

**Young adults in drug treatment: The function of  
substance use to alleviate anxiety and depression**

**Thesis submitted for the degree of  
Doctorate in Clinical Psychology  
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Critical appraisal	4207	(references 131)

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# **Abstract**

**Young adults in drug treatment: The function of substance use to alleviate anxiety and depression.**

Catherine Blair

## **Section 1- Literature review**

Young adults in drug treatment have predominantly been heroin users, many with mental health problems. (1) Young adulthood is a distinct developmental period. It encompasses transitions to adulthood that are now more difficult to negotiate than in the past and may be disrupted by dependent heroin use; (2) Mental health problems are common amongst those in drug treatment but few studies report separate young adult results; (3) Models including the use of drugs to regulate uncomfortable mood states are reviewed as possible explanations for the relationship between substance misuse and mental health problems. In conclusion, more research is needed on the effect of substance misuse on the transition to adulthood and the relevance of self-regulation of affect to young adults in drug treatment.

## **Section 2- Research report**

Relationships were explored between mental health problems and perceived functions for using heroin, crack cocaine, alcohol and cannabis. Participants were fifty-one young adults in drug treatment aged 16-25 years, 96% were opiate users.

Questionnaire measures included: Substance use history; negative mood functions/social functions of past year use of heroin, crack cocaine, alcohol and cannabis; Hospital Anxiety and Depression Scale. Clinically significant mental health problems were common (anxiety 47%; depression 24%). Heroin was most often taken to block out negative mood states and such use showed a statistically significant relationship with anxiety and depression. Use of alcohol to alleviate negative mood showed a significant relationship with anxiety but not depression. These relationships were primarily explained by the pharmacological effects of each substance, with heroin particularly effective at reducing awareness of uncomfortable mood states. Drug treatment interventions therefore need to address young adult mental health problems and the relationships between mental health and functions of use.

## **Section 3– Critical Appraisal**

Reflections on the process of conducting the literature review and research report.

## **Section 1 – Literature review**

**Mental health problems in young adult drug treatment:**

**The role of self-regulation of affect.**

## Abstract

Young adults in drug treatment have predominantly been heroin users, often presenting with comorbid mental health problems: The needs of this group have traditionally been poorly understood and services ill equipped to respond to needs. **Method:** Literature searches were conducted in several databases, followed by a hand search. Relevant papers were critically reviewed. **Findings:** (1) The transition from adolescence to adulthood is now longer and more difficult to negotiate than it was in the past and young adulthood has been demonstrated to be a distinct developmental period. This is relevant to substance misuse, where dependent heroin use may disrupt transitions into adulthood. (2) Mental health problems are common amongst those in drug treatment, particularly anxiety and depression, with psychotic symptoms and personality disorder also found. Few studies report separate young adult results. (3) The relationship between substance misuse and mental health problems can be explained by the use of substances to regulate uncomfortable mood states. The self medication hypothesis is the best known theory, but others have been more recently explored amongst UK young adult drug users. Self-regulation of affect fits with relapse prevention models and seems pertinent to young adults in drug treatment, but research has not sampled UK drug treatment populations. **Conclusions:** Many young adults in drug treatment have additional mental health problems, with numerous clinical implications. More research is needed to explore the influence of substance misuse on the transition to adulthood and investigate the relevance of self-regulation of affect to young adults in drug treatment.



# 1 Introduction

Alcohol and drug use have increased steadily over recent years (Health Advisory Service/HAS, 2001) and young adulthood is the phase in which substance use is most prevalent (Cohen et al., 1993). Of all drug users, only some will go on to experience problems and of all problematic users, only a minority access drug services (Beynon et al., 2001; Hickman et al., 2004). Amongst those who do access UK drug treatment, problems with heroin usually prompt referral (Home Office, 2002) and are often accompanied by additional mental health problems (Marsden et al., 2000). Substance misuse and mental health problems have typically been treated within separate services and those experiencing both problems have often fallen into gaps between services (Department of Health/DH, 2002).

Research has generally sampled either adolescents or adults, rarely focussing on young adults as they make the transition from adolescence to adulthood (16-25 years). However it has been demonstrated that through recent UK social and welfare changes, young adulthood is now a particularly challenging and complex period as transitions are made into adult roles (Jones, 2002; Morrow & Richards, 1996). It has also been shown that during this transition, only some young adults experience problems that significantly affect their life trajectory (Rutter, 1996). There is limited evidence to suggest that substance misuse can have a significant negative impact at this time (MacDonald & Marsh, 2002).

It has been shown that young adults are less likely to engage in mental health treatment than older service users (Richards & Vostanis, 2002; Willis, 2005) and have fallen into gaps between child and adult services (Mental Health Foundation, 1999). It has now been suggested that separate drug services should be commissioned for 16 to 21 year olds (National Treatment Agency/NTA, 2002) or young adults be responded

to differently within a range of services (DH, 2002, 2004; NTA, 2002, 2005). There remains however a paucity of evidence on the mental health and other needs of young adult problem drug users on which to base service developments.

One explanation of the causal relationship between mental health problems and substance misuse is that substances are used for self-regulation of difficult emotions. A popular theory has been that drugs can ‘self-medicate’ against painful emotions that cannot be regulated in other ways (Khantzian, 1997). When adolescents attribute their substance use to self-regulation of mood, this is associated with greater levels of use (Johnston & O'Malley, 1986; Kandel & Raveis, 1989) and can become the main method of self-regulating emotions (Labouvie, 1986). This is advanced in recent UK research showing that substance use to relieve psychological distress is a particular predictor of problem drug use in young adults (Boys & Marsden, 2003b). Models of preventing relapse amongst alcohol and drug users (Marlatt & Gordon, 1985) further stress the role of substance misuse in regulating negative emotions, incorporating this into clinical interventions.

The current review summarises what is known about young adults and the mental health needs of those young adults who access UK drug treatment services. Emotional regulation theories are also reviewed, as a means of understanding the relationship between mental health problems and young adult substance misuse.

## 1.1 Search strategy

Literature searches were conducted<sup>1</sup> in PsychINFO, IBSS, Web of Science and Drugscope databases using combinations of the key words *adolescen\**, *young adult\**, *substance or drug use, misuse, abuse or dependency, addiction, psychopathology, mental health, comorbidity, dual diagnosis, transition\*, function\**. The World Wide Web was searched for related materials, from young people, drug and health organisations. Finally, references from identified papers were examined for the purpose of yielding additional articles.

In keeping with the focus of this review, priority was given to research regarding mental health problems in substance misuse service users (not drug use by mental health service users). Findings from research participants aged from 16 to 25 years (henceforth referred to as young adults) were prioritised. To retain this focus, papers exploring interpersonal, environmental and longitudinal influences on substance misuse and psychological well-being were not included. This meant the omission of important debates such as the influence of gender, ethnicity, culture, family, peers, and risk and resilience factors, but was necessary given constraints of space.

Internationally, approaches to drug policy, research and healthcare have differed widely. It has been suggested that UK substance misuse research findings should be prioritised over research from other countries (HAS, 2001), to account for national differences. For example the USA focus has been on a disease and abstinence model (predominated by Narcotics Anonymous) whereas UK approaches have emphasised interventions to minimise harm or gain control of substance use (Gilvarry, 2000). Consequently the present review focussed on UK literature where possible.

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<sup>1</sup> Literature searches carried out between July 2003 and May 2005.

## **1.2 Defining substance misuse**

Definitions of drug use have tended to reflect cultural tolerance of substances and beliefs about underlying cause. For example in the USA, the term ‘abuse’ has been largely favoured over ‘use’, reflecting the view that *any* drug use constitutes abuse (HAS, 2001). Much research has used Diagnostic and Statistical Manual/DSM criteria (American Psychiatric Association, 1994) to define the primary substance use disorders of ‘dependence’ and ‘abuse’. The DSM criteria refer to elevated use between 18-24 years but without providing separate criteria for young adults. Such universal application of diagnostic criteria has been criticised, given that validity has not been established for younger populations (Gilvarry, 2000). DSM criteria can also be criticised for focussing on physiological and behavioural aspects of substance misuse, with little mention of subjective psychological aspects of substance misuse such as feelings of compulsion or cravings.

The current review uses the term ‘substance misuse’ to encompass drug and alcohol use that causes social, psychological, physical or legal harm to the individual (HAS, 2001; NTA, 2002). The focus is on substance misusers who present to treatment services, the majority of whom are dependent heroin users (Home Office, 2002).

## **1.3 Defining mental health**

In line with the National Service Framework for Children and Young People (DH, 2004), mental health *problems* are defined here as difficulties in personal relationships, psychological development, the experience of distress and maladaptive behaviour. Mental health *disorders* are classed as persistent and severe problems that fulfil diagnostic criteria whereas mental or psychiatric *illness* describes very severe



cases such as psychotic disorders. The present review focuses on mental health *problems* and *disorders*, which affect the largest group of young adults (DH, 2004).

## **2 The transition from adolescence to adulthood**

### ***2.1 The artificial boundary that divides adolescence and adulthood***

Research studies and clinical service provision have historically been divided between child and adult populations (Weisz & Hawley, 2002). The use of age as a variable has been criticised because it reflects biological maturation and life experiences, both of which contain a considerable range amongst people of any given age (Rutter, 1989). Categorising by age also emphasises differences (Reder et al., 2000) rather than the inevitable continuity of the life course and context (Jones, 2002). Access to health services has commonly been determined by reaching the age of 16 or 18 years, rather than developmental or contextual factors (Morrow et al., 1996) or individual needs (HAS, 2001).

### ***2.2 Young adulthood – the transition from adolescence to adulthood***

Young adulthood (16-25 years) is a time of rapid biological, cognitive, emotional, identity and social changes, as transitions are made into adult life (McClure, 2000). It is a life-stage defined by its heterogeneity (Arnett, 2000) where each individual is likely to encompass aspects of both adolescent and adult functioning at any one time.



Consequently, young adults have been identified as developmentally distinct from both adolescents and adults (Arnett, 2000; Nurmi, 1993; Rutter, 1996).

Theories of lifespan development have included interplay between the individual and wider society. For example a prolonged adolescence is typical of industrialised societies, allowing experimentation with different roles in society (Erikson, 1968). Reviews of social policy, sociological and psychological research (Morrow et al., 1996) and of 24 UK studies commissioned by the Joseph Rowntree Foundation (Jones, 2002) demonstrated that social, education and welfare changes during the last 20 years have resulted in increasingly complex transitions to adult independence. Young adults were more likely than at any other age to experience numerous changes in their social circumstances, relationships, housing, education and employment (Jones, 2002). Nonetheless only a small proportion of young adults have struggled to negotiate the transition from adolescence to adulthood (Jones, 2002; Morrow et al., 1996) or shown significantly altered experience or behaviour during young adulthood (Rutter, 1996).

It has been speculated that young adults may use substances in response to their problems in managing the uncertainties of their transitions to adulthood (Ward, 1998). MacDonald and Marsh (2002) explored the possibility that substance misuse had a negative impact on young adult transitions in a deprived area of Teeside. Over one year they interviewed 40 professionals, undertook participant observation (in youth clubs, 'on the street') and qualitative interviews (N =77) with a diverse sample of 15-25 year old drug users (young offenders, single parents, drug service clients, students). MacDonald and Marsh (2002) concluded that amongst dependent drug users (n=11), heroin played a central role in problematic transitions. It impacted on housing, family relationships and criminal behaviour, increasingly excluding heroin users from mainstream opportunities. The authors omitted the specifics of data

collection, reflexivity and data analysis, so the validity of their conclusions remains uncertain. Nonetheless they were unique in studying the transitions of heroin users and their findings fit with other research, as discussed below.

Within the National Drugs Strategy for England and Wales it was noted that problem drug users struggle to take advantage of educational opportunities or gain fulfilling employment, often damaging their life chances (Home Office, 2002). Detachment in young adulthood from conventional institutions, such as education and employment, has been shown to predict continued drug use (Kandel & Raveis, 1989). When combined, a circular process could occur, whereby drug use increases exclusion and exclusion maintains drug use. In sum, there is limited evidence about problematic drug use and the transition to adulthood, but initial findings suggest that they do impact negatively upon each other.

### **3 Substance misuse in young adulthood**

#### ***3.1 Substance misuse amongst young adults***

Adolescent and young adult substance use has increased steadily over recent years in the UK (HAS, 2001). It has been suggested that the majority of young people now consider some use of drugs and alcohol to be ‘normal’ exploratory risk-taking behaviour (Parker et al., 1998). Of all young people who take substances, certain groups have been found to be more likely to experience problematic or dependent use: those who are out of school, runaways, in Local Authority care, the homeless, young offenders, sex workers, those whose families misuse drugs or alcohol and those with mental health problems or disruptive behaviour disorders (Lloyd, 1998). Young adulthood encompasses the time during which substance use is most prevalent (Cohen

et al., 1993) and which it begins to decline, as adult roles are assumed and risk-taking and experimentation decrease (Kandel & Raveis, 1989).

The extent of UK young adult substance misuse can be estimated from various sources. Capture-recapture methods have been used (in the North West of England, Beynon et al., 2001) to calculate the number of problematic drug users, including those accessing drug services and also those reported by other sources (e.g. criminal justice) as using heroin, methadone, crack or cocaine. It was estimated that 1.9-3.3% of 15-24 year olds were problem users of heroin, methadone, crack or cocaine (Beynon et al., 2001).

Another capture-recapture study (Hickman et al., 2004) estimated injecting drug use in London, Brighton and Liverpool by taking data from five sources and matching it to avoid duplication. Of the total sample, 39% were aged 15-29 years. Estimated prevalence of injecting drug use was consistently lower amongst this group (e.g. estimated prevalence in Brighton was 1.4% in 15-29 year olds, 3.9% in 30-44 year olds). Hickman and colleagues (2004) concluded that between 1.3-2% of 15-44 year olds in each of the three cities was an injecting drug user, giving a plausible account of the credibility of their estimates (Hickman et al., 2004). A Scottish investigation found that 24% (N=80) of drug-related deaths in 2000/2001 were of people aged under 25 (Bird et al., 2003). Taken together, these studies suggest that injecting drug use may be less prevalent amongst young adults than those aged over 30 years but is still practised by a significant number of young adults, resulting in death for some.

### **3.2 UK substance misuse services**

Studies have estimated that just 21% of 15-24 year old problem drug users (Beynon et al., 2001) and 20% of 15-44 year old injecting drug users (Hickman et al., 2004) are

in treatment at any one time. Despite this, in 2000/1, 16,000 16-24 year olds received support for drug problems in the UK, 4,200 of these from specialist drug treatment services (Home Office, 2002). Heroin has been the main drug of use by those (of any age) accessing UK substance misuse services (Home Office, 2002). Most heroin users also regularly use several additional substances, largely stimulants (amphetamines, cocaine and crack cocaine), tranquillisers and alcohol (Gossop et al., 1998). The use of heroin together with crack cocaine has become increasingly common (NTA, 2002).

Drug and alcohol treatment in the UK has largely been based on the belief that people can make choices and have control over their use of substances (Gilvarry, 2000). This is reflected in a hierarchy of treatment goals, including reducing the harm associated with drug use (e.g. substitute prescribing), attaining non-problematic drug use, abstinence from main problem drug or abstinence from all drugs (NTA, 2002). A four tier approach has been taken to service commissioning for under 18s (HAS, 2001; NTA, 2005) and those aged over 18 years (NTA, 2002).

Commissioning frameworks in England and Wales suggested that Tier 1 services should encompass the work of generic services (e.g. primary care, social workers) who work with a range of clients including drug misusers and may either refer to specialist substance misuse services or work alongside them (HAS, 2001; NTA, 2002). For under 18 year olds, Tier 2 interventions include counselling, educational assessment and activities to address offending and support families (HAS, 2001). For adults, Tier 2 encompasses accessible specialist drug services with a low threshold for access such as drug advice, information and support, needle exchange and other interventions to reduce harm, requiring competent drug and alcohol specialist workers (NTA, 2002). For all ages, Tier 3 contains specialist drug and alcohol services (such as NHS Community Drug Teams) who work closely with other agencies, particularly regarding clients with additional mental health problems. Adult services offer



therapeutic interventions (e.g. motivational interventions) and prescribing (e.g. Methadone maintenance; NTA, 2002). The fourth tier of commissioned services contains inpatient or residential services for those presenting with high levels of need, only available to a small minority of those presenting to substance misuse services (HAS, 2001; NTA, 2002).

Guidelines for services for those aged under 18 (HAS, 2001; NTA, 2005) particularly emphasise the need for co-ordinated interventions from multiple agencies, including support for families. All three documents state a need to commission 'interface' services for 16-21 year olds or for transitional care plans to support young adults in the transition from adolescent to adult services (HAS, 2001; NTA, 2002, 2005).

### ***3.3 The provision of services for young adult substance misusers with mental health problems***

Young adults have found it difficult to access mental health services when they need them (Mental Health Foundation, 1999) and to move from adolescent to adult services for their mental health and substance misuse needs (DH, 2004; HAS, 2001; Richards et al., 2002). When referred to mental health services, young adults are significantly less likely than those over 26 to opt in to treatment, attend first and subsequent appointments and have a planned discharge (Willis, 2005; based on 1310 referrals to a clinical psychology department). A qualitative study of professionals (Richards et al., 2002) also identified a belief that young adults were difficult to engage in treatment and likely to lose contact with services.

Young adult drug users with comorbid mental health problems have been found to have particular unmet needs. For example, young adults have been excluded from



mental health services as a consequence of disclosing substance misuse (Richards et al., 2002). Those with complex needs have also been particularly likely to traverse the boundaries of a variety of uncoordinated agencies (Richards et al., 2002) and coherent, continuous care has been rare (DH, 2002).

UK national policies have highlighted unmet needs during the transition to adulthood, amongst substance misuse (HAS, 2001; NTA, 2002, 2005), dual diagnosis<sup>2</sup> (DH, 2002) and mental health services (DH, 2004). Guidelines have stressed a need for increased collaborative work across services, to respond to concurrent substance misuse and mental health problems (DH, 2002, 2004; NTA, 2002). Despite these national recommendations, there remains a paucity of research to inform the provision of such clinical services.

## **4 Mental health problems amongst young adult substance misusers**

### ***4.1 Comorbidity or dual diagnosis***

Comorbidity describes the co-occurrence of two or more distinct disorders, concurrently or over time. High levels of comorbidity are consistently found between psychiatric diagnoses, usually identified by DSM criteria (American Psychiatric Association, 1994). Young adults (15 to 24 years) have been found to have a greater risk of meeting multiple psychiatric diagnostic criteria than any other age group (Kessler et al., 1994). ‘Dual diagnosis’ has been used in reference to comorbidity between substance misuse and mental health problems. Concurrent substance misuse

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<sup>2</sup> The Department of Health Dual Diagnosis Good Practice Guide (2002) relates to the provision of services to people with severe mental health problems and problematic substance misuse.

and mental health problems lead to a notoriously poor prognosis, prompting national guidance on their treatment (DH, 2002).

DSM criteria assume that psychiatric disorders are separate entities. Critics have doubted the validity of this assumption, suggesting that categorical systems may artificially divide conditions that are on the same continuum (Nathan & Langenbucher, 1999), have a generic base or derive from the same or correlated risk factors (Rutter, 1997). Comorbidity between substance misuse and mental health problems can be particularly hard to identify because some of the effects of substance misuse resemble psychiatric symptoms. Substance misuse is also a criterion within other diagnoses, such as personality disorder (American Psychiatric Association, 1994). Furthermore, substance misuse criteria developed for adults are applied universally, with little account of the heterogeneous nature of young people's substance misuse (Gilvarry, 2000). Despite these concerns, DSM categories continue to be widely used, enabling comparisons between samples, but based on assumptions that some doubt to be valid.

