of interpersonal closeness as helping the client to function better.

It appears that the complexities and contributing elements of a borderline person are more likely to lead to premature termination or discharge from substance abuse treatment centres. Their primitive defences, poor impulse control and low level of anxiety tolerance are likely to result in a decision to remove themselves from trying environments such as treatment centres. In addition to this, the traits of borderline personality disorder – namely negative affect, anxiety and low levels of self-worth – are all components that accounting for poor adherence to treatment.

2.4.4.2 Anxiety and mood disorders

Research examining the relationship of psychiatric disorders to drug treatment outcome appears to consistently find a negative association between depression and treatment retention. Depressive disorders can occur concurrently with substance abuse, they interact with each other, and both exacerbate the symptoms of the other disorder (Rounsaville et al., 1987).

Compton, Cottler, Jacobs, Ben-Abdallah and Spitznagel (2003) found that the negative correlation between depression and treatment outcome is, however, gender specific. Men with comorbid depression were shown to have worse
outcomes, whereas women with depression tended towards treatment retention and better abstinence rates (Compton et al. 2003).

Abstinence is typically the standard goal in substance abuse treatment, and many treatment centres discharge clients prematurely if they resort to using a substance. Abstinence is, therefore, a common indicator of programme adherence and retention. According to Dodge, Sindelar and Sinah (2005), depressive symptoms significantly increase the likelihood of clients using substances before programme completion and, therefore, predict poor retention status. In their study of 827 subjects in an outpatient treatment facility over the period of a year, they determined that clients with depressive symptoms were 20% more likely not to be abstinent at the time of discharge. These results remained stable even after controlling for other demographic and treatment variables. The magnitude of this effect remained essentially unchanged despite several different sensitivity analyses.

Although depression is frequently associated with poor treatment retention, there are also instances where early drop-out patients appear to not be influenced by depressive symptoms. While studying the effect of anxiety and depression on completion status of a substance abuse detoxification programme, Araujo et al. (1996) found that of the 148 patients studied, 66% of the population completed the programme whereas 34% terminated prematurely. The entire studied population was subject to validated anxiety and depression rating scales and results detected no noticeable differences between the two groups.

Patients suffering from anxiety disorders without depression adhere better to treatment programmes (Gillmore, Lash, Foster & Blosser, 2001). This implies that the presence of anxiety might serve as a motivation to complete treatment.
2.4.4.3 Sexual abuse

Research findings from the past two decades indicate that many chemical-dependant women are survivors of childhood sexual abuse (Hurley, 1991; Orrok, 1992). The authors also acknowledge that survivors of sexual abuse are also more likely to seek help for the consequences of abuse, i.e. depression and substance abuse, rather than for the abuse itself. In addition to this, women survivors are not likely to relate current problems to the abuse and frequently recall their experiences as not being abusive.

Studies focusing on sexual abuse by male perpetrators on female victims show that alcohol is involved. According to Simmons et al. (1996), over half the men involved in incest abuse used alcohol and up to a third of incestuous fathers drank excessively. Up to 50% of male molesters furthermore had histories of drinking.

Finkelhor (1986) stated that a precondition for a perpetrator to commit sexual abuse was the overcoming of internal inhibitions. Although alcohol cannot be explained as the cause of sexual molestation, it appears to be a contributing factor. “Disinhibition, may at best be seen not as a sufficient, but a necessary condition for abuse to occur” (Finkelhor, 1986, p.114). Alcohol may have a particular social meaning, or act directly as a physiological disinhibitor, thus allowing a perpetrator to carry out sexual abuse. According to Simmons, Sack and Miller (1996), the use of alcohol by male perpetrators leads women survivors to associate sexual contact with alcohol use. This association can lead them to use substances to reduce their own sexual inhibitions. Sexual perpetrators are often a source of emotional support, a feature which can lead the abuse survivor to turn to alcohol in order to have nurturance needs met.

The safety of sexual abuse survivors often depends on their ability to emotionally interpret the behaviours of others and attempt to control their behaviour. In an attempt to control others and their situations, sexual abuse survivors may resort to substances in order to control themselves and the environment and avoid interpersonal closeness (Simmons et al.1996).
Substance use may initially be an important coping mechanism for abuse survivors as it allows for disassociation from people and feelings. Substance abuse can, nevertheless, lead to a worsening of the problems which it is attempting to mask.