## ***4.2 Mental health problems amongst substance misuse service users***

Mental health problems elevate the risk of substance misuse amongst young people (Lloyd, 1998) and there is consistent evidence that substance misuse is associated with high levels of additional mental health problems in adolescents (Boys et al., 2003a) and adults (Marsden et al., 2000). Research that investigates the temporal order of mental health and substance use problems have tended to use community samples, of whom only a tiny minority have been defined as having drug problems and an even smaller minority have accessed substance misuse services. The current

review focuses on evidence from clinical populations. Such research does not demonstrate causality between mental health and substance use problems, instead providing a snapshot of current clinical need. To date, no UK studies have specifically investigated young adult substance misuse service users.

UK studies of mental health problems amongst those in drug treatment have sampled adult populations who are predominantly heroin users. All these studies have encompassed young adults but none report separate results by age, preventing firm conclusions about young adult needs. Weaver and colleagues (2001) did however report no difference in prevalence of psychiatric diagnoses by age. Consequently the results of UK studies of mental health problems amongst adults in drug treatment are presented here as a possible indicator of the level of problems amongst young adults in drug treatment.

Clinical intake data from the National Treatment Outcome Study (NTORS) assessed the mental health needs of adults (16-58 years, N=1075), 90% of whom were opiate dependent (Marsden et al., 2000). Self-reported rates for women and men were as follows: anxiety (32.3%, 17.5%); depression (29.7%, 14.9%); paranoia (26.9%, 17.1%); psychoticism (33.3%, 19.6%). The authors hypothesised that high levels may partly have been a consequence of using intake data, citing another study where almost all depressive symptoms had reduced within the first week of methadone treatment (Marsden et al., 2000). UK studies that have sampled all current caseloads have, however, found similarly high levels of psychiatric symptoms. Weaver et al. (2001) estimated the needs of clients in statutory substance misuse services, using a caseload census that captured 98% of current cases (N = 1273). Young adult data was not reported separately but the authors reported no significant difference in the prevalence of mental health problems by age (range 17-86). Caseworkers reported that formal psychiatric diagnoses had most commonly been made of depression and



anxiety (23.9%), followed by psychotic disorders (5.7%) and personality disorder (5.2%) (Weaver et al., 2001). Cases were then randomly selected and 216 had an interview and a case note review (Weaver et al., 2003). The sample were predominantly opiate users (92.6% reported lifetime use). Psychiatric disorders were present amongst 75% of the interview sample; the prevalence of severe depression was found to be 27%, mild depression 40%, severe anxiety 19%, personality disorder 37% and psychotic disorders 8% (Weaver et al., 2003). In sum, mental health disorders were found to affect the majority of the interviewed sample of predominantly heroin users, and comparison with the extent of diagnoses in case notes suggested that many of these were previously undiagnosed.

An earlier Irish study administered the Beck Depression Inventory (BDI) with 87% of a statutory drug service caseload (N=67, 18-39 years) receiving methadone maintenance (Williams et al., 1990). Scores were in the 'no depression' or 'mild depression' range for 16.4% of the sample, 16.9% scored in the 'moderate depression' range and 56.7% in the 'severe depression' range.

When considering such universally high levels of comorbidity between heroin use and mental health diagnoses, it is worth briefly revisiting methodological critiques. To date there were no mental health measures validated for use with substance misusers, which has significance since some effects of substance misuse may mirror somatic symptoms of mental ill health. For example the BDI contains items about changes in sleep and appetite (Beck & Steer, 1993), both of which are disrupted by dependent heroin use (Drugscope, 2004). Nonetheless the large proportion of adults in drug treatment thought to be experiencing mental health problems and meeting the criteria for psychiatric diagnoses, suggests a significant level of psychological distress amongst this population. Amongst young adults in drug treatment, the level of mental health problems remains to be established.

## **5 Substance use to regulate uncomfortable emotional states**

Lopez et al. (2005) identified three prominent views of the link between substance misuse and mental health problems: (1) substance misuse is a response to mental health problems, serving to alleviate uncomfortable emotional states, (2) substance misuse may promote the onset of mental health problems and (3) substance misuse and mental health are not causally linked but have a shared aetiology or are both influenced by a third variable. There is some evidence to support all views, but the focus here is on use of substances to alleviate mental health symptoms.

The use of substances to regulate emotional states fits into a broader context of individual self-control within wider society. Kanfer (1986) provided a useful overview of this, of which the following is a summary: Acts that are oriented towards immediate personal satisfaction, such as substance use, can often be of long-term detriment to the person or society. Societal structures therefore promote the self-regulation of individual behaviour, to the benefit of the wider community. This includes attempts to regulate individual alcohol and drug use behaviour, but ultimately, individuals are held responsible for their own behaviour. Exercising self-control is therefore complex and involves biological, social and psychological processes at the level of the individual in society (Kanfer, 1986). Consequently, use of substances to manage emotional states reflects a prioritising of short-term urges/personal satisfaction over the risk of long-term detriment to the self and denial of normative social demands.

Delayed rewards and future goals are increasingly valued with age (Green et al., 1999), so compared with older adults, adolescents/ young adults tend to be more oriented towards immediate rewards. Amongst young people, the preference for



earlier gratification has been shown to relate to substance use: Edelgard and colleagues (2002) demonstrated that in 14-18 year old research participants, use of cigarettes, alcohol and drugs was greater amongst those who chose to receive a smaller immediate fee rather than a larger fee in a week. Consequently, developmental factors suggest that young adult drug users are more likely than older drug users to favour the immediate effects of drug use over working toward future goals.

The use of substances to regulate emotions has been the focus of much research with young adults and has been found more likely amongst those whose substance use is problematic. Using substances to manage psychological distress in adolescence has predicted continued use in young adulthood (Kandel & Raveis, 1989). Substance use problems have been predicted by use of drugs to alleviate difficult mood states amongst young adult drug users not in treatment (Boys et al., 2003b). Self-regulation of affect has also been shown to play a part in the substance use of adults who seek drug treatment (Khantzian, 1997). Given the reported extent of mental health problems amongst those in drug treatment, a high proportion of drug users will be experiencing uncomfortable emotional states. Despite this, bodies of evidence about self-regulation of affect and about those in drug treatment have largely remained separate. However, attempts to integrate evidence regarding emotional regulation from young adult and from treatment populations may well enhance the understanding of mental health problems amongst young adults in drug treatment.

## ***5.1 The self-medication hypothesis***

A popular theory of substance misuse is that some adults immerse themselves in a drug subculture to 'self-medicate' against confusing feelings that they cannot regulate

in other ways (Khantzian, 1997) or to adjust to external, unmanageable realities (Khantzian & Khantzian, 1984). Based on a psychodynamic approach, this hypothesis arose from clinical observations that adult substance misusers (usually using heroin and cocaine) often felt overwhelmed by difficult feelings or experienced an absence of feelings (Khantzian, 1997). The person's choice of drug therefore resulted from an interaction between the psychopharmacological properties of the drug, the personality or characteristics of the person and the inner psychological suffering from which the person was seeking relief. Drugs were thought to offer a means of controlling emotions, for example the calming effect of opiates would be sought to counter 'rage and violent affect' (Khantzian, 1997).

The concept of self-medication seems to have become a popular lay explanation for drug use; it accounts for heroin use, has high face validity and is often referred to by substance misuse professionals. There has also been some support for this hypothesis amongst adolescents (Teichman et al., 2004). However, critics have noted that the specificity of use of particular substances for particular purposes is rarely supported and that drug effects are influenced by expectancies as well as pharmacology (Frances, 1997). There have been few direct investigations of the self-medication hypothesis in recent years.

## ***5.2 The relationship between young adult substance use and reasons for use***

A longitudinal study sampled young adults at ages 20, 24 and 28 (N=1222, formerly students of 18 high schools) and looked at use of alcohol, cannabis, cocaine, 'psychedelics' and non-prescription pills (Kandel & Raveis, 1989). Systematic differences were found between those who ceased using substances in young



adulthood and those who continued to use. Cessation was more likely amongst those whose substance use had been for social reasons. Continued use was more likely amongst those who used substances either for personal enjoyment ('for pleasure') or to influence their psychological state ('to relax'). Unsurprisingly, those who continued to take substances used more substances, more often and experienced more drug related problems. This USA data was collected in the 1970s, any problem drug users within the sample were not identified and the substances used did not include heroin, the main problem drug in UK drug services. The relevance of the findings to contemporary clinical services is therefore unknown. Kandel and Raveis (1989) did however suggest that subjective reasons for substance use played a role in continued substance use in young adulthood, especially when substances were used for personal and psychological reasons.

### ***5.3 The Regulation of Cognitive States model***

The Regulation of Cognitive States (RCS) model (Toneatto, 1995) emphasised the ability of drugs and alcohol to rapidly modify uncomfortable cognitive states (thoughts, feelings, sensations, perceptions and memories). The RCS model hypothesised that reducing awareness of undesirable cognitive states acted as a reinforcer that maintained future substance use behaviours. It differed from other self-regulatory models (such as Khantzian's self-medication hypothesis) by emphasising metacognitions (beliefs and attitudes about mental states) that may mediate the interpretation of subjective experience, hence influencing any action taken in response. In this way, uncomfortable cognitive states were hypothesised to be open to individual interpretation and choices about action, including the option of using substances to alleviate uncomfortable states.

Toneatto (1995) drew evidence for his model from a wide-ranging review of literature on reasons for drug use, expectancies and relapse. The model made no reference to the age of drug users or the substances used. He stressed the need for empirical testing of the RCS model, but to date this does not appear to have happened.

**5.4 A four factor model of reasons for substance use**

Many theories have conceptualised the reasons for substance use as either to regulate negative affect or to gain social rewards. A four-factor model of substance use has been proposed to expand on this (Cox & Klinger, 1988) as shown below in Figure 1.

**Figure 1 Four-factor model of substance use, based on two underlying motivational dimensions. (Based on Cox & Klinger, 1988)**

		POSITIVE	
INTERNAL	Internally generated, positive reinforcement motives (to enhance positive mood/ wellbeing)	Externally generated, positive reinforcement motives (to obtain positive social rewards)	EXTERNAL
	Internally generated, negative reinforcement motives (to reduce or regulate negative emotions)	Externally generated, negative reinforcement motives (to avoid social censure or rejection)	
		NEGATIVE	

This four-factor model was tested through interviews with a random sample of American 13-19 year olds (N=2052) where alcohol was the main substance used (Cooper, 1994). The data were found to have a good fit to the four-factor model, with some evidence that motives for substance use tend to be stable over time. Drinking to



regulate negative affect was a predictor of alcohol problems (Cooper, 1994). The model was also supported when applied to American undergraduates (Simons et al., 2004), with some evidence of functional specificity between alcohol and cannabis amongst experienced users. Such adolescent/young adult samples encompass some problem drug users, but include little or no data on heroin, the main drug of use by those who access UK substance misuse services.

## **5.5 *Perceived functions of substance use***

Recent UK research has tested ‘perceived functions’ of substance use amongst a purposive sample of young adults who regularly used multiple substances but had no history of contact with drug treatment services. ‘Perceived functions’ were defined as the specific purpose for using a particular substance, for example using alcohol ‘to relax’ (Boys et al., 2000, 2003b). These functions were accessed through self-report.

Boys and colleagues (2001, 2002) recruited a purposive sample of 364 young adults (16-22 years) through peer access interviewers. The sample predominantly used alcohol, cannabis, cocaine, amphetamines and ecstasy. Lifetime use of other substances was recorded (crack cocaine, 26%; heroin, 12%) but not explored.

‘Perceived functions’ had a greater influence on the frequency of substance use than peer group factors (Boys et al., 2002).

From a wider pool of function items, factor analysis identified two key scales: The Social Function scale included items such as ‘to increase confidence’, ‘to lose inhibitions’ and the Negative Mood Function scale included items such as ‘to feel better when depressed’ and ‘to help stop worrying about a problem’ (Boys et al., 2003b). Negative Mood Function scores were found to be strong predictors of problem drug scores (measured by DSM/ICD-10 criteria) for alcohol, cannabis,

cocaine, amphetamines and ecstasy. Use of cocaine to alleviate a negative mood state was by far the most powerful predictor of cocaine related problems (Boys et al., 2001).

The findings of Boys and colleagues (2001, 2002) suggested a relationship between substance problems and use of substances to alleviate negative mood states. The authors called for this functional model to be applied amongst different samples of drug users, but to date it has not been applied to young adult users of substance misuse services, or any adult populations.

## ***5.6 The hedonic management model of addiction***

The hedonic management model focused on psychological and behavioural factors and was hypothesised to be relevant to many addictive behaviours, including substance misuse (Brown, 1997). It was developed from a range of models of addiction and, as with those discussed so far, recognised the central role of subjective experience.

The hedonic management model was extremely complex (Brown, 1997); addiction was presented as an extreme part of the common motivational and self-management strategies used to maintain subjective feelings of well-being (hedonic tone). Brown hypothesised that an optimum range of hedonic tone would normally be maintained through various everyday actions and experiences, integrating rewards from a variety of long-term and shorter-term sources. Chronic low mood was thought to increase vulnerability to addiction, by widening the gap between the level of negative feeling states that a person experiences, and the level that they can tolerate.

Brown suggested that when a behaviour becomes addictive it is increasingly used to gain positive feelings in the present, at the expense of longer-term outcomes. There



is also a tendency for a reduction in the range of techniques to manage mood.

Consequently, a particular behaviour such as substance use becomes the most salient method of managing mood, to the exclusion of other ways of managing mood and to the detriment of long-term goals.

The hedonic management model does not appear to have been empirically tested, possibly because of its complexity. Brown also seemed to neglect the possible impact of age and developmental stage on his hedonic management theory. It does however fit with other published data. For example interviews with alcohol and cannabis users (N=617, USA community sample at age 15 and 18) suggested that alcohol and cannabis were rarely used for emotional regulation, but for those who did, this use became the most frequent method of regulating mood (Labouvie, 1986). The salience of substance use over other aspects of life has also been incorporated into assessment of the extent of alcohol and opiate dependency (Leeds Dependency Questionnaire; Raistrick et al., 1994). These match Brown's hypothesis of substance use being prioritised within a reduced range of techniques to regulate mood.

## ***5.7 Models of relapse and relapse prevention***

High rates of relapse are a significant barrier to the cessation of addictive behaviours such as substance misuse (McMurrin, 1994) and the management of difficult emotional states is of direct relevance to relapse prevention. The predominant model of relapse prevention has been cognitive-behavioural (Marlatt & Gordon, 1985) and is based on self-efficacy theory (Bandura, 1977), namely a person's judgement that they have the ability to execute a certain behaviour pattern. Relapse prevention interventions support clients to generalise and maintain treatment effects through more effective self-management (Marlatt & Gordon, 1985).

A wide variety of subjective thoughts and feelings have been found to be associated with relapse, but exposure to unpleasant emotions and interpersonal conflict have been found to account for 75% of relapses by those dependent upon heroin, alcohol or cigarettes (Cummings et al., 1980). Symptoms of depression (Glenn & Parsons, 1991) and anxiety (LaBounty et al., 1992) have also been found to be predictive of relapse amongst those with alcohol problems. Consequently, improved self-regulation of affect is a key part of reducing the risk of relapse.

Relapse prevention has been recognised in the UK as a valuable intervention that should be on offer within substance misuse services (NTA, 2002). It has been manualised for clinical application within substance misuse services, including specific reference to developing strategies to cope with feelings of anxiety and depression (Wanigaratne et al., 1990). Relapse prevention therefore includes links between substance misuse and the experience of uncomfortable mood states, detailing clinical interventions to reduce the role of substances in mood regulation.

In sum, self-regulation of affect has been shown to be a factor determining substance misuse, but only the 'self medication hypothesis' (Khantzian, 1997) and relapse prevention (Marlatt et al., 1985) have been tested amongst dependent heroin users. The majority of theories have only been tested with non-treatment samples of adolescents/young adults so seem to be of only indirect relevance to young adults in UK drug treatment.



## **6 Discussion**

The current review attempted to span boundaries between bodies of literature, to focus on UK young adult substance misusers with mental health problems and the role of self-regulation of affect. This literature will now be discussed, including its implications for clinical provision and future research.

### **6.1 *Young adulthood***

The transition to adulthood has been shown to be greatly influenced by societal changes in Britain over recent years, leaving some young adults vulnerable to problems in negotiating the transition to adulthood (Jones, 2002; Morrow et al., 1996). It has been suggested that dependent heroin use increases the likelihood of exclusion from transitions to adulthood (MacDonald et al., 2002). The vast majority of services and research nonetheless remains split between adolescents and adults, so relatively little is known about the experiences and needs of young adults.

### **6.2 *Substance misuse and mental health problems***

Over half of (predominantly opiate using) clients of UK substance misuse services have been found to have symptoms or diagnoses of mental health problems, largely anxiety and depression (Marsden et al., 2000; Weaver et al., 2001; Williams et al., 1990). Data has not been reported separately for young adults, but the prevalence of mental health symptoms may not differ with age (Weaver et al., 2001).

Department of Health documents (2002, 2004) have recommended integrated treatment of substance misuse and mental health problems and attention to young

adult needs. Young adults with mental health and substance misuse services have fallen into gaps between services (Richards et al., 2002) but the extent to which national guidelines have affected more recent practice remains unknown.

### **6.3 *Substance misuse and emotional self-regulation***

Numerous models have proposed self-regulation of emotions to be a component of substance misuse. Some models have been based on research reviews and have yet to be empirically tested (Brown, 1997; Toneatto, 1995). Those that have been tested have focussed on users of cannabis, alcohol and cocaine in community, education or non-treatment samples (Boys et al., 2003b; Cooper, 1994; Labouvie, 1986). Those in UK drug treatment have primarily been dependent heroin users (Gossop et al., 1998), and such substance use amongst young adults has not yet been explored.

Commonalities can be seen between the self-regulation models reviewed here: in the hedonic management model, Brown (1997) describes immediate rewards being prioritised (at the expense of longer term costs) which links with what Marlatt and Gordon (1985) call the Problem of Immediate Gratification. Brown (1997) also associates increasing addiction problems with a decreasing repertoire of methods to manage mood. The same was found in an education sample, where substance misuse became the main method of relieving negative emotions or enhancing positive ones (Labouvie, 1986). However only Khantzian's (1997) self-medication hypothesis and Marlatt and Gordon's (1985) relapse prevention model are based around the use of substances by those who access drug treatment services.

## **6.4 Clinical implications**

Given evidence of the challenges of the transition to adulthood, young adult clients of mental health and substance misuse services may well be experiencing difficult transitions. Clinical interventions would need to be mindful of individual experiences of the transition to adulthood, perhaps joint-working with other agencies (e.g. housing, education/employment) or co-ordinating transitional care plans (NTA, 2005).

Those who access drug treatment frequently experience additional mental health problems and these needs have not always been met (HAS, 2001; Richards et al., 2002). Several developments would address these problems: (1) Substance misuse workers trained in the skills and in receipt of supervision to formulate and treat people with mental health problems, with reduced caseloads that reflect the demands of working with complex cases; (2) mental health workers to develop some competencies to work with substance misuse problems; (3) mental health and substance misuse services forging good working relationships, enabling consultation about 'dual diagnosis' cases and co-ordinated treatment for those who access several services. These approaches fit with government guidelines (DH, 2002) and would enable both substance misuse and mental health services to be more flexible in their responses to service users.

Of all theories encompassing self-regulation of affect, research on perceived functions of substance use (Boys et al., 2003b) seems to have the most relevance to UK young adults using multiple substances. Perceived functions of substance use have been tested both qualitatively and quantitatively and found to account for differences in patterns of drug consumption and related problems amongst poly-drug users (Boys et al., 1999a, 1999b, 2000, 2001, 2002). This could be of direct relevance



to interventions with those whose substance misuse leads them to access clinical services. Work on relapse prevention has shown the importance of affective states in relapse amongst substance misusers (Marlatt et al., 1985; Wanigaratne et al., 1990). A greater understanding of the subjective functions of problem substance use would be of direct clinical utility, to guide the development of alternative ways to fulfil these functions.

## **6.5 *Research implications***

### **6.5.1 Methodological considerations**

NHS services have been encouraged to pay specific attention to the needs of young adults within service provision (DH, 2004; HAS, 2001; NTA, 2002, 2005), but other than clinical observations, these guidelines barely reference the evidence on which their recommendations are based.

The current review found that substance misuse service users were barely represented in the literature. Most young adult research used community or education samples that contained few problem drug users, compounded by non-responders being likely to have more severe problems (Lloyd, 1998; Nicol et al., 2000). Some theories of substance use to regulate emotions were based on reviews of theoretical material (Brown, 1997; Toneatto, 1995) and had not yet been empirically tested. Research with drug treatment populations (including young adults) is urgently needed, to address gaps in the existing evidence base.

There are however ethical considerations in sampling young adult treatment populations for research. Young adults are often poorly engaged in treatment (Richards et al., 2002; Willis, 2005) and present with complex needs. They are



therefore hard to access and a vulnerable group more easily distressed by research. These factors would need to be considered in research with young adult treatment populations.

Further longitudinal research would be valuable in understanding the temporal relationship between mental health problems and alcohol and drug use. Large samples would be necessary to contain a sufficient number of substance misusers, especially those who access drug treatment services.

Research has rarely illustrated the individual impact of young adulthood and comorbid substance misuse and mental health problems. Qualitative research or single case designs could be a valuable contribution to understanding the subjective experiences of those young adults who experience problems at this time.

### **6.5.2 Measures of substance misuse and mental health**

The majority of research on mental health problems and substance misuse has used tools derived from DSM criteria. This enables comparison between different research populations, but the validity and utility of DSM has been questioned generally (BPS Division of Clinical Psychology, 2000; Nathan et al., 1999) and in relation to adolescent substance misuse (Gilvarry, 2000).

Commonly used measures of mental health problems have rarely been validated on substance misusers, where the effects of substance misuse may mirror symptoms of mental health problems. With regard to substance misuse, there are few easily administered and clinically useful measures, leading many researchers to develop their own (for example Boys & Marsden, 2003). More standardised, validated measures of substance misuse and of the mental health of substance users would be invaluable.

### **6.5.3 Use of substances to regulate emotions**

All theories proposing a role for substance misuse in self-regulation of affect have relied heavily on self-report. Such self-reported data represents attributions or subjective beliefs about substance use. It does not demonstrate causality and may miss motives of which people are not conscious or are unable to accurately report (Toneatto, 1995). Self-report nonetheless provides the only access to internal motivations and remains a useful source of data on subjective experiences (Cooper, 1994b). Such data remain relevant to clinical services, where treatment approaches would need to take account of beliefs about substance use.

Many models of substance use to regulate emotional states are hypothetical and have not been tested and none has simultaneously measured mental health problems. Research that explored the relationship between substance use, mental health and self-regulation of affect would be particularly pertinent drug treatment samples where many have comorbid mental health problems.

## **7 Conclusion**

Young adults tend to be less engaged with mental health services, particularly when they have both mental health problems and substance misuse needs. This presents numerous challenges to services, in terms of engagement, treating complex problems and because young adults with substance misuse and mental health problems have often fallen between the boundaries of several services.

Young adulthood is a challenging time, particularly for those using drugs such as heroin, who may be at increased risk of exclusion from mainstream opportunities such as housing or employment. Such detachment from conventional institutions has increased the likelihood of continued drug use and damaged life chances.

Those who seek UK drug treatment are predominantly heroin users and many have additional mental health problems, which often go undiagnosed. This comorbidity can be understood by theories where substances are used for the function of relieving difficult emotions. With the exception of the ‘self-medication hypothesis’ and relapse prevention literature, these theories have not been tested with clinical populations so their potential to inform clinical interventions remains unknown.

Existing research provides evidence of the prevalence of mental health problems in drug treatment samples, but more research is urgently needed to explore the impact of substance misuse on the transition to adulthood and investigate the relevance of self-regulation of affect to young adults in drug treatment. Enhanced understanding of young adulthood and of the causal relationships between substance misuse and mental health problems may be the best way of creating services and interventions that can better meet the needs of young adult problem drug users.



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## **Section 2 – Research report**

**Young adults in drug treatment: The function of substance use to alleviate anxiety and depression**

## Abstract

**Aims:** To explore the relationship between mental health problems and perceived functions for using heroin, crack cocaine, alcohol and cannabis amongst young adults in drug treatment. **Design:** Cross-sectional survey using an anonymous questionnaire. **Setting:** Data was collected at an NHS Community Drug Team and a voluntary sector drug service. **Participants:** Fifty-one young adults in drug treatment (17 females) aged 16-25 years, 96% were opiate users and 80% were currently prescribed methadone or buprenorphine. **Measurements:** Demographic status; substance use history; negative mood functions/social functions of past year use of heroin, crack cocaine, alcohol and cannabis; Hospital Anxiety and Depression Scale. **Findings:** Clinically significant mental health problems were common (anxiety 47%; depression 24%). Heroin was most often taken to block out negative mood states and such use showed a statistically significant relationship with anxiety and depression. When alcohol was consumed to alleviate negative mood this showed a significant relationship with anxiety but not depression. Cannabis and crack cocaine were used both to enhance social situations and alleviate negative mood and showed no significant relationships with anxiety or depression. These relationships were partly explained by the pharmacological effects of each substance, with heroin a particularly effective method of reducing awareness of uncomfortable emotional states. **Conclusions:** Drug treatment interventions need to address young adult mental health problems and the relationships between mental health and functions of use. Relapse prevention interventions are likely to be valuable, but more research is needed to develop further strategies to promote the tolerance and management of difficult emotions.



# 1 Introduction

The growth in the use of drugs such as heroin and crack cocaine has had a significant impact on individuals, families and communities in the UK: Those who use Class A drugs present with the most severe problems, do the most harm to themselves and others, and account for 99% of the costs of drug misuse in England and Wales (Home Office, 2002b). It is therefore imperative that problematic drug use is effectively treated and the National Treatment Agency/NTA (2002) has begun to guide the expansion and quality improvement of UK drug treatment services.

Those who seek drug treatment in the UK have predominantly been heroin users, many of whom have additional mental health problems (Weaver et al., 2001). Such comorbid substance misuse and mental health problems ('dual diagnoses') are accompanied by more social problems and criminal involvement than substance misuse alone (Strathdee et al., 2002). Substance misusers with mental health problems have also been harder to engage in treatment and have tended to have poorer treatment outcomes (Department of Health/DH, 2002). These relatively high levels of need have been compounded by the fact that mental health and drug treatment services have traditionally been provided separately, leaving gaps in provision for those experiencing multiple difficulties (DH, 2002).

Currently, where mental health problems do not reach the threshold for referral to specialist mental health services, it is expected that drug treatment services will deliver interventions (DH, 2002). In practice, only the most severe mental health problems have been identified within drug services (Weaver et al., 2001) and those with comorbid mental health and drug problems have been unlikely to have their needs met (DH, 2002; Richards & Vostanis, 2002).

Within mental health and substance misuse services, it has been recognised that young adults (16-25 year olds) are a particularly vulnerable group. They tend to be less engaged in treatment (Willis, 2005) and often struggle with the move from adolescent to adult services (DH, 2004; Health Advisory Service/HAS, 2001, NTA, 2005). Young adults with both mental health and substance use problems have been especially unlikely to get the help they need (Richards & Vostanis, 2002). From a developmental perspective, young adulthood has been identified as a separate life-stage (Arnett, 2000) and recent UK social and welfare changes have meant that young adults now face greater challenges and complexities as they move between adolescent and adult roles (Jones, 2002). Despite the increasing suggestion that separate attention be paid to the needs of young adults, there remains little research with clinical populations that might help understand their experiences and needs.

Given the high levels of need amongst substance misusers with mental health problems, and amongst young adults in particular, models are needed to inform clinical interventions and service configurations. A popular theory of the relationship between substance misuse and mental health problems has been that substances are used to self-medicate against painful emotions that cannot be regulated in other ways (Khantzian, 1997). This arose from psychodynamic work with adult heroin and cocaine users in USA drug treatment, but has not been further researched in recent years. Young adult research has suggested that when substances are used to alleviate difficult emotions, this can become the main method of regulating mood (Labouvie, 1986) and is associated with greater levels of use (Johnston & O'Malley, 1986; Kandel & Raveis, 1989). These studies were with USA education and community samples where only a small minority used substances, limiting the relevance to UK clinical populations.



Recent advances have come from purposive sampling of UK young adults who used multiple substances. It was demonstrated that the purpose for using a particular substance ('perceived function') had a greater influence on the frequency of substance use than peer group factors (Boys et al., 2002). Use of substances to alleviate uncomfortable mood states ('negative mood function') was found to be a strong predictor of problem drug use (Boys & Marsden, 2003). Boys and colleagues (2002, 2003) excluded those who had accessed drug services, but all participants used multiple substances, some to a problematic degree.

Such models have suggested that young adult problem drug use represents an attempt to alleviate uncomfortable emotions. This might explain the common coexistence of substance misuse and mental health problems, but no such studies have included clients of UK drug services and none have simultaneously measured mental health. Consequently little is understood about the specific functions of particular substances used by young adults in drug treatment and how these might relate to mental health problems.

National guidelines have called for improvements in services for young adults and those with substance misuse and mental health problems (DH, 2002, 2004; HAS, 2001; NTA, 2002, 2005). In the UK to date, there has been little exploration of comorbid substance misuse and mental health problems amongst young adults in drug treatment on which such service developments might be based. In consequence, the current study sought to continue from the work by Boys and colleagues (2002, 2003) and focus on a sample of young adults in drug treatment. The aim was to explore the relationships between anxiety, depression and the functions attributed to substance use, to generate directions for clinical interventions and future research.



## **1.1 Hypotheses**

**1.1.1 Hypothesis 1 – In young adult drug users, ‘perceived functions’ of substance use will differ between heroin, crack cocaine, alcohol and cannabis.**

- a. Negative mood functions<sup>3</sup> will be cited more often with regard to heroin use (heroin problems prompt the majority of referrals to services).
- b. Male and female young adult drug users will differ in the ‘perceived functions’ of their substance use.

**1.1.2 Hypothesis 2 – In young adult drug users, ‘negative mood functions’ of heroin, crack cocaine, alcohol and cannabis use will differ according to experience of anxiety and depression**

- a. Male and female drug users will differ in their experience of anxiety and depression.
- b. More anxious/more depressed drug users will differ from less anxious/less depressed drug users in the substances they use.
- c. More anxious/more depressed drug users will differ from less anxious/less depressed drug users in the ‘negative mood functions’ of their use.

**1.1.3 Hypothesis 3 – Anxiety, depression and ‘perceived functions’ of substance use will be similar amongst all young adult drug users.**

- a. Within a young adult sample, ‘adolescent’ and ‘adult’ drug users will not differ in the ‘perceived functions’ of their substance use.
- b. Within a young adult sample, ‘adolescent’ and ‘adult’ drug users will not differ in their experiences of anxiety and depression.

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<sup>3</sup> Negative mood function = use of a particular substance for the specific purpose of changing mood (Boys & Marsden, 2002).

## **2 Method**

### **2.1 Design**

The study utilised a cross-sectional survey and correlational design to explore relationships between ‘perceived functions’ of substance use and extent of mental health and substance use problems. It focussed on the use of heroin, crack, alcohol and cannabis by clients of drug misuse treatment services.

### **2.2 Participants**

Young adults between 16-25 years, presenting to drug misuse treatment services, were sampled to address functionality of young adult drug use and mental health problems. Prospective power analysis indicated that a sample size of 35-40 would give sufficient data to achieve a significant relationship between variables (or confirm the reliability of no effect). This was established using a power value of .80 (Cohen, 1988) and predicting a medium to large effect size of 0.4, corresponding to a one-tailed correlation at 0.05 significance (Clark-Carter, 2004). The NHS Community Drug Team (CDT) had 155 young adult service-users on their current caseload and 90 eligible participants had been seen by the non-statutory drug service in the past year. Consequently it was anticipated that a sufficient sample size could be obtained.

Caseworkers identified potential participants who were aged 16-25 years and had used heroin, crack cocaine, alcohol or cannabis during the past year. Exclusion criteria were: current intoxication; withdrawal symptoms; psychotic symptoms liable to affect cognitive function. An understanding of written English aided questionnaire completion, but help was available to those with literacy problems or a need for an interpreter.

## **2.3 Measures**

Measures were combined to form a single questionnaire booklet (see Appendix 3).

Local research on a similar population found that a low reading age was common (Nicol et al., 2000), so all research materials were designed for ease of understanding (Money & Thurman, 2003; The Basic Skills Agency, 2004). Several potential measures were rejected in favour of briefer measures, anticipated to be more acceptable to this client sample. Data were collected on demographic variables, substance use history and two experimental variables:

1. 'Perceived function' of substance use, with regard to past year use of heroin, crack cocaine, alcohol and cannabis
2. 'Mental health' -current anxiety and depression problems.

### **2.3.1 Demographic information**

The researcher designed questions to record participants' age, gender, ethnicity and current employment. Length of contact with drug service during the current episode of treatment was also recorded, as shown in Appendix 3, Q1-5.

### **2.3.2 Measure of substance use**

An assessment of substance use was developed for the purposes of this study, based on the Maudsley Addiction Profile interview schedule (Marsden et al., 1998).

Participants were asked the last time that they had taken each of 16 substances (Five response categories from 'taken in the last month' to 'never taken', see Appendix 3, Q6). Participants were also asked on how many days in the last 30 they had injected



drugs. Those who reported to have injected then indicated the number of times they had injected on a typical day (see Appendix 3, Q7&8).

Measures of ‘extent of problems’ were duplicated from an outcome measure used within the Community Drug Team. Using semantic-differential type questions, participants marked two lines to describe the ‘extent of problems’ with their use of each substance ‘at the moment’ and ‘in the last year’ (ranging from ‘not a problem’ to ‘a serious problem’). This was repeated for heroin (see Appendix 3, Q 10&11), crack cocaine, alcohol and cannabis.

### **2.3.3 Measure of ‘perceived function’ of substance use**

A measure of ‘perceived function’ of drug use was taken from work by Boys and colleagues (2003). They identified two ‘perceived function’ subscales: The ‘social function’ subscale (SF) refers to substance use to enhance social situations; the ‘negative mood function’ subscale (NMF) encompasses substance use to alleviate numerous uncomfortable mood states including anxiety, depression and boredom;

The ‘perceived function’ measure is summarised in Figure 1 (or see Appendix 3, Q9). It encompasses the SF and NMF scales, plus three additional items expected to fulfil negative mood functions within a clinical population (as described following Figure 1). Using the format developed by Boys and colleagues (2001), participants rated the frequency with which they had used each drug for each function in the last year, using a five-point Likert-style scale (never-always). Items could be combined to form a ‘total function’ score or divided into NMF and SF subscales.

The function RELAX was not a strong predictive item amongst a non-treatment sample of young adults (Boys et al., 2003). It was nonetheless included here due to

the high incidence of anxiety in substance misuse service users (e.g. Marsden et al., 2000).

Two new function items were created by the principal researcher, based on literature review and discussion with clinicians. The first was 'to block out bad things that happened to you in the past' (BLOCK PAST). Childhood abuse has been found to be common amongst drug users in treatment, for example, childhood abuse in 46% of males and 73% of females and sexual abuse in 2% of males and 43% of females (Charnaud & Griffiths, 2000). These experiences have been hypothesised to explain the high frequency of mental health problems amongst substance-misusers (Charnaud et al., 2000). A direct question on past abuse was avoided due to ethical concerns, but the BLOCK PAST item was expected to measure the recent impact of abuse and other damaging experiences.

A second new item was developed for the current study, namely 'to block out bad things that are happening to you at the moment' (BLOCK PRESENT). Misuse of substances (particularly heroin and crack cocaine) has been associated with poverty, crime, breakdown in interpersonal relationships and homelessness (HAS, 2001; Home Office, 2002b). Misuse of crack cocaine has been associated with gun crime and sex work (Home Office, 2002a). The BLOCK PRESENT item was expected to measure the impact of such environmental, social and interpersonal stressors.

**Figure 1    ‘Perceived function’ of substance use measure, items by subscale.**

<b>When you have taken [substance] in the last year, how often have you taken [substance] to...</b>	
<b><u>Negative mood functions (NMF subscale)</u></b>	
1. Make yourself feel better when down or depressed (FEEL BETTER)♦	<b>0=never</b> <b>1=rarely</b> <b>2=sometimes</b> <b>3=often</b> <b>4=always</b>
2. Help you stop worrying about a problem (STOP WORRYING)	
3. Block out bad things that have happened to you in the past♣ (BLOCK PAST)	
4. Block out bad things that are happening to you at the moment♣ (BLOCK PRESENT)	
5. Help you to relax♣ (RELAX)	
6. Make something you were doing less boring (DECREASE BOREDOM)	
<b><u>Social functions (SF subscale)</u></b>	
1. Help you 'keep going' on a night out with friends (KEEP GOING)	
2. Help you enjoy the company of friends (ENJOY COMPANY)	
3. Help you feel more confident or more able to talk to people in a social situation (INCREASE CONFIDENCE)	
4. Help you lose your inhibitions (LOSE INHIBITIONS)	
5. Make an activity better (such as listening to music or playing a game or sport). (ENHANCE ACTIVITY)	
♦ Abbreviations (capitalised in brackets) are used in subsequent tables and text	
♣ Items added for the present study	

**2.3.4 Internal reliability of ‘perceived function’ measure**

Chronbach’s alpha ( $\alpha$ ) was used to assess the internal reliability of the ‘perceived function’ measure used in the current study (see Table 1). For alcohol and cannabis, NMF and SF subscales both demonstrated acceptable internal reliability. The NMF scale also showed acceptable internal reliability with regard to use of crack cocaine.



The remainder of the subscales did not show sufficient internal reliability (Chronbach’s  $\alpha < .7$ ; Clark-Carter, 2004).

Where subscales did not have adequate internal reliability, items with a corrected item-total correlation of  $<0.3$  were discarded (Pallant, 2004), because low corrected item-total correlations indicate that an item measures something different to the scale as a whole. Items removed from revised scales were as follows: heroin NMF scale- FEEL BETTER, RELAX, LESS BORING; heroin SF scale-KEEP GOING; Crack SF scale-ACTIVITY BETTER. The removal of these items led to revised scales that achieved acceptable internal reliability.