Sexual abuse survivors need a supportive and safe environment in order to talk about and understand the effects of their abuse. The treatment of the substance-abusing person who is a survivor of sexual abuse can be difficult due to the interrelation of the two components. Traditional substance abuse treatment primarily focuses on abstinence from substances and focuses on accompanying factors thereafter (Simmons et al. 1996). Due to the fact that substance usage provides a protective mechanism from feelings attached to the abuse, abstinence from substances can escalate difficult feelings and result in relapse or premature termination of treatment.

According to Bradshaw (1988), the Twelve Steps can effectively treat addicts, yet should be elaborated and modified when treating addicts who are also survivors of sexual abuse.

Two major components of the twelve step programme are powerlessness and a Power greater than oneself. Powerlessness is something the victim learns from the abuse they experienced, resulting in increased vulnerability. It is therefore critical that such persons are able to differentiate between powerlessness over their addiction and powerlessness associated with their sexual abuse. The Twelve-Step programme requires people in recovery to turn their will over to a Higher Power, a notion which they have historically struggled with due to the abuse of the perpetrator. For sexual abuse survivors attempting to control their environments and protect themselves, relinquishing their internal power can possibly render them completely vulnerable (Simmons et al. 1996).

The strong paternal influence of the Twelve-Step programme and the requirements for working through such a programme can possibly increase a client’s risk for absconding from treatment if the programme is not interpreted
with caution. It also appears that the removal of coping mechanisms can make the client in substance abuse treatment more fragile.

2.4.4.4 Relationship status and social support

Once again the literature reports contradictory results in terms of the relationship between treatment retention and social support. On the one hand, Kelly and Moos (2003) report that lack of significant social support predicts poor treatment retention, whereas the presence of a supportive social environment prevents premature drop-out (Kelly & Moos, 2003, p.241; King et al. 2004, p.190). Kelly et al. (2003) furthermore indicate that being single relates to treatment attrition. Brown et al., (2001) on the other hand, found that social support does not meaningfully influence treatment retention.

2.4.4.5 Religiosity

Once again mixed and contradictory results have been obtained by various researchers. Brown et al. (2001), for example failed to find a link between religiosity and treatment adherence, whereas Kelly and Moos (2003) report that strong religiousness does relate to treatment adherence.

2.4.5 Patterns and intensity of substance abuse

The literature concerning the relationship between the patterns and intensity of the substance abuse and treatment adherence reports mixed results. In this regard Brown, O'Grady, Farell, Flechner and Nurco (2001) found that addiction to cocaine, a long history of substance abuse and a greater number of previous treatments relate to non-adherence (Brown et al. 2001). Agosti, Nunes and Ocepeck-Welikson (1996) obtained similar findings showing that intravenous or freebase cocaine users tend to have a high drop-out rate.

Brown et al. (2001), however, found that patients with a long history of serious drug abuse more regularly attended 12-Step treatment programmes. This
study also showed that serious long-term abusers of cocaine, heroin and other opiates tend to adhere better to treatment,

The number of years of heroin abuse has a negative effect on treatment completion for first-time rehabilitation patients (Ravndal, Vaglum & Lauritzen, 2005). Copeland and Hall (1992) reported similar findings by stating that women who nominate heroin as their drug of choice tend to drop out of rehabilitation programmes.

Poly-substance abusers have lower adherence to after-care treatment and also have the poorest prognosis (Sannibale Hurkett, van den Bossche, O’Connor, Zador, Capus, Gregory & McKenzie, 2003, p.187).

Patterns of alcohol abuse, lastly, also yield contradictory results. In this regard some studies showed that onset of alcohol abuse at an early age predicts poor treatment adherence (Brown et al., 2001). Brown et al., however, found that the early onset of alcohol abuse does not accurately predict treatment drop-out.

### 2.4.6 Treatment modality

Research consistently shows that longer-term treatment in an institutional setting relates better to programme adherence. The drop-out rate is, furthermore, higher in outpatient programmes than in in-house treatment programmes (Claus & Kindleberger, 2002)

### 2.5 Summary and conclusion

It is clear from this chapter that addiction is not merely dependence on a substance, but rather a condition affecting many components of the addict’s life and the lives of those around them. The numerous theories which attempt to explain the condition illustrate the complexities and duplicitous nature of addiction.
The literature accounts for a sound model of treatment which continues to benefit persons suffering from addiction despite generally poor success rates for those seeking treatment. The treatment modality, namely the Twelve Steps, highlights the need for spiritual meaning and daily commitment in order to sustain a life of recovery.

Although information pertaining to variables affecting treatment retention is largely contradictory, the literature review once again illustrates the variety of factors which influence the individual’s treatment process.

These factors, as they pertain to the study, will be investigated in the next chapter.