**Table 1    Chronbach’s  $\alpha$  values for the ‘perceived function’ of drug use measures**

		Total function scale	Negative mood function subscale		Social function Subscale	
	Valid cases		All 6 items	Revised	All 5 items	Revised
Heroin	42	.77	.54	.73	.68	.71
Crack	27	.76	.76	-	.59	.70
Alcohol	31	.89	.91	-	.79	-
Cannabis	34	.86	.81	-	.72	-

### 2.3.5    Mental health measure - Hospital Anxiety and Depression Scale

At the pilot stage of the current study, the General Health Questionnaire (GHQ) was used (Goldberg & Williams, 1988). The GHQ asks participants to compare their current feelings to how they usually feel (e.g. ‘better than usual’). There was uncertainty whether ‘usual’ should be taken to be ‘usual state whilst dependent on heroin’ or ‘usual state prior to dependent drug use’. Visual inspection (by the

principal researcher) of the Hospital Anxiety and Depression Scale (HADS, Snaith & Zigmond, 1994) suggested that such a problem would not arise and HADS would be an adequate measure of mental health.

HADS (Snaith & Zigmond, 1994) has shown widespread utility, validity and correlation (.60-.80) with other anxiety and depression measures (Bjelland et al., 2002). Most studies have sampled non-psychiatric hospital patients, but sensitivity and specificity has been proven amongst psychiatric patients (Bjelland et al., 2002). It contains 14 items where participants state which of four responses (scored 0-3) best describes their state 'over the last few days' (see Appendix 3, p10). Depression and anxiety scores are collated separately (0-7 is interpreted as 'normal', 8-10 = 'mild', 11-14 = 'moderate', 15-21 = 'severe') (Snaith et al., 1994).

Research review has suggested an optimum cut-off of 8+ to indicate 'caseness' amongst non-psychiatric patients (Bjelland et al., 2002). HADS manual suggests scores of 11+ are taken to indicate 'caseness' (Snaith et al., 1994) and the current study followed this recommendation. For brevity, normal-mild HADS scores (<11) are henceforth described as 'sub-clinical' and moderate-severe scores (11+) described as 'clinical'.

The HADS was originally developed for hospitalised patients. Consequently it largely omits somatic symptoms, which was especially important for the current study sample, because drug effects may mirror somatic symptoms of anxiety or depression. For example, the Beck Depression Inventory measures changes in sleep and appetite (Beck & Steer, 1993), both of which are disrupted by dependant heroin use (Drugscope, 2004). Although not directly validated with drug users, HADS has been used with opiate users in methadone treatment (Finch et al., 1995; Rooney et al., 2002). Visual inspection of the data from these studies suggested equivalent patterns

between HADS scores and self-reported information (psychiatric history and subjective reports of mood).

#### **2.3.5.1 Internal reliability of HADS (anxiety and depression)**

The present study found HADS to have acceptable internal consistency with a young adult drug treatment sample, finding a Cronbach's alpha coefficient of .86 for anxiety and .78 for the depression subscale. Both values were within the range found in other studies (reviewed by Bjelland et al., 2002).

## **2.4 Procedure**

### **2.4.1 Ethical approval**

Ethical approval for the study was obtained from the Local Research Ethics Committee (see Appendix 1).

### **2.4.2 Obtaining the sample**

Participants were recruited through two city-based substance misuse services over a four-month period. The main site of data collection was the Community Drug Team (CDT), with a voluntary sector substance misuse service also contributing.

Case managers were asked to approach those on their caseload who were aged 16-25 years and had taken heroin, crack cocaine, alcohol or cannabis during the previous year. Ongoing strategies were employed to enhance caseworkers' motivation to recruit participants (e.g. providing them with a list of potential participants on their current caseload). Service-users were also made aware of the research through posters in waiting areas and clinic rooms.



### **2.4.3 Data collection**

Caseworkers (or the principal researcher) provided potential participants with brief oral information about the study and interested individuals read an information sheet (see Appendix 2). Those who chose to participate then completed a questionnaire, usually during a meeting with their caseworker or the principal researcher. Support was offered, especially where literacy was a problem. Some participants took questionnaires to complete at home, but this was discouraged, both in case of any distress and because these questionnaires were rarely returned. Participants could choose to leave separate contact details in order to receive a brief summary of research findings.

### **2.4.4 Pilot study**

Prior to commencing data collection, a pilot study assessed the utility of the questionnaire booklet and its acceptability for participants. Service-users and staff teams were both consulted.

The CDT identified six service-users who fitted eligibility criteria and had agreed to meet the principal researcher and complete a draft questionnaire. Despite one month of repeat attempts, poor attendance at arranged appointments meant that the questionnaire was piloted with only one individual. The participant was a 24-year-old male, stable on methadone and employed full-time. He was encouraged to consider the questionnaire from the perspective of acquaintances who continued to use heroin.

The pilot subject indicated that the topic was of interest and that materials were clear and easy to follow. He commented however that the questionnaire was less relevant to those who had recently ceased using substances. The ‘perceived function’ questions were subsequently re-worded to ensure their relevance to all who had used

each substance during the previous year. His appraisal of the mental health measure led to changes (as previously described in section 2.3.5).

Staff teams at both sites of data collection were consulted regarding the research materials, both to evaluate face validity and maximise support for data collection. Both teams demonstrated their interest in the research and valued being consulted. They gave positive feedback about clarity of content and layout. The following changes were made following suggestions by staff members: pictures of drugs were removed in case they triggered drug cravings; buprenorphine was added to the list of substances; the wording of the 'intravenous drug use' item was altered to clarify that this included being injected by someone else. General discussions about possible mental health measures matched service-user feedback and contributed to the rejection of the GHQ.

The pilot study data were combined to inform the final questionnaire and information sheet. These were then submitted for ethical approval, prior to commencing data collection.

## **2.5 Analysis**

Data were analysed using the Statistics Package for the Social Sciences (SPSS). Normality of distribution was assessed through the Kolmogorov-Smirnov test and inspection of histograms and box plots. The depression scores and crack cocaine 'perceived function' scores violated the assumption of normality, so non-parametric statistical tests were used throughout.

Descriptive statistics were used to explore the profile of (previously un-researched) young adult substance misuse service-users. The Chi Squared Test was used to

explore relationships between categorical variables, where there was sufficient sample size to meet the necessary count per cell. For continuous variables, differences between groups were tested using the Mann-Whitney U Test, or Welch's t-test where groups had heterogeneous variance that was not made homogeneous by the ranking of data (Clark-Carter, 2004). Spearman's Rank Order Correlation ( $\rho$ ) was used to calculate the strength of relationships between continuous variables.

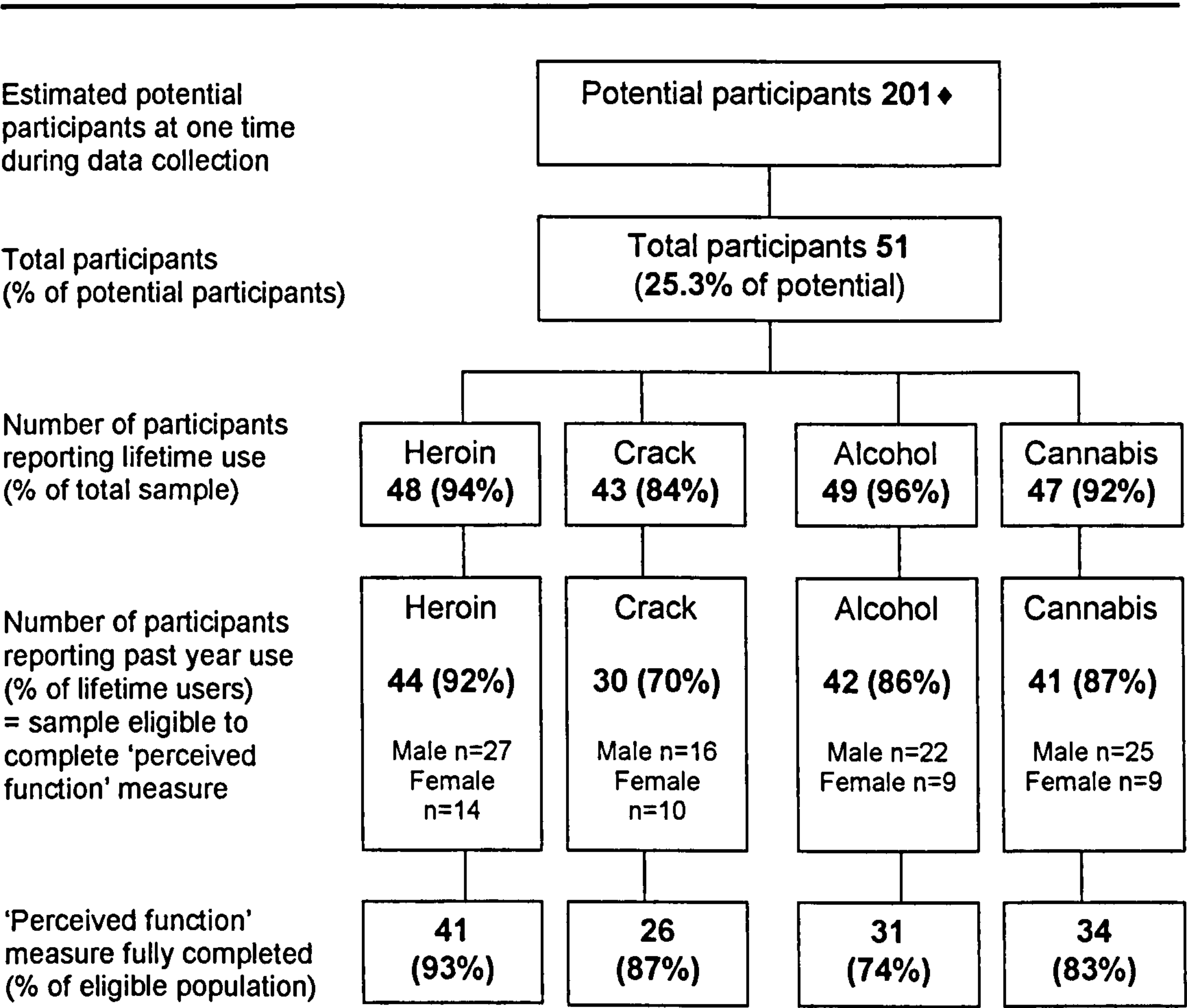


# 3 Results

## 3.1 Description of the data sample

Figure 2 summarises the data sample (N=51) and sub-samples used for analyses after partially completed measures were excluded.

Figure 2 Detailed breakdown of the data sample (N=51).



♦ Mean of NHS service database (16-25 yrs) total at three time points during data collection plus estimate by voluntary sector service manager.

## 3.2 Profile of participants

### 3.2.1 Demographic profile

Table 2 summarises the demographic profile of participants, including time in treatment. Some participants specified their actual length of time in treatment, the longest episode of which was 4 years (categorised as ‘6 months+’).

**Table 2    Demographic profile of participants (N=51)**

<b>Age</b>	21.27 years (mean)    (S.D. 2.73y; range 16-25y)	
<b>Gender</b>	Male	34 (66.7%)
	Female	17 (33.3%)
<b>Ethnicity</b>	White	45 (88.2%)
	Asian Indian	3 (5.9%)
	Black African	1 (2%)
	White other	1 (2%)
	Other–Portuguese	1 (2%)
<b>Occupation</b>	Unemployed	28 (54.9%)
	Full-time education	4 (7.8%)
	Part-time education	3 (5.9%)
	Full-time employment	11 (21.6%)
	Part-time employment	1 (2%)
	Other–parent/carers	4 (7.8%)
<b>Time in treatment</b>	Assessed only	3 (5.9%)
	< 1 month	9 (17.6%)
	1-2 months	4 (7.8%)
	2-3 months	1 (2%)
	3-6 months	7 (13.7%)
	6 months +	27 (52.9%)

3.2.2 Substance use

Participants were asked how recently they had consumed each of 16 substances (full summary in Appendix 4). Substances used in ‘last month’ (i.e. currently used) and substances ‘never used’ are summarised in Table 3. Steroids, solvents and codeine had rarely been used so were omitted from the analysis.

**Table 3** For each substance, proportion of the sample who had taken the substance in the ‘last month’ or ‘never taken’ (N=51).

Substance	Time of last use	
	‘Last month’	‘Never taken’
Prescribed methadone	29 (56.9%)iii	18 (35.3%)v
Prescribed buprenorphine	12 (23.5%)	13 (25.5%)
Alcohol	35 (68.6%)ii	1 (2.0%)
Heroin	36 (70.6%)i	2 (3.9%)
Illicit methadone	9 (17.6%)	19 (37.3%)iii
Illicit buprenorphine	5 (9.8%)	25 (49.0%)i
Tranquillisers	7 (13.7%)	16 (31.4%)
Crack cocaine	12 (23.5%)v	6 (11.8%)
Cocaine powder	4 (7.8%)	13 (25.5%)
Amphetamine	2 (3.9%)	12 (23.5%)
Ecstasy	3 (5.9%)	21 (41.2%)ii
Cannabis	29 (56.9%)iv	4 (7.8%)
LSD/ mushrooms	-	19 (37.3%)iii
Number of substances used from possible 16 (including alcohol & prescribed meds)	M=3.69 SD=1.62 (range 0-7)	

i-iv indicates the five substances cited by the greatest proportion of participants for each category.

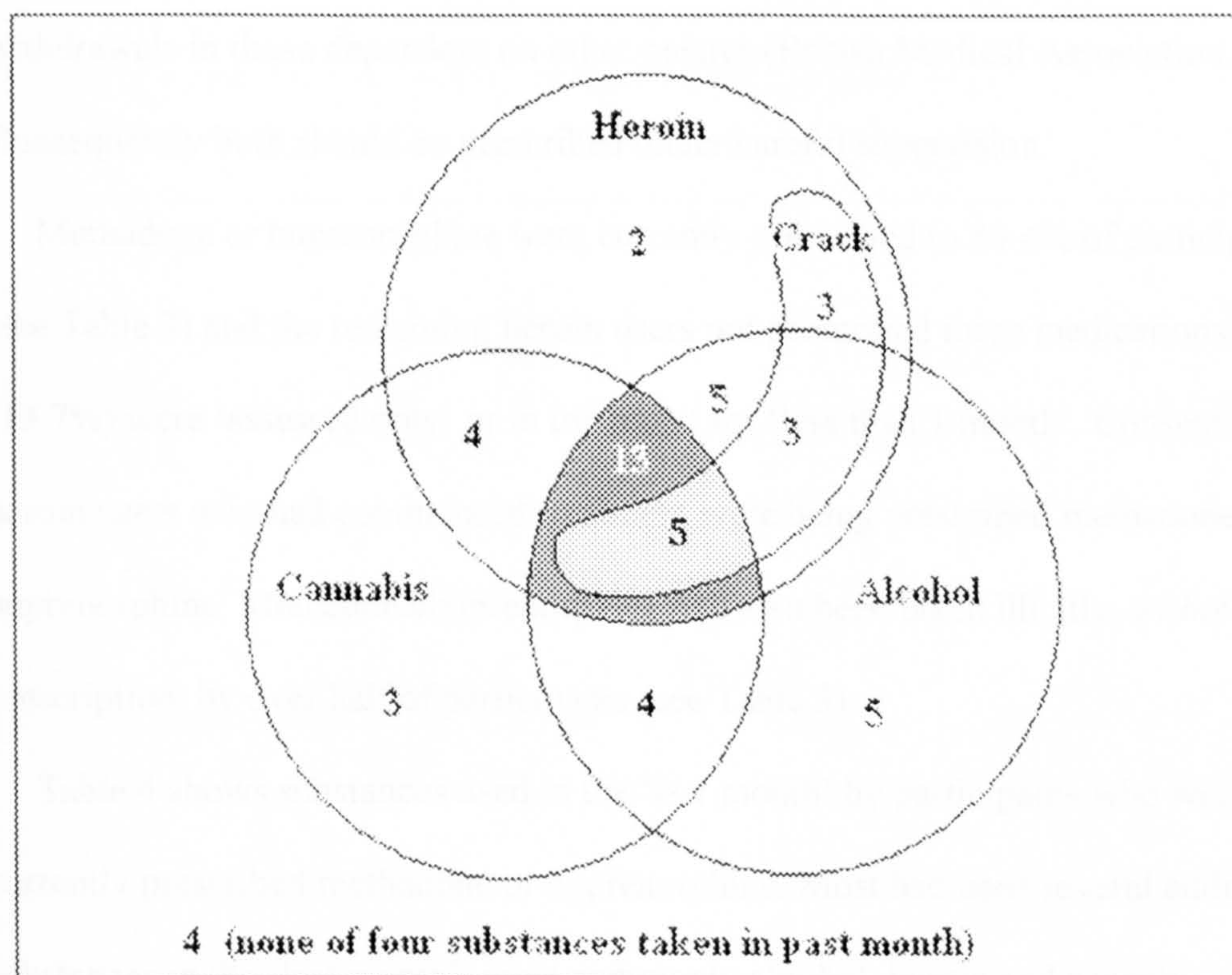


These young adults were predominantly heroin users (70.6% ‘last month’ heroin users; 3.9% ‘never taken’). Alcohol, cannabis and crack cocaine were the next most commonly used substances. Use of heroin, alcohol, cannabis and crack are examined in section 3.2.2.1. The majority of the sample had been prescribed methadone or buprenorphine in the ‘last month’ and use of these prescribed medications is examined in section 3.2.2.2.

### 3.2.2.1 ‘Last month’ use of heroin, crack cocaine, alcohol and cannabis

Table 3 shows that (aside from prescribed opiates) heroin, alcohol, cannabis and crack were the legal/illicit substances most commonly taken in the ‘last month’. Figure 3 illustrates the combinations in which this use occurred.

**Figure 3** Number of young adult drug users (N=51) having used each combination of heroin, crack, alcohol and cannabis in ‘last month’.





Only five participants had used all four substances during the 'last month' (n=5, see >5>). Combined use was most commonly of heroin, alcohol and cannabis (n=13, see >13>). All current crack cocaine users had also currently used heroin. Alcohol was most commonly used alongside heroin and/or crack cocaine and cannabis was most commonly used alongside heroin and/or alcohol. Patterns of substance use therefore varied within the sample, but the majority of the sample currently used several substances.

### **3.2.2.2 Use of methadone and buprenorphine**

Methadone and buprenorphine (Subutex®) both function as opiate substitutes (to prevent withdrawal symptoms) and are prescribed to those who are physically dependent on heroin. Methadone presents a toxicity hazard when taken at a dose that is inconsistent with individual tolerance to opiates or taken alongside other CNS depressants. Buprenorphine has partial agonist properties so may precipitate withdrawals in those dependent on other opiates (British Medical Association, 2005). Consequently both should be prescribed under careful supervision.

Methadone or buprenorphine were currently prescribed to 80.4% of participants (see Table 3) and the remaining heroin users not prescribed these medications (13.7%) were 'assessed only' or in treatment for 'less than 1 month'. Consequently all heroin users who had commenced treatment were being prescribed methadone or buprenorphine. Methadone/buprenorphine had also been taken illicitly, *without* a prescription, by over half of participants (see Table 3).

Table 4 shows substances used in the 'last month' by participants who were currently prescribed methadone or buprenorphine. Most had used several additional substances in the 'last month', most commonly alcohol, heroin and cannabis.

**Table 4    Number and proportion of participants currently prescribed methadone or buprenorphine (n=41) having also taken each substance in ‘last month’.**

<b>Substance</b>	<b>Number of participants</b>	<b>% of sample (n=41)</b>
Alcohol	29	70.7
Heroin	29	70.7
Illicit methadone	7	17.1
Illicit buprenorphine	2	4.9
Sedatives /tranquillisers	5	12.2
Codeine	2	4.9
Crack cocaine	10	24.4
Cocaine powder	3	7.3
Amphetamine	1	2.4
Ecstasy	2	4.9
Cannabis	23	56.1
LSD/ mushrooms	2	4.9
(Steroids and solvents not taken in past month)		
Number of substances taken in past month (from possible 14)		
Mean=2.76    (Range 0-6)		



3.2.2.3 ‘Extent of problems’ with substances

Table 5 shows participants’ ratings of the perceived extent of their problems with heroin, crack cocaine, alcohol and cannabis. ‘Problems now’ had lower mean and median scores than ‘past year’ problems for each of the four drugs, with most participants rating their current substance use as less problematic than in the previous year. Only ‘past year’ heroin use had a problem rating of over 50 ( $M=77.36$ , median 85). This suggested that despite many of the sample reporting current use of a combination of these substances, only past year heroin use was perceived as problematic.

**Table 5    Rating of ‘extent of problems’ with substances taken in the past year  
(1= not a problem and 100= a serious problem).**

Substance	‘Extent of problem’ rating	Median <sup>4*</sup>
		(range 1-100)
Heroin (n=43)	Rating of problems now	37.0
	Rating of problems in past year	85.0
Crack (n=27)	Rating of problems now	3.0
	Rating of problems in past year	38.0
Alcohol (n=31)	Rating of problems now	3.0
	Rating of problems in past year	7.0
Cannabis (n=34)	Rating of problems now	13.0
	Rating of problems in past year	25.5

<sup>4</sup> The ‘extent of problem’ ratings were not normally distributed and inspection of trimmed means showed that outliers were affecting score means, so median statistics gave the best measure of central tendency.



3.2.2.4 Substance use comparisons between young adult samples

The British Crime Survey (Home Office, 2004) surveyed a random community sample (including 16-24 year olds). Boys and colleagues (1999, 2000) sampled 16-22 year old polydrug users not in drug treatment (recruited and interviewed by ‘peer access interviewers’). Figure 4 compares young adult data from these studies with the current study. All studies relied on self-report, either at interview or through self-completion questionnaire.

Figure 4 Proportion of young adult samples reporting past year substance use

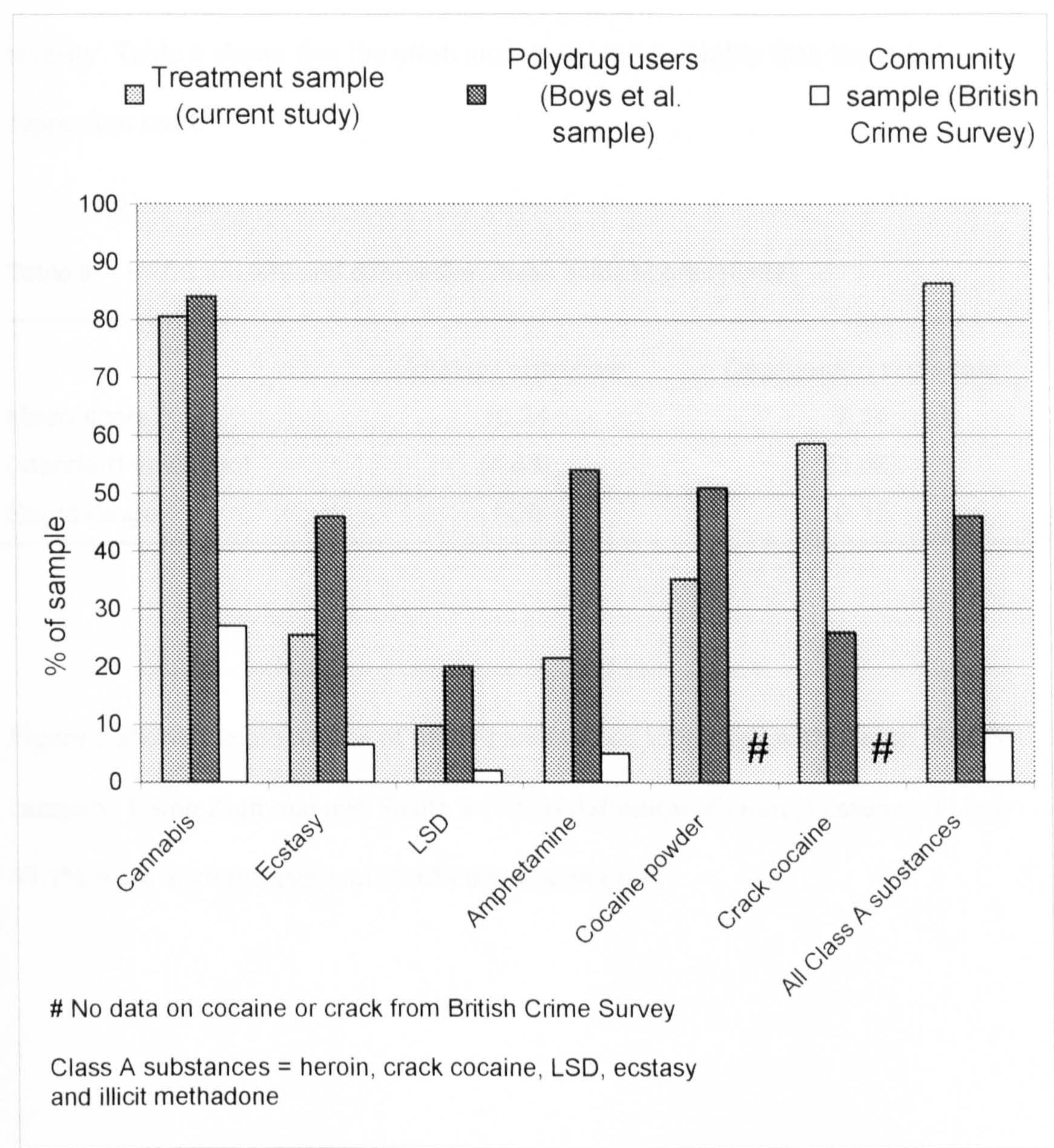




Figure 4 shows that ‘past year’ cannabis use was similar in young adult polydrug users and the current treatment sample, but otherwise the three samples varied enormously. Past year use of LSD, ecstasy, amphetamines and cocaine powder was highest amongst polydrug users. Past year use of ‘Class A’ substances (heroin, crack cocaine, LSD, ecstasy and illicit methadone) was highest amongst young adults in drug treatment.

**3.2.3 Mental Health**

HADS scores can be described as mean subscale scores or categorised according to severity. Table 6 shows that the mean anxiety score was higher than the mean depression score.

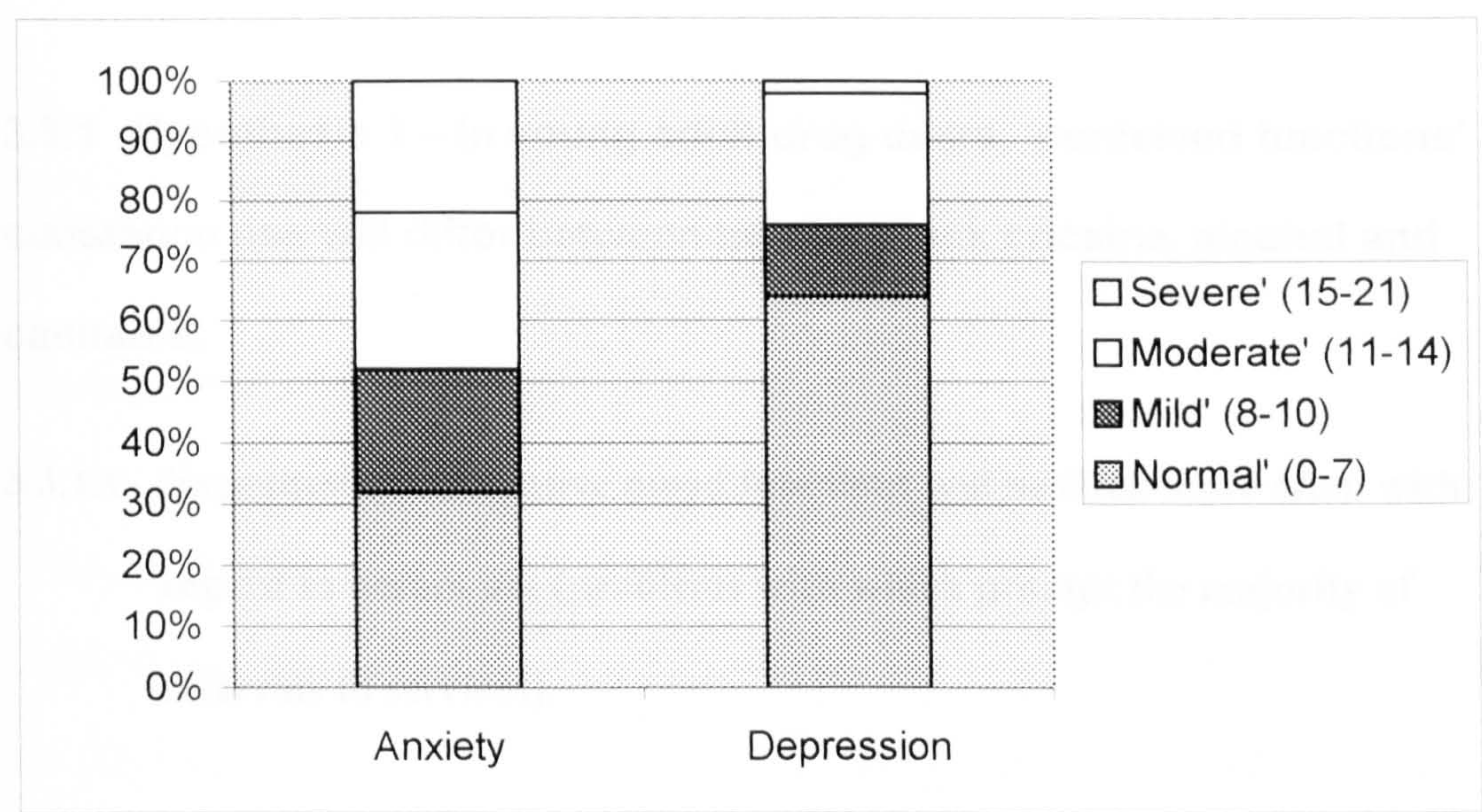
**Table 6    HADS anxiety and depression mean scale scores (n=50)**

	<b>Anxiety subscale</b>	<b>Depression subscale</b>
Mean score	10.24	7.14
(standard deviation)	(4.68)	(3.88)
Score range	1-20	0-15

Figure 5 shows the proportion of participants whose scores fell within each HADS category. Using Zigmond and Snaith’s (1983) definition of clinical caseness (11+), 47.1% were anxiety cases and 23.6% depression cases.



**Figure 5    Proportion of sample scoring within each HADS category (n=50)**



**Anxiety and depression scores by time in treatment**

A Chi Squared Test for independence was used to explore the relationship between time in treatment and anxiety/depression. The proportion of the sample showing anxiety or depression ‘caseness’ was not significantly related to time in treatment when the sample was split at either 2 months or 6 months (see Appendix 5). This suggested that anxiety and depression did not significantly improve with length of time in drug treatment.



### **3.3 Hypothesis testing**

**3.3.1 Hypothesis 1 – In young adult drug users, ‘perceived functions’ of substance use will differ between heroin, crack cocaine, alcohol and cannabis.**

**3.3.1.1 Hypothesis 1a. Negative mood functions will be cited more often with regard to heroin use (problems with which prompt the majority of referrals to services).**

Following the method of Boys *et al* (2001), a dichotomous ‘perceived function’ variable was created<sup>5</sup>. Data were then compiled on the proportion (%) of participants who had used each substance for each ‘perceived function’ during the previous year, as shown in Table 7.

#### **Heroin – ‘perceived functions’ of use (n=41)**

Seven of 11 heroin use functions were endorsed by over two-thirds of participants (mean number of functions endorsed=8.02) suggesting that heroin was expected to fulfil a wide range of functions (see Table 7). Heroin was most commonly used for negative mood functions: to RELAX, FEEL BETTER when depressed, STOP WORRYING, BLOCK PAST events, BLOCK CURRENT events and DECREASE BOREDOM. It was also used to ENJOY COMPANY. Heroin was therefore primarily used to alleviate negative mood (relax, lift mood and block feelings) rather than for social functions.

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<sup>5</sup> Dichotomous variable: 1=substance used for that function; 0=substance not used for that function.

**Table 7    Proportion (%) of participants who had taken [substance] in the past year, who endorsed each functional statement regarding their use of [substance] (N=51)<sup>6</sup>.**

Used [substance] to ...	Heroin	Crack	Alcohol	Cannabis
	Total % (n=41)	Total % (n=26)	Total % (n=31)	Total % (n=34)
<b><u>Negative Mood Function Scale (NMF)</u></b>				
RELAX	95.1	30.8	77.4	94.1
FEEL BETTER when down/depressed	95.1	65.4	67.7	85.2
STOP WORRYING	95.1	38.5	67.7	64.7
BLOCK PAST events	87.8	26.9	51.6	55.9
BLOCK PRESENT events	78.0	34.6	54.8	52.9
DECREASE BOREDOM	68.3	50.0	77.4	76.5
<b><u>Social Function Scale (SF)</u></b>				
ENJOY COMPANY	68.2	57.7	90.3	85.2
INCREASE CONFIDENCE	63.4	42.3	83.9	58.8
ENHANCE ACTIVITY	56.1	42.3	64.5	64.7
LOSE INHIBITIONS	48.7	34.6	80.6	55.9
KEEP GOING on a night out	46.3	46.2	58.5	44.1
Mean number of functions endorsed for use of each substance (range)	8.02 (2-11)	4.69 (0-11)	7.94 (1-11)	8.15 (1-12)

<sup>6</sup> Varying sub-sample sizes reflect the number of participants who had used each substance in the past year and fully completed the ‘perceived function’ measure (see Figure 2, p.66).



### **Crack – ‘perceived functions’ of use (n=26)**

All ‘perceived functions’ of crack cocaine use were endorsed by under two-thirds of participants and fewer functions were attributed to use of crack cocaine than for the other three substances (see Table 7). This suggested that crack cocaine use was less motivated by negative mood and social functions than were other substances.

### **Alcohol – ‘perceived functions’ of use (n=31)**

Seven ‘perceived functions’ of alcohol use were endorsed by over two-thirds of participants (see Table 7). The most frequently cited were social functions: ENJOY COMPANY, INCREASE CONFIDENCE, LOSE INHIBITIONS and negative mood functions: RELAX, DECREASE BOREDOM, FEEL BETTER when depressed and STOP WORRYING. Alcohol was therefore predominantly drunk for social functions but also fulfilled negative mood functions (relaxing and lifting mood rather than blocking feelings).

### **Cannabis - ‘perceived functions’ of use (n=34)**

Four ‘perceived functions’ of cannabis use were endorsed by over two-thirds of participants. The most commonly cited functions were to: RELAX, FEEL BETTER when depressed, ENJOY COMPANY and DECREASE BOREDOM (see Table 7). Participants therefore expected cannabis to fulfil both negative mood and social functions.

In summary, heroin was primarily used to alleviate or ‘block out’ uncomfortable mood states. Crack, alcohol and cannabis were used for both social and negative mood functions, with negative mood functions relating less to ‘blocking out’ difficult events.

**‘Perceived function’ measure - Likert-scale scores**

The means of Likert-scale scores were ranked, showing the frequency with which each ‘perceived function’ was attributed to use of each substance (0=‘never’ used for that function to 4=‘always’ used for that function). The ten highest mean Likert scores are shown in Table 8; again, heroin was used for negative mood functions more than were alcohol, cannabis or crack.

**Table 8    Ten highest means of Likert scale scores (in rank order)**  
(where 0=‘never’, 1=‘rarely’, 2=‘sometimes’, 3=‘often’, 4=‘always’ used substance for that function)

Substance used for ‘perceived function’	n♣	Mean Likert scores	Std. D
1. Cannabis to ‘RELAX’	36	3.17	1.108
2. Heroin to ‘RELAX’	43	3.05	1.068
3. Heroin to ‘FEEL BETTER’ when depressed	44	2.70	1.002
4. Heroin to ‘STOP WORRYING’	43	2.63	1.024
5. Heroin to ‘BLOCK PAST’ events	42	2.33	1.319
6. Alcohol to ‘ENJOY COMPANY’	33	2.33	1.242
7. Cannabis to ‘FEEL BETTER’ when depressed	35	2.31	1.345
8. Cannabis to ‘ENJOY COMPANY’	35	2.26	1.291
9. Alcohol to ‘INCREASE CONFIDENCE’	32	2.25	1.368
10. Alcohol to ‘KEEP GOING’ when out with friends	33	2.12	1.340

♣ Sample sizes differ from elsewhere because all completed ‘perceived function’ items were counted (elsewhere partially completed scales were excluded).

In sum, a larger proportion of heroin users endorsed negative mood functions than were endorsed for the other substances. Across all substances, the most frequent reasons for substance use included use of heroin to relax, feel better, stop worrying and block past events, whereas the most frequent reasons for alcohol and cannabis use were predominantly social reasons. All findings supported Hypothesis 1a.

### **3.3.1.2 Hypothesis 1b. Male and female young adult drug users will differ in the ‘perceived functions’ of their substance use (N=51).**

The Mann-Whitney U Test was used to examine gender differences in ‘perceived functions’ of substance use. For each of heroin, crack, alcohol and cannabis, no significant differences were found between male and female scores on ‘total function score’, negative mood functions (NMF) scale, social functions (SF) scale or number of functions cited. Individual heroin NMF items (endorsed by the greatest proportion of participants) also showed no significant gender differences. This suggested that in this young adult sample, functions of male and female heroin, crack, alcohol and cannabis use were similar.

### **3.3.2 Hypothesis 2 – In young adult drug users, ‘negative mood functions’ of heroin, crack cocaine, alcohol and cannabis use will differ according to experience of anxiety and depression**

#### **3.3.2.1 Hypothesis 2a. Male and female young adult drug users will differ in their experience of anxiety and depression.**

Welch’s t-test was used to examine male/female differences in ranked anxiety and depression scale scores. No significant differences were found<sup>7</sup> between male and female scores in the current sample, suggesting similar experience of anxiety and depression symptoms amongst male and female young adult drug users.

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<sup>7</sup> Welch’s t-test; anxiety,  $t=-.744$ ,  $p=.463$ ; depression,  $t=-1.373$ ,  $p=.182$ .



Table 9 shows male and female categorised HADS scores. Anxiety and depression scores were divided according to the cut-off for ‘caseness’ of 11+ (Snaith & Zigmond, 1994). Normal to mild cases (score range 0-10) are referred to as ‘sub-clinical’ and moderate to severe cases (score range 11-21) are referred to ‘clinical’. A Chi-Squared Test for independence was used to explore male/female differences in anxiety/depression.

**Table 9    Number (%) of males (n=33) and females (n=17) classed as having sub-clinical/clinical anxiety and sub-clinical/clinical depression (missing data n=1).**

	Anxiety		Depression	
	<u>Sub-clinical</u>	<u>Clinical</u>	<u>Sub-clinical</u>	<u>Clinical</u>
Male (n=33)	18 (54.5%)	15 (45.5%)	29 (87.9%)	4 (12.1%)
Female (n=17)	8 (47.1%)	9 (52.9%)	9 (52.9%)	8 (47.1%)
Chi-Squared Test	$\chi^2=.041, p=.839$		$\chi^2=5.715, p=.017^*$	

\* = significant at the 0.05 level

There was no significant difference between the proportion of males and females in the ‘clinical’ anxious group, but a significantly higher proportion of females than males in the ‘clinical’ depressed group. This suggested that amongst young adult substance misuse service-users, females were more likely than males to experience moderate to severe depression.

**3.3.2.2 Hypothesis 2b. More anxious/more depressed drug users will differ from less anxious/less depressed drug users in the substances they use.**

Anxiety and depression were measured from experiences in the past fortnight, so were explored in relation to ‘last month’ substance use. Table 10 shows differences in ‘last month’ substance use between ‘sub-clinical’ and ‘clinical’ anxiety/depression groups, as explored using the Mann-Whitney U Test.

**Table 10 Differences in ‘last month’ substance use between young adult drug users classed as having sub-clinical/clinical anxiety and sub-clinical/clinical depression (n=50)**

	Sub-clinical/clinical anxiety	Sub-clinical/clinical depression
Number of all substances taken in last month <sup>8</sup>	U=298.0 p=.789	U=142.0 p=.047*
Number of illicit substances taken in last month <sup>9</sup>	U=277.0 p=.488	U=122.50 p=.014*

\* = significant at the 0.05 level

<sup>8</sup> All substances taken in ‘last month’ from possible 16 (including alcohol and prescribed methadone/buprenorphine).  
<sup>9</sup> All illicit substances taken in ‘last month’ from possible 13 (excluding alcohol and prescribed methadone/buprenorphine).

Drug users in the ‘clinical’ depression group currently used a greater number of substances than those in the ‘sub-clinical’ depression group. This relationship was stronger when counting only illicit substances used. No relationship was found between anxiety and ‘last month’ use of substances. In sum, young adult drug users with ‘moderate’ to ‘severe’ depression had used more substances in the last month than those with ‘normal’ to ‘mild’ depression.

These findings were supported when a Spearman’s Rank Order Correlation was used to explore the relationship between continuous anxiety and depression scores and number of substances used in last month. Table 11 shows that higher depression (but not anxiety) scores correlated significantly with higher number of substances taken.

**Table 11    Differences in ‘last month’ substance use by extent of anxiety and depression in young adult drug users (n=50)**

Correlation	Anxiety scores	Depression scores
Number of all substances taken in	r=.099	r=.313
last month	p=.247	p=.014*

\* = significant at the 0.05 level

Finally, a Chi-Squared Test was used to explore the relationship between anxiety/depression and ‘last month’ use of each substance (using the nine substances taken by the most participants in the last month, see Table 3, p68). Only crack cocaine (n=12) and tranquillisers (n=7) were significantly related to depression at the 0.05 level. Taking into consideration the nine comparisons involved, a Bonferroni correction set the significance level at 0.005, which neither substance reached.



**Table 12    Substances taken in ‘last month’ showing potentially significant differences according to extent of anxiety/depression (sub-clinical/clinical categories).**

		Anxiety	Depression
Substance used in ‘last month’	crack	$\chi^2=.030, p=.863$	$\chi^2=4.127, p=.042 \spadesuit$
	tranquillisers	Insufficient count per cell	$\chi^2=7.242, p=.007 \spadesuit$

$\spadesuit$ =significant at 0.05 but not significant after Bonferroni adjustment.

In sum, it appeared that anxiety bore no significant relationship to the extent of ‘last month’ substance use. Depressed drug users were however using a greater number of substances, and there was an indication that use of crack and tranquillisers may be particularly likely amongst those with depressive symptoms. Hypothesis 2b was therefore upheld with regard to depression but not anxiety.

**3.3.2.3    Hypothesis 2c. More anxious/more depressed drug users will differ from less anxious/less depressed drug users in the ‘negative mood functions’ of their use.**

Spearman’s rho (r) was used to examine the strength of the relationship between total anxiety scores and negative mood functions (NMF) of substance use and between total depression scores and negative mood functions (NMF) of substance use. This was repeated for each of the four substances. The revised heroin NMF scale was used, containing 3 function items about alleviating worry and blocking difficult events. For the remaining substances, all five NMF items were used (as described in section 2.3.4, p60).

The ‘perceived function’ measure asked about experiences during the past year and HADS asked about experiences during the past fortnight. To address this discrepancy,

only data from ‘last month’ users of each substance were analysed. The assumption was that the ‘perceived function’ measure would then relate to ‘last month’ substance use and would more meaningfully relate to mood during the past fortnight (as measured by HADS). Table 13 shows the strength of correlations.

**Table 13    Correlations between anxiety/depression scores and ‘negative mood functions’ (NMF) of substance use amongst last month users of each substance**

	Anxiety	Depression
Heroin NMF (n=36)	r=.375 p=.013 *	r=.360 p=.017 *
Crack NMF (n=12)	r=.326 p=.164	r=.253 p=.227
Alcohol NMF (n=35)	r=.417 p=.015 *	r=.209 p=.148
Cannabis NMF (n=29)	r=.205 p=.169	r= -.079 p=.358

\* = significant at the 0.05 level

Results suggested that current use of heroin to block out worries and difficult experiences was more likely amongst those experiencing more anxiety and depression. Current use of alcohol to alleviate negative mood was more likely amongst those experiencing more symptoms of anxiety but not depression. Negative mood functions of crack and cannabis use did not relate to anxiety or depression.

**Social functions**

Spearman’s rho (r) was used to examine the strength of the relationship between total anxiety scores and social functions of substance use (SF) then total depression scores

and social functions of substance use (SF). This was repeated for each of the four substances. No relationships reached statistical significance, suggesting that ‘social functions’ of heroin, crack, alcohol or cannabis use did not relate to the experience of anxiety or depression.

Taken together, results suggested that anxious and depressed heroin users were using heroin to block out difficult feelings; anxious alcohol users were drinking alcohol to alleviate uncomfortable emotions; depressed alcohol users and anxious/depressed crack and cannabis users reported some use of substances to cope with difficult emotions, but this bore no significant relationship with anxiety or depression. For heroin and alcohol, participants appeared to have discriminated between the negative mood and social functions they attributed to their use.

### **3.3.3 Hypothesis 3 – Anxiety, depression and ‘perceived functions’ of substance use will be similar amongst all young adult drug users.**

#### **3.3.3.1 Hypothesis 3a. Within a young adult sample, adolescent and adult drug users will not differ in the ‘perceived functions’ of their substance use.**

The sample was split into two age groups to match usual divisions in service provision. These are henceforth referred to as ‘adolescents’ (age 16-18, n=11) and adults (age 19-25, n=40). It is acknowledged that referring to 19-25 year olds as adults could appear misleading, when adult samples often encompass those up to 65 years. The term adult is nonetheless used here to differentiate these participants within the wider category of ‘young adults’ (16-25 year olds). The Mann-Whitney U Test was used to test for differences between the two age groups in their NMF and SF



scale scores for each of heroin, crack, alcohol and cannabis. No significant differences were found in NMF and SF scale scores between ‘adolescents’ and ‘adults’.

Welch’s t-test was performed on ranked Likert-scores for each ‘perceived function’ item (44 items in total) but after correction to adjust for the 44 comparisons involved, no items achieved significance. A larger sample would be needed to examine differences between ‘adolescents’ and ‘adults’ in the endorsement of individual ‘perceived function’ items.

**3.3.3.2 Hypothesis 3b. Within a young adult sample, adolescent and adult drug users will not differ in their experiences of anxiety and depression.**

Within the current young adult sample, no significant differences were found between ‘adolescents’ and ‘adults’ in their ranked anxiety/depression scores (Welch’s t-test) or the proportion of clinical cases (Chi-squared test, see Table 14). The extent of anxiety and depression therefore seemed similar throughout the young adult sample, supporting Hypothesis 3b.

**Table 14 Tests for differences in anxiety and depression scores between ‘adolescents’ and ‘adults’ (n=50).**

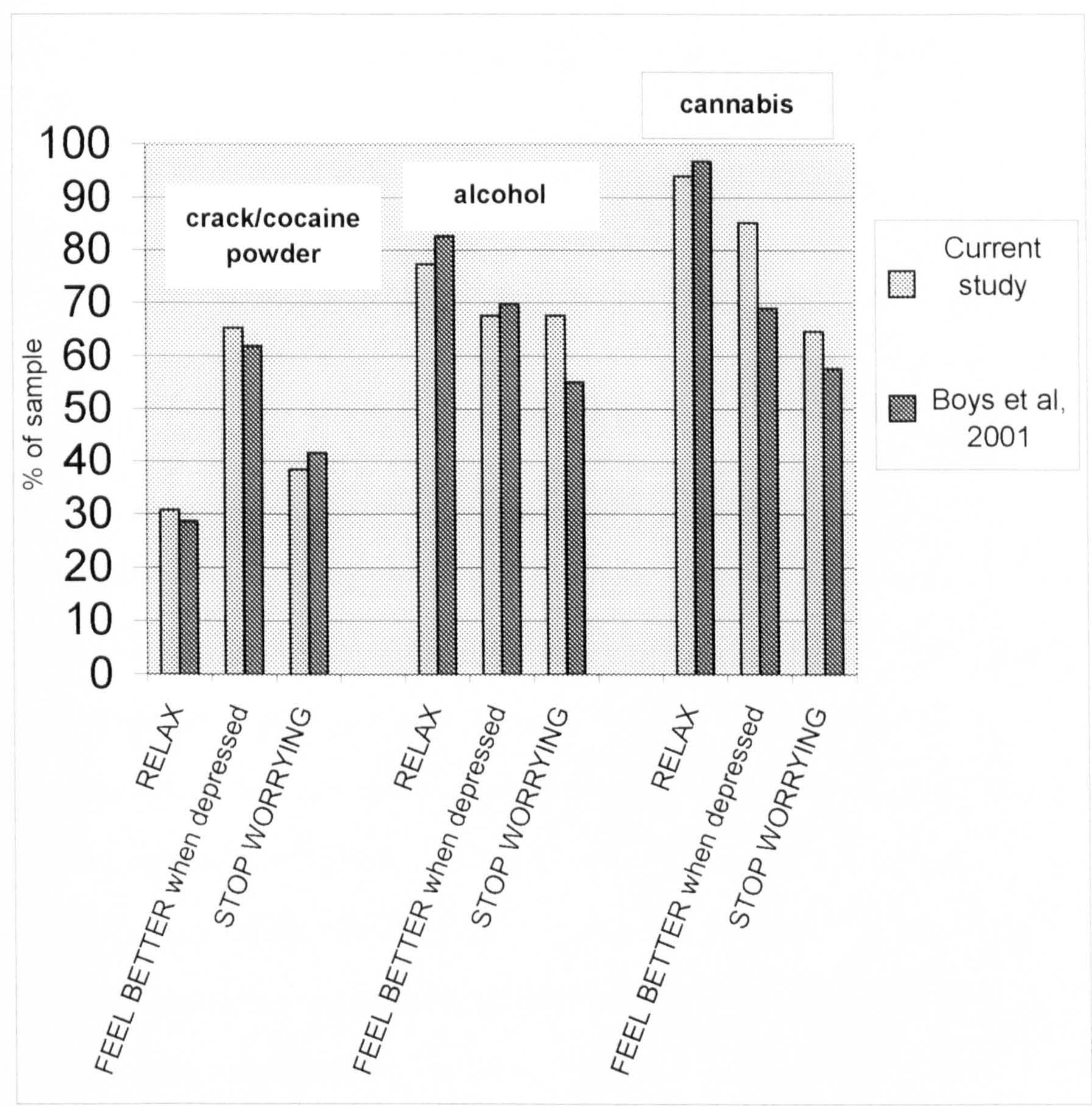
	Anxiety	Depression
Welch's t-test	t=1.61 p=.126	t=.99 p=.335
Chi-squared test	$\chi^2$ =1.381 p=.240	$\chi^2$ =1.182 p=.277



3.3.4 Comparison of negative mood functions in the current study with work by Boys and colleagues

Figure 6 compares endorsement of NMF items in the current study and in work by Boys and colleagues (2001), where function items and substances were common to both studies.

Figure 6 The proportion of young adult treatment and non-treatment samples endorsing negative mood functions for cocaine, alcohol and cannabis use



These young adult samples differ widely in their demographics and overall substance use, but endorsement of these three negative mood functions seemed fairly consistent



across both samples. This suggested that where equivalent substances had been used, some negative mood functions of each substance were consistent across young adult populations.



## 4 Discussion

The current study explored relationships between functions of substance use and mental health problems amongst young adults (age 16-25 years) in drug treatment. Discussion of the results is followed by a summary of study limitations, then clinical and research implications will be discussed separately in the final two sections.

### ***4.1 Mental health problems amongst young adults in drug treatment***

The current sample of young adult drug users reported more anxiety than depression (Table 6, p74). This contrasted with UK adult drug treatment samples where a higher prevalence of depression than anxiety has been found (Gossop et al., 1998; Weaver et al., 2003) and such prevalence has not differed by age (Weaver et al., 2001). The relationship between depression and substance misuse has also been consistently supported in community samples of young people (Zeitlin, 1999). With regard to young adult anxiety, the relationship between anxiety disorders and substance misuse remains weak and inconsistent (Armstrong & Costello, 2002) although some associations have been demonstrated in females (Kandel et al., 1999) and regarding PTSD in particular (Lopez et al., 2005). The higher prevalence of anxiety than depression in the current study therefore contrasted with findings from adult drug treatment samples and young adult non-treatment samples and the reasons for this remain unclear. Future research is therefore necessary to investigate anxiety and depression prevalence in young adult drug treatment samples (see section 4.9).

The current study found that last month use of greater number of substances (polydrug use) correlated with higher depression scores (but not anxiety scores; Table

10, p82). Data also suggested a possible relationship between increased depression scores and current use of tranquillisers and crack cocaine (Table 12, p84), although this failed to reach statistical significance. The relationship between polydrug use and depression contrasted with other findings (Marsden et al., 2000) where it was anxiety scores that were highest amongst opiate users who also used multiple additional substances (particularly crack, amphetamine, tranquillisers and alcohol). Hence it seemed that polydrug use relates in some way to increased mental health problems, but that there is not a consistent relationship with either anxiety or depression. Polydrug use therefore needs to be considered within mental health interventions with those in drug treatment (see section 4.8). The underlying relationship between polydrug use and mental health problems was not explored within the current study and might be a direction for future research (section 4.9).

The current study found no differences in young adult anxiety or depression scores according to time in drug treatment (Appendix 5). This differed from adult findings where mental health scores were lower after two months in drug treatment (Finch et al., 1995). This suggested that young adult anxiety and depression were not significantly improved by treatment in drug services, the clinical implications of which are explored in section 4.8.

## ***4.2 Negative mood functions of substance use and their relationships with mental health***

Prior to the current study, negative mood functions of substance use had not been explored amongst a drug treatment sample or accompanied by measures of mental health. The current study addressed these deficits, predicting that of the four substances, heroin was most likely to be used for negative mood functions

(Hypothesis 1a) and that drug users who were more anxious/depressed would cite more negative mood functions for their substance use (Hypothesis 2c).

#### 4.2.1 Heroin

The first of these hypotheses was supported, with negative mood functions (NMFs) cited more often for heroin use than for crack, alcohol or cannabis use. Participants' perception that heroin helped them to relax, feel better when depressed and block out past/current events might be explained at one level by the pharmacological effects of heroin:

*"It is probably one of the most pleasurable experiences I've had. All the pain goes. All the anger is gone. I was lying on the sofa floating happily. It makes you feel safe and warm like being wrapped up in a blanket".*

(Drugscope, 2005)

This demonstrates the efficacy with which heroin removes uncomfortable emotional states. Such subjective accounts of the pharmacological effects of heroin perhaps explain why negative mood functions were found to be the main functions of heroin use.

The current study used a heroin negative mood function scale containing three items; stop worrying, block past and block current events (see section 2.3.4, p59). Significant relationships were found between the heroin negative mood function scale and both anxiety and depression scores. Consequently, those who reported using heroin to stop worrying/block events were also experiencing more symptoms of anxiety and depression.



The current study therefore demonstrated that a reduction in awareness of uncomfortable mood states was an important function of heroin use, especially when heroin users had anxiety or depression symptoms. The efficacy of heroin to immediately 'block out' negative emotions is unlikely to be matched by any other method of managing mood and is therefore likely to have a powerful reinforcing effect.

#### **4.2.2 Crack cocaine**

With regard to crack cocaine, fewer functions were endorsed than for the other substances and negative mood functions of crack use did not correlate with anxiety or depression. Possible reasons for this are discussed below.

Firstly, crack was used less frequently than the other substances (see Appendix 4) so participants may have found it harder to recall the functions of their use. Boys and colleagues (2000, 2001) avoided this by only measuring perceived functions where a substance was regularly used. Secondly, conversations with participants suggested that they did not perceive their crack use to be motivated by any function, but that crack was used '*because it was there*'. It was possible that use of crack was a compulsive act rather than being motivated by a perceived function of using. This was likely to be compounded by the fact that crack "*doesn't last that long so the temptation is to have another go*" (Drugscope, 2005). Thirdly, anecdotal information from participants suggested that crack was sometimes used '*to feel something*'. This fitted with Khantzian's (1997) self-medication hypothesis, which included substance misuse as a response to an absence of feelings. In sum, participants found the negative mood and social function items less relevant to use of crack cocaine and use of crack to alleviate negative mood did not relate to anxiety or depression.

### **4.2.3 Alcohol**

In the current study, social functions were most commonly endorsed for alcohol use (enjoy company, increase confidence, lose inhibitions) and the most frequently endorsed negative mood function of alcohol was to relax. These functions seemed to reflect the pharmacological effects of alcohol (Heather & Robertson, 1997) and its availability in a wide range of recreational settings.

Use of alcohol to alleviate negative mood correlated significantly with extent of anxiety. This possibly reflected the CNS depressant effects of alcohol that might counter the high arousal experienced in anxiety. Given that alcohol was predominantly used for social functions, the link with anxiety might also be explained by use of alcohol to alleviate anxiety in social situations. Use of alcohol to alleviate negative mood did not correlate with depression. This was perhaps because the CNS depressant effects of alcohol would be less effective at alleviating symptoms of depression. Alcohol effects are often influenced by expectancies (Heather & Robertson, 1997) so it is also possible that participants expected alcohol to be effective at alleviating anxiety rather than depression, although more research would be needed to explore this.

### **4.2.4 Cannabis**

In the current sample of young adults, the functions most often endorsed for cannabis use were to relax, feel better when depressed, decrease boredom and enjoy company. Negative mood functions of cannabis use did not correlate with anxiety or depression. Again these findings seemed to fit with the pharmacological effects of cannabis:

“... it was just to relax. It reduced the tension after a days work. We just used to sit around giggling and playing music and then getting the munchies and eating our heads off”.

(Drugscope, 2005)

Cannabis may therefore relieve tension but seems less effective than heroin at alleviating negative mood. Consequently negative mood functions were not the predominant functions of cannabis use amongst the current young adult sample and did not correlate with anxiety or depression.

#### **4.2.5 Negative mood functions and extent of problems**

The different negative mood functions endorsed for each substance might also be explained by differences in the extent of problems with each substance. In the current sample, heroin was the main substance prompting referral to drug treatment (suggesting heroin problems) and also showed the most negative mood functions.

Young adult non-treatment samples have shown links between problem substance use and the use of that substance to manage mood (Cooper, 1994; Labouvie, 1986).

Furthermore, use of substances or gambling to alleviate negative emotional experiences has been one of the factors that people with substance or gambling problems have used to define their behaviour as problematic (Larkin & Griffiths, 2002). Because this link between negative mood functions and problems has been reported regarding gambling (Larkin & Griffiths, 2002), it seems to occur independently of pharmacological effects. This could not be explored within the current study but may provide a direction for future research.



#### **4.2.6 Perceived functions of multiple substances used**

Most of the current sample of young adults used a combination of heroin, crack, alcohol and/or cannabis. Each of these four substances differed in the negative mood functions of their use and in how these negative mood functions related to anxiety and depression. Further research would be needed to explore whether the functions of substance use were influenced by the combination of substances used, but it seems likely that young adults made substance use choices based on the propensity of each substance to fulfill particular functions. This is supported by data from qualitative research (Boys et al., 1999), where an 18 year old female respondent described that:

*“If someone’s upset me or I’m in a bad mood, then I’ll beg up £10 and I’ll go and get an amp [ampoule of methadone] ... but if I’m in quite a jolly mood, then I’ll get cannabis”.*

(Boys et al., 1999, p.377).

The use of particular substances to fulfil particular functions suggests that young people make informed choices about their substance use. This is likely to have implications for drug treatment (section 4.8).

#### **4.2.7 Comparisons between young adult samples: substance use and negative mood functions**

Substance use has differed widely between young adult samples (Figure 4, p73) and the use of Class A substances was far higher in the current young adult drug treatment sample than in other young adult community (Home Office, 2004) or purposive samples (Boys et al., 1999, 2000). This suggested that young adult non-treatment research samples would contain insufficient use of Class A substances (such as

heroin) to be relevant to young adults in drug treatment. Nonetheless, where use of the same substances could be compared, negative mood functions were endorsed by a similar proportion of young adult drug users whether in drug treatment or not (Figure 6, p88).

Consequently, the use of some Class A substances (heroin and crack) was fairly unique to drug treatment samples but where equivalent substances were used, young adults from both treatment and non-treatment samples chose to use the same drugs to fulfill the same negative mood functions. The similar endorsement of negative mood functions of cocaine powder and crack cocaine use was particularly surprising, because although derived from the same substance they differ in their effects and the culture surrounding their use (Tyler, 1995). It may however be that the extent of problems is the significant factor and that alcohol, cannabis and cocaine/crack were used similarly in both purposive and treatment samples, because they were rarely the substances prompting referral amongst those in drug treatment. Similarities might also be explained by the pharmacological effects of substances, which would be constant across both samples.

### **4.3 Gender differences**

The current study found no significant differences in self-rated male and female anxiety, but females were experienced significantly more depression (Hypothesis 2a). These results cannot be compared with other young adult drug treatment samples, because no previous studies have reported separate young adult data. Adult females in drug treatment have however shown more anxiety and depression than their male counterparts (Darke et al., 1994; Marsden et al., 2000). Further research is necessary to explore why, in contrast to adult studies, young adult males and females in the current sample showed similar anxiety levels (section 4.8). A developmental or environmental aspect of young adulthood may have contributed to prevalence of anxiety and depression in these young adults. It is also possible that women showed more depression than males because of common experiences of childhood abuse (Charnaud et al., 2000), which can lead to affective vulnerability (Finkelhor & Browne, 1984).

Despite differing levels of female and male self-reported depression, the current study found no gender differences in perceived functions of substance use (Hypothesis 1b). Possible explanations were that pharmacological effects of substances were the main factor determining functionality, or that gender differences existed within the current sample but did not reach significance due to small sample size. Further research might clarify this, as discussed in section 4.8.



#### ***4.4 Adolescent and adult differences***

Within the current young adult sample, ‘adolescents’ (16 to 18 year olds) and ‘adults’ (19 to 25 years) did not significantly differ in their perceived functions (Hypothesis 3a) or anxiety or depression scores (Hypothesis 3b). Mental health needs and ‘perceived functions’ of drug use therefore seemed similar throughout the young adult sample, with young adults presenting as a homogenous group in terms of anxiety, depression and the functions of their drug use. This supported the utility of researching young adults (during the transition to adulthood) as a separate group. The clinical and research implication of this are discussed in sections 4.8 and 4.9, including reference to developmental factors not measured in the current study.

#### ***4.5 Substance use by young adults in drug treatment***

The majority of participants in the current study were prescribed methadone or buprenorphine, and most currently used several additional substances, largely alcohol and heroin (Table 4, p71). The use of a greater number of substances by young adults in the current sample also correlated with increased depression scores (Hypothesis 2b). Such use of several substances increases the potential for overdose, especially in use of multiple sedatives such as opiates, alcohol and tranquillisers (Powis et al., 1999; Strang et al., 1999). Furthermore, a third of the sample had taken illicit (non-prescribed) methadone during the past three months (Table 3, p68). Such use of illicit methadone could pose significant risks, because illicit methadone has been implicated in twice as many drug-related deaths than prescribed methadone (Ghodse et al., 2004). Given these risks and the link between polydrug use and depression it seems

vital that drug treatment addresses young adult use of multiple substances and this is discussed further in section 4.8.

## **4.6 Study limitations**

### **4.6.1 Design**

The current study used a cross-sectional design, which did not allow temporal causality to be examined. The major focus was on subjective experiences of mental health/substance use functions and how these might inform clinical responses.

The current young adult sample included those who were below the typical age of onset for psychotic symptoms and too young to be diagnosed with personality disorder (American Psychiatric Association, 1994) so such diagnoses were not considered. Consequently debates such as the relationship between cannabis and psychosis were not addressed, instead focussing on anxiety and depression that have affected the largest proportion of drug treatment attenders (Weaver et al., 2001).

The sample size (N=51) exceeded power estimates but represented a small proportion of potential participants and was sometimes inadequate when sub-samples were examined. Recruitment was influenced by motivational factors in both staff and service users, leading to an unavoidable selection bias. Informal information from caseworkers suggested that non-participants often used multiple substances, were poorly engaged in treatment, on the verge of being discharged or had chaotic personal circumstances. For instance, no homeless service-users participated despite persistent attempts at engagement. Consequently research participants might have had less severe problems than young adult service-users as a whole. Because participants were from drug treatment services, results cannot be generalised to non-treatment samples of drug users or other young adult populations.



#### **4.6.2 Substance use measures**

A measure of substance use was developed by the principal investigator for the current study, so had not been validated. There was confidence in the use of self-reported data because 93% concordance has been found between self-reported drug use and urinalysis (Gossop et al., 1998). Several problems were however noted, all of which arose from attempts to reduce the demands on participants completing the questionnaire: (1) The frequency and quantity of current substance use would have been valuable data in addition to recency of use; (2) The use of categories (e.g. time in treatment) limited the possible analyses and was later regretted; (3) The 'extent of problems' measure was chosen for its brevity, but participants only rated past year heroin use as problematic, so a more detailed measure of problems would have been more useful.

#### **4.6.3 Perceived function measure**

The format of the 'perceived function' measure was retained from original work by Boys and colleagues (2001), but with all items worded in a positive direction there was a possibility of a response bias (Clark-Carter, 2004). The measure was originally administered at personal interview and the current study used a self-completion questionnaire. Nonetheless, where comparisons could be made (Figure 6, p88), consistency in endorsement of negative mood functions supported the utility of the questionnaire format. 'Perceived functions' represent subjective beliefs about substance use so self-reported data was necessary to access such internal motivations and subjective experiences (Cooper, 1994). Three perceived function items were added for the purposes of the current study. 'To relax' and blocking of past and current events were amongst the most frequently cited functions of heroin, alcohol



and cannabis use, supporting the relevance of these items to young adults in drug treatment.

#### **4.6.4 Mental health measure**

In the current study, anxiety or depression ‘caseness’ was defined by a HADS score of 11 or more, as defined by HADS manual (Zigmond & Snaith, 1983). This was chosen because the principal investigator considered the current drug treatment sample to share more in common with HADS standardisation samples (Zigmond & Snaith, 1983) than samples from which a cut-off score of eight was recommended (Bjelland et al., 2002). Using a symptomatic threshold may have obscured variation in symptoms above and below the cut-off, but HADS scores were used as both continuous and categorical variables, often yielding the same significant relationships.

### ***4.7 Clinical implications***

#### **4.7.1 Young adults in drug treatment**

No age differences were found between adolescents and adults in ‘perceived functions’, anxiety or depression, indicating similar experiences throughout this young adult sample. Such young adult drug treatment data has not previously been reported in the literature so may aid the interpretation of national guidelines that suggest changing service responses to young adults (DH, 2004; HAS, 2001; NTA, 2002, 2005).

### **4.7.2 Methadone and psychosocial interventions**

The majority of study participants were prescribed methadone but reported current use of multiple additional substances, including illicit methadone. Such polydrug use increases the risk of overdose and death (Ghodse et al., 2004; Powis et al., 1999) so needs to be addressed within drug treatment. Methadone is known to improve health and social functioning and reduce crime and drug related deaths (Witton & Ashton, 2004) but has low efficacy for reducing use of substances other than opiates (Brooner et al., 1997). Consequently methadone alone is insufficient to address polydrug use.

The current study did not measure interventions other than methadone and buprenorphine, so the provision of additional support or psychosocial interventions was not quantified. Elsewhere, methadone has been most effective when provided alongside goal-oriented psychosocial interventions such as counselling, particularly when caseworkers prioritise engagement and are optimistic about treatment outcomes (Ashton & Witton, 2004). Given that young adults can be difficult to engage in services (Willis, 2005), skilled workers would be needed to engage young adults and deliver the psychosocial interventions necessary to reduce levels of polydrug use (see 4.7.5. regarding workforce development). Reducing the availability of illicit methadone (perhaps through supervised consumption) also needs to be prioritised.

### **4.7.3 Mental health interventions within drug services**

Within the current sample of young adults in drug treatment, there were high levels of clinically significant anxiety and depression that did not improve with time in drug treatment. Suicide risks were not measured, but evidence from other studies has suggested a need for concern (Weaver et al., 2001).

Other UK research has shown that all but the most severe mental health problems tend to go unrecognised by drug services (Weaver et al., 2003), suggesting a need for explicit mental health assessment skills and tools. The HADS (Snaith et al., 1994) was used successfully in the current study and might be an appropriate screening tool. A brief screening interview has also been successfully piloted (Strathdee et al., 2002). Such basic mental health screening would be particularly valuable with clients shown to be at a greater risk of problems, such as females or polydrug users.

The current study did not measure whether mental health interventions had taken place, but similar prevalence of anxiety and depression regardless of time in drug treatment suggested that mental health problems may not have been addressed. Where people with low severity of mental health problems do not meet eligibility criteria for specialist mental health services, drug services are expected to offer mental health interventions through local partnership and consultancy with specialist mental health services (DH, 2002). Given the extensive anxiety and depression in the current young adult drug treatment sample, it appears that substance misuse workers would need additional training and clinical supervision to address young adult mental health needs, especially where problems do not warrant referral to specialist mental health services (see section 4.7.5 regarding workforce development).

#### **4.7.4 Functionality of substance use**

In the current study, use of heroin to alleviate negative mood correlated with higher self-reported depression and anxiety. For heroin users in UK drug services, methadone is the dominant form of treatment (NTA, 2002). Negative mood functions are unlikely to be influenced solely by prescribed methadone, which has a similar pharmacological action to heroin and does not in itself address such underlying



motivations for use. Alcohol use to alleviate negative affect correlated with anxiety and again, this may not be addressed within treatment focussing on heroin use and methadone prescribing.

An assessment of the perceived functions of drug use could however guide clinical interventions with young adults to develop alternative strategies to cope with difficult emotions. This would fit with relapse prevention strategies, which aim to increase the repertoire of activities used to maintain a sense of well-being, rather than relying solely on one potentially harmful behaviour such as substance misuse (Marlatt & Gordon, 1985).

Dialectical Behaviour Therapy (DBT) also facilitates the ability to identify and manage difficult emotions, without engaging in harmful behaviour. DBT was developed to treat borderline personality disorder and has included work with dependent drug users (Linehan et al., 1999), with treatment goals including increasing the ability to regulate emotions and to tolerate distress (Linehan, 1993). There is some promising evidence for the efficacy of DBT, but it is a complex and intensive approach that is likely to exceed the resources of most health services (Blennerhassett & O'Raghallaigh, 2005).

Where heroin is used to block out past events, this may relate to experiences of childhood abuse. A variety of therapeutic interventions have been found helpful for survivors of child sexual abuse and when undertaking such work, good clinical supervision is vital to manage the emotional responses of therapists (Llewelyn, 1997). Interventions to address the underlying causes of difficult emotions, such as sexual abuse, might reduce the use of substances to regulate mood.

In sum, several psychosocial or therapeutic interventions might reduce the negative mood functions of substance use. A skilled workforce would be necessary to make

such interventions available within drug treatment services, and the practical implications of this are discussed below.

#### **4.7.5 Workforce development**

Evidence on treatment effectiveness shows that psychosocial interventions are well placed to address mental health problems and the underlying motivations for substance use. Substance misusers with mental health problems are however difficult to engage in treatment and have more criminal involvement, social problems (Strathdee et al., 2002) and poorer treatment outcomes (DH, 2002) than those without mental health problems. Furthermore, the ability of drug workers to engage their clients plays a large part in determining outcome (Ashton et al., 2004), but young adults have been shown to be less engaged in mental health treatment than adults (Willis, 2005). The delivery of successful psychosocial interventions would therefore be a challenge requiring highly skilled, supervised clinicians, with experience of engaging and working with young adult drug users.

The National Drugs Strategy (Home Office, 2002b) states that there is a shortage of experienced and ‘suitably qualified’ drug workers and includes plans to ensure appropriate training for existing and new workers (Home Office, 2002b).

Nonetheless, more specific training is likely to be needed in order to meet the complex needs of young adults in drug treatment, particularly to provide specific interventions such as relapse prevention, DBT or interventions regarding underlying causes of difficult emotions (e.g. sexual abuse). Such training would also need to be accompanied by supervision and organisational support for specialist interventions. Clinical psychologists seem ideally placed to formulate complex cases, deliver interventions and supervise colleagues, but to date, few drug treatment services have included psychologists. In sum, supervised psychosocial interventions seem unlikely

to be routinely available to young adult drug users with comorbid mental health problems.

## **4.8 *Research implications***

### **4.8.1 Young adulthood**

Although the current study offers initial findings regarding anxiety, depression and perceived functions in young adult drug users, there is a need for further research with drug treatment samples to clarify whether the needs of young adults differ from those of adults. Further research is also needed to explore the interplay between the transition to adulthood and substance misuse and to investigate developmental factors (Weisz & Hawley, 2002) and socio-economic factors (Jones, 2002) that may influence young adult treatment needs.

### **4.8.2 Young adult substance misuse**

The use of Class A substances was common in the current young adult treatment sample but rare in other young adult samples. Many studies have sampled adults in drug treatment, but young adult and adolescent clinical samples have been largely neglected. Given that substance effects seem influential in determining their functionality, more research is needed with drug treatment samples, to ensure sufficient evidence regarding use of drugs such as heroin. Furthermore, the majority of participants used multiple substances so additional research using larger samples would be helpful to explore polydrug use patterns and whether these relate to mental health.



There is a need for a validated measure of alcohol and drug use that can identify problematic use and is acceptable to research participants. Ideally this would be standardised on a large sample with norms for both adolescents, young adults and adults.

#### **4.8.3 Mental health of substance misusers**

Despite the rationale for focussing on anxiety and depression in the current study, future research might usefully include measures of a wider range of mental health problems (e.g. personality disorder) to enable more extensive analyses. Larger samples might enable further analyses on sub-samples that were of insufficient size in the current study (e.g. depressed females). If results were also reported by age, this would enable fuller comparisons with other studies, perhaps elucidating on the relatively high levels of anxiety found in the current study. Consideration would however need to be given to participant motivation to complete lengthy measures.

#### **4.8.4 Perceived functions**

Research on ‘perceived functions’ has so far been with young adult samples. It would be interesting to investigate ‘perceived functions’ amongst adult drug and alcohol treatment samples. The perceived functions of heroin use may have been influenced by the combinations and doses in which heroin, methadone and buprenorphine were consumed, so further exploration of this would be valuable. Existing research has investigated the functions of individual substances that are in reality used in combination by young drug users. Further analysis of the functions of polydrug use might help to understand factors such as the relationship between the use of multiple substances and higher anxiety or depression. Larger samples would enable further analyses of subgroups where the current study had insufficient numbers for analysis.

The extent of problems with substances, measured using DSM criteria, has been found to relate to negative mood functions of substance use (Boys et al., 2000). Future research with drug treatment samples might usefully include a detailed measure of problems and detailed data on patterns of drug use, to explore how these relate to perceived functions of use.

The current study found crack cocaine use related less to social and negative mood functions than the other substances. Qualitative research might generate motivations for crack use and would be important given the impetus to develop separate interventions for crack users (Britton et al., 2003; Home Office, 2002a).

The current study has proposed a link between the ‘perceived functions’ of substance use and triggers for relapse, as identified within the relapse prevention model (Marlatt et al., 1985). Further research is needed to establish whether drug users also have methods of alleviating negative mood that do not involve substance use. Finally, single case designs or clinical trials could test the validity and utility of using perceived functions to inform the delivery of relapse prevention or other psychosocial interventions.

## 5 Conclusion

The current study aimed to address a paucity of data in two fields: Firstly functionality of substance use was explored amongst a drug treatment sample, accompanied by measures of mental health; secondly, mental health problems were examined in young adult substance misusers.

Where different young adult samples reported use of the same substances, the functions of substance use seemed universal, but young adults in drug treatment were a distinct group by virtue of their opiate use. Heroin functioned to block out (or reduce awareness) of difficult feelings including anxiety and depression. Alcohol appeared functional to alleviate anxiety but not depression. It was argued that the pharmacological effects of substances were the main influence on functions and most participants currently used several substances to fulfil different functions.

High levels of anxiety and depression were found amongst these young adults in drug treatment. This differed from findings in other drug treatment samples, because anxiety was more prevalent than depression in the current study, whereas the opposite is generally found.

Young adults in drug treatment presented as a group with extensive mental health problems and a complex pattern of functions for the multiple substances used. It is now expected that drug treatment will address some mental health problems (DH, 2002) and that services will adapt their provision to better meet the needs of young adults (DH, 2004; NTA, 2002, 2005). Other than studies of prevalence, research to date has barely explored relationships between substance use and mental health problems in UK drug treatment samples, or specifically sampled young adults. Until the needs of this population are better understood, it is unlikely that services will be able to effectively respond to their needs.



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# Section 3 - Critical appraisal

The completion of my doctoral research has spanned two years, from initial ideas about a literature review topic, to submission of the current documents. The following reflections summarise my experiences of this research process.

## **1 Choice of research area**

I have had a long-standing interest in young peoples' substance use, explored through my undergraduate dissertation (Orbell et al., 2001), voluntary work, then employment within an NHS Community Drug Team. My application for clinical psychology training arose from my work in this NHS drug service for young people. Most service users were heroin users and many had damaging histories that seemed to leave them with significant mental health problems. Their substance misuse almost always excluded them from specialist mental health services, but I felt ill equipped to intervene. I hoped that clinical psychology training would develop my ability to understand complex problems and make me better able to meet mental health needs amongst vulnerable adolescents.

My interest in young drug users continued throughout clinical psychology training, as I related new knowledge to my memories of work with former drug using clients. I was fortunate to study at a clinical psychology course where my interests were encouraged, with two tutors having backgrounds in substance misuse. Consequently adolescent drug use seemed a natural subject area for my doctoral research.

Throughout the research process, my prior clinical experiences with drug users were invaluable. It meant that I had clinical experience of working in similar teams to those where data would be collected and I was able to build on my basic knowledge of the evidence base and theoretical issues. Although aware that young drug users

may be challenging to engage in research, I was motivated to explore the unmet needs that had frustrated me as a clinician.

I hoped to undertake quantitative research, expecting to find this more manageable than qualitative research within the demands of clinical psychology training. Whilst searching existing literature with this pragmatic consideration in mind, I found that there was plenty of need for quantitative studies. Despite this I would be keen to undertake qualitative research with young drug users in the future, because their voices have so rarely been evident in existing research.

## **2 Literature review**

Initial conversations with my academic supervisor led to a meeting with the Team Leader of a local young people's drug service, to discuss possible areas for literature review. Prior to the meeting I reviewed two policy documents (Department of Health, 2003; Health Advisory Service, 2001) to identify current national priorities. After discussion, drug users' transitions from adolescence to adulthood seemed a pertinent topic.

From that point on, the literature review was without doubt the hardest thing I have ever done. I struggled to find psychological literature of relevance but sociological literature was plentiful, so it was hard to identify a focus and to develop a coherent structure to the review. I was keen to address unmet young adult needs, but most studies were with either adolescents or adults, so accessing relevant evidence was challenging. After submitting the literature review as a piece of coursework in August 2003, I endlessly re-wrote the review as I found more relevant literature and became more competent to combine and critique evidence. I felt a huge sense of achievement (and relief) when it was finally finished. I nonetheless expect that future literature



reviews will be less arduous because I can now be more efficient and selective from the outset.

### **3 Progress, timescale & conduct of research**

#### ***3.1 Initial planning***

Planning of the research (from literature review onwards) was aided by the availability of supervisors. Within the clinical psychology training course there was an obvious choice of academic supervisor who had extensive substance misuse experience, including research and practice in local services. This meant that I had easy access to guidance, long before academic supervisors were officially allocated. Likewise with my field supervisor, I was the only trainee in my cohort who sought a third year substance misuse placement. This enabled me to plan my data collection on the assumption that I would be on placement at the drug service, despite it being several months until this was allocated and confirmed. Such early planning was vital to the success of the study, giving time to involve services and give considerable thought to theoretical and practical aspects of the research design.

#### ***3.2 Developing the questionnaire***

Designing the research and developing the questionnaire was a demanding period, during which I struggled to define variables on which to focus on and which relationships to explore. Meetings with supervisors and local clinicians were helpful, as were conversations with colleagues who had recent research experience. Even with such help from others, it was a labour intensive process.

Developing the questionnaire crystallised my struggle to find relevant measures and plan a coherent, focussed piece of research. I was motivated by my choice of focus on an area of unmet need, but this choice also created problems: I was focussing on young adults, but most measures were either standardised with adolescents or with adults; I was focussing on mental health problems amongst substance misusers, but my past clinical experiences shed doubt on the value of many mental health measures (either because they were lengthy and complex or included symptoms that mirrored drug effects). Furthermore, an extensive search revealed that substance misuse was often measured through an interview (e.g. Marsden et al., 1998). I found no substance misuse measures that were concise, validated, standardised and appropriate for self-completion. Consequently new measures were developed for this research.

Another dilemma was choosing which substances to focus on. I based my choice (of heroin, crack, alcohol and cannabis) on national evidence, discussions with clinicians and on data from local services. Although the choice of substances was based on available data, I could not be sure that these would be the substances most commonly used by research participants. It was a source of satisfaction when data confirmed that (other than prescribed substances) these were the four substances that participants had most commonly used in the last month.

I sought comments on an early draft of the questionnaire from four peers with research experience, one of whom currently worked with young offenders.

Additionally I sought feedback from two friends with no experience of research or working in health or social services. This feedback from professional and lay perspectives was extremely useful, leading to further drafts. The questionnaire was then refined through discussions with supervisors and finally piloted with a service user and clinical teams in August 2004. It was a relief to get positive feedback from a service user and his comments were invaluable. I made many attempts to meet with



other service users and was frustrated that time constraints prevented any further piloting of the questionnaire. At this time I also presented the draft questionnaire and research proposal to the two teams where data collection was planned. Unexpectedly, both teams seemed interested in the research and happy to participate, also giving valuable feedback with resulting changes leading to a better questionnaire.

Having invested so much time in developing the questionnaire, it was always anxiety provoking to seek feedback from other people. Such feedback undoubtedly improved the questionnaire and identified problems while changes could still be made. Additional consultation with potential participants would have been likely to further enhance the research. It is my hope that in future research projects, being permanently based within a team/locality will allow more extensive involvement of service users.

### ***3.3 Obtaining ethical approval***

My completion of the ethics form began in January 2004; I expected to submit to the ethics committee in March, but finally submitted at the start of June. Preparing the questionnaire and other necessary documents was a lengthy and tiresome task, but helpfully forced me to think about every aspect of the study, raising several practical and ethical considerations that were as yet unplanned. I invested considerable effort in the process and was pleased when my academic supervisor described my ethics application form as 'impressive'. The whole process of applying for ethical approval took much longer than expected and I was glad to have started early. On reflection, it was extremely helpful to address problems at that early stage rather than encounter unexpected difficulties later on.



When a response came from the ethics committee I was surprised and pleased with their decisions. Aside from a few minor changes, their main request was that the completion of the questionnaire be taken to imply consent, rather than having a separate consent form. The application guidelines had indicated that a written consent form was essential, but the committee was concerned that an additional form might deter potential participants. The consent form was removed from the procedure and full ethical approval granted in September 2004.

### **3.4 *Data collection***

The questionnaires were distributed and collected between October 2004 and February 2005, whilst on placement in the NHS team that was the main site of data collection. Data collection was influenced by factors amongst potential participants, team members, the organisational context and my own strategies to encourage the return of questionnaires.

At the NHS team I spoke individually with each team member, giving them a list of potential participants on their caseload (according to an existing database) and several questionnaires. The team totalled more than twenty staff, so this was a lengthy process. At the voluntary sector service, I spoke at team meetings and also distributed questionnaires through team managers. The main challenge of this period was ensuring that service users were made aware of the research (either by a caseworker or myself) and getting a sufficient number of questionnaires completed and returned.

### **3.4.1 Barriers to data collection**

The most significant barrier to data collection was the high number of appointments that young adult drug users either rearranged or did not attend, meaning that service-users were often inaccessible to either caseworkers or myself. Caseworkers reported that young adult service users were particularly likely to miss appointments or be on the verge of being discharged. I observed that caseworkers became frustrated by such intermittent appointments which seemed to waste their time, generate extra paper work and sometimes damage relationships between caseworkers and service users. An additional barrier to data collection was the vulnerability of potential participants, and their need for immediate help in crises such as premature labour in pregnancy or being diagnosed with Hepatitis C. In the context of intermittent contact with such vulnerable service users, engagement in treatment had to be prioritised over research participation.

Potential participants were mainly accessed through their caseworkers, but apparent enthusiasm amongst the staff team rarely led to the return of completed questionnaires. This was partly due to the service user factors discussed above and partly a result of team members' priorities. For example, there were individual differences in the extent to which the research was valued and therefore the number of completed questionnaires returned by each caseworker. The NHS team also felt that unmanageable clinical demands were being placed on them, with caseloads of up to 60 clients and increasing pressure to reduce waiting times. Further pressure resulted from the disruption caused by redecoration of the entire building. At the voluntary sector service, I could only interact with the teams through emails or telephone calls to the two relevant team leaders, both of whom were absent for long periods at different points during data collection. Being on placement at the NHS team, I could build relationships with the caseworkers and provide regular reminders, but the



voluntary sector team were less aware of the research. Generally, my role as a temporary team member reduced the possibility of integrating the questionnaire into existing service systems, a method used to yield the high response rates seen in many studies. This added to the challenge of conducting the current research and hopefully be might be avoided in applied research as a qualified clinical psychologist.

### **3.4.2 Strategies to facilitate data collection**

I employed a number of strategies to facilitate data collection, largely aimed at encouraging caseworkers in the NHS team to seek participants. Being based within the team was essential to support data collection, shown by 88% of completed questionnaires coming from the service where I was on placement. I regularly promoted the research to colleagues, by providing lists of potential participants on their caseload and sharing my enthusiasm for the value of the research. I acknowledged the demands that the research placed on them and was clear that I was negotiating rather than demanding their help. I shared information emphasising the potential benefits of the research that other caseworkers had identified (e.g. the questionnaire facilitated useful conversations with service-users that would not otherwise have happened).

Half way through the data collection period, few questionnaires had been returned. I therefore tried to raise the profile of the research, putting questionnaires in interview rooms and a memo to the team asking if everyone could get one or two more questionnaires completed. I put a poster in the staff kitchen showing the number of questionnaires received and the number still needed, with the promise of chocolate and cakes when 30, 40 and 50 questionnaires were received. I presented this reward system as a light-hearted gimmick, but it did seem to help keep the research in mind



and made a difference to the rate at which questionnaires were returned. Generally I worked hard to encourage the completion of questionnaires whilst maintaining a friendly positive relationship with colleagues; this was a daily balancing act that proved exhausting.

I set a firm deadline to end data collection (28<sup>th</sup> February 2005) and this seemed to spur caseworkers into action. On the last day in January, I was overjoyed to receive six questionnaires in one day, taking the total to 34. The final participant total was 51, estimated to be 26% of all potential participants. Given the characteristics of service users and the time demands on caseworkers and myself, the final total felt like a significant achievement. This total may nonetheless have been higher if I had raised the profile of the research earlier on, especially through a poster recording the number of questionnaires received. Overall, it seemed that the relationships I developed with caseworkers were the most significant factor in promoting data collection (discussed further in section 7).

### **3.5 *Statistics***

My first thoughts about statistics were during completion of an early research proposal and application for ethical approval. I worried that despite recent teaching, I had not used statistical techniques on my own research data for many years. I quickly became confused when thinking about research designs and which statistical analyses might be most appropriate, but sought out conversations with a newly qualified colleague and others with recent research experience. Generally I found that conversations about my research were invaluable to clarify my thinking and I would definitely do more of this during future research.

I had followed advice (Pallant, 2004) on coding and entering data from questionnaires, and enjoyed creating an SPSS database, adding each questionnaire as I received it. Checking and cleaning-up the data also seemed straightforward. I booked two weeks research leave, four months before the final hand-in date, to undertake most of the statistical analyses. I felt unsure of where to start and felt very nervous, especially in the days before speaking to a statistician.

The statistician's advice was straightforward and reassuring, suggesting where to start and emphasising the need to be led by the data and for analyses to take the reader through a coherent 'story'. With this start and the help of two key books (Clark-Carter, 2004; Pallant, 2004) I began to test my experimental hypotheses. I had the time I needed to learn how to use SPSS, to slowly work through analyses and reinterpret early analyses as my knowledge developed. I occasionally felt overwhelmed but had time to stop and think, consult others or just leave the analysis for another day. Meetings with my academic supervisor helped to prioritise hypotheses and relate them to statistical analyses. As I used more statistical techniques I developed an increasing understanding of the research methods described in published papers and now feel more confident to undertake my own statistical analyses in the future.

### **3.6 *Writing up***

Throughout two years, I tried to fit the writing up of one part of the thesis into gaps between other academic or thesis commitments (e.g. writing the method section prior to starting statistical analyses). It was hard to maintain motivation when the thesis seemed to be endlessly re-drafted and nothing ever seemed to be finished.

Nonetheless I tried to write everything as quickly and as soon as I could. I was



motivated by deadlines to get drafts to my supervisor prior to research meetings and the resulting comments helped to shape my work. Keeping the literature review and research report within the allotted word limits was a task I found particularly challenging. I also struggled with the new format requested by the University, which was neither a doctoral thesis nor a publishable paper, but somewhere in between.

Whilst writing up the literature review and research report, I increasingly noticed flaws in other papers (e.g. no explanation of varying sample sizes) and tried to avoid similar problems. I also used timesaving computer features, enabling automatic management of references and tables. Eventually the sections began to take shape, I found motivation from knowing that I would soon submit my work. My dislike of leaving things to the last minute meant that my time was not too pressured towards the June 2005 deadline. Nonetheless I would have liked to have completed final drafts a little earlier to allow more time for supervisor feedback and proof reading.

## **4 Supervisory process**

I benefited from having academic and field supervisors who both had extensive research and clinical experience in the substance misuse field and the services in which data was collected. During data collection, my field supervisor was also my placement supervisor for three days a week, which was a valuable source of support.

Equally importantly, I had a friendly working relationship with both supervisors. I felt that my prior clinical experience with young drug users was valued and I was treated as a colleague rather than a trainee. There were inevitably some occasions where I would have liked more instruction or support, but the positive relationship between my supervisors and myself helped me to have a positive experience of



research. This was a real asset and I would seek out similar supervisory relationships in future research.

## **5 Maintenance of motivation**

My motivation ebbed and flowed throughout the research and in the final few months I felt as if research was an endless, infinite process. In the early stages, communications with Annabel Boys (main author of the original work on ‘perceived functions’ of substance use) were encouraging, as she expressed interest in my proposed research. Later, being on placement in the service where data was collected acted as constant reminder of the research, which aided motivation. Meetings with supervisors were also helpful to plan and prioritise tasks. Attending presentations regarding other research projects (e.g. at meetings of the BPS Faculty of Addictions) also prompted valuable reflections on my own research, motivating me to do more work. My ongoing interest in my chosen topic also helped, as did my desire for work with people with drug problems within my future career.

## **6 Drug service clients as research participants**

In designing a piece of research that sampled substance misusers, I selected a challenging group of participants. Several of the caseworkers commented that it was difficult to get service users to come to an appointment that was necessary for continued methadone prescribing, so completing a questionnaire was almost impossible. Service users did exercise their choice over whether to participate and it seemed that questionnaires might have been more likely to be completed by those

with fewer problems. This was expected and added to my personal satisfaction at collecting 51 questionnaires.

What was less expected was the interest that service users showed in the research. The questionnaire pack included an optional form to request feedback from the research and over half of the participants requested this feedback. Several participants also chose to leave comments on their questionnaires. One participant indicated their support for the research, saying *“I hope you get on OK with your study and I think it is a great idea”*. Other comments also suggested that the research topic fitted with participants’ experiences, for example:

*“Lately I have been having panic attacks and anxiety attacks which is causing me to stop sleeping and use drugs more often”*

*“... once free of heroin or crack cocaine ... most turn to cannabis and or alcohol as an escape to their prior problems”*

As planned from the outset, a pamphlet summarising the research findings and implications is in preparation. It will be distributed in August 2005, both to those participants who requested a copy and to other service users (via caseworkers and waiting rooms). This feedback to service-users seems particularly important given the level of interest shown by those who participated. Hopefully it may also encourage participation (of staff teams and service users) in future research projects.

## **7 Consideration towards service users and team members**

To be successful, the current research required participation and support from both service users and team members. I was aware from the outset that both could be hard to engage and everything throughout the research process was designed with this in mind.

I put constant effort into engaging the drug team staff in my research. I demonstrated that I valued their contributions by involving them in development of the questionnaire, responding to their feedback and inviting constructive criticism. I took the time to get to know them and respond to their concerns, interest or disinterest in the research. I empathised with the demands they were already under from their clinical work, sometimes providing informal consultation about clients on their caseload. I also promoted the potential value of the research for them personally, depending on their beliefs about work with drug users (e.g. that research findings might demonstrate the importance of relapse prevention interventions). I also kept the teams updated, either during individual conversations or by giving brief (one or two minute) progress reports during team meetings.

Throughout the process I designed all written information (for service users and caseworkers) so it was easy to read and identifiably related to the research. I based decisions about content, layout, font and paper colour on guidelines for making written information easy to understand (The Basic Skills Agency, 2004). I then used this set format on all documents so the questionnaire, information sheet, posters and memos all clearly related to each other. I received unsolicited positive feedback from service users and caseworkers about the materials, suggesting that the effort invested



in the development of materials led to easier comprehension and a greater inclination to participate.

Feedback from my research supervisors suggested that, compared to others who have undertaken similar research, I was successful in engaging teams to access service users. I believe that this was helped by my having minimised the demands of the research on both service users and caseworkers, whilst clearly valuing their contributions. I intend to build on this by presenting research findings to both teams where data was collected and seeking their feedback on the summary leaflet for participants before it is finalised.

## **8 Research relevance**

Whilst in the final stages of writing up my research, I began to reflect on whether my findings had relevance to real life experiences. The research had arisen from observations in my clinical practice but I was unsure how the findings would appear to service users and caseworkers in contemporary drug treatment services. I felt that my identification of anxiety and depression in young adult drug users was a valuable finding, and easy to disseminate to others. I was less certain of the interest that others might have in functionality of drug use.

By chance I heard two first person accounts of addiction that seemed to confirm the significance of substance use to alleviate emotional discomfort. Firstly I heard a former BBC foreign correspondent describing how his alcohol problems escalated due to his need to block out the events he witnessed in countries like Rwanda (reference unknown). Secondly, in a television programme about a residential rehabilitation programme, I noted the following quote from a conversation between a ‘gambling addict’ and a former heroin user:

*"I'd rather be addicted to heroin than gambling ... it's a lot cheaper and you can't feel anything, you just don't feel anything at all"*

(Compulsion, BBC2, 25/5/05)

I was struck by the emphasis that each of these people placed on the blocking out of difficult emotions, which they described as a central part of their drug and alcohol problems. This enhanced my confidence in my research results and renewed my enthusiasm for disseminating the findings to others.

## **9 Conclusion**

The process of completing my doctoral research has been a challenge, testing my academic abilities and endurance, so it is with some pride that I submit my thesis for examination. Having faced these challenges I feel well equipped to undertake future research projects and am relieved to find that I continue to be interested in the research process.

## 10 References

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# Appendices

***Appendix 1 – Letter confirming ethical approval***

16 September 2004

Miss Catherine Blair  
Trainee Clinical Psychologist  
Leicester Partnership NHS Trust  
School of Psychology - Clinical Section  
104 Regent Road  
Leicester  
LE1 7LT

Dear Miss Blair,

***Full title of study: The relationship between mental health problems and functions of drug and alcohol use amongst young adult problem drug users***

***REC reference number: 04/Q2501/78***

***Protocol number: 1.1, 04-Q2501-78rp040831.doc***

Thank you for your letter of 31 August 2004, responding to the Committee's request for further information on the above research.

The further information has been considered on behalf of the Committee by the *Chairman*.

### **Confirmation of ethical opinion**

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation.

The favourable opinion applies to the following research site:

Site                      Paget House NHS Community Drug Team Drug Advice Centre - voluntary  
                                 sector drug service  
Principal Investigator: Miss Catherine Blair

### **Conditions of approval**

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

### **Approved documents**

The final list of documents reviewed and approved by the Committee is as follows:

Document Type: Application  
Version: 2, 04-Q2501-78rp040831.doc  
Dated: 31/08/2004  
Date Received: 16/09/2004

Document Type: Investigator CV



Version: 1, 04-Q2501-78cv-ci040531.doc

Dated: 16/07/2004

Date Received: 21/07/2004

Document Type: Investigator CV

Version: 1, Supervisor, 04-Q2501-78cv-s040618.doc

Dated: 16/07/2004

Date Received: 21/07/2004

Document Type: Protocol

Version: 1.1, 04-Q2501-78rp040831.doc

Dated: 31/08/2004

Date Received: 16/09/2004

Document Type: Summary/Synopsis

Version: 1, 04-Q2501-78fcd040531.doc

Dated: 31/05/2004

Date Received: 21/07/2004

Document Type: Peer Review

Version: 1

Dated: 16/07/2004

Date Received: 21/07/2004

Document Type: Copy of Questionnaire

Version: 1.1, 04-Q2501-78id-p040831.doc

Dated: 31/08/2004

Date Received: 16/09/2004

Document Type: Copies of Advertisements

Version: 1, 04-Q2501-78ra-p040531.doc

Dated: 16/07/2004

Date Received: 21/07/2004

Document Type: Participant Information Sheet

Version: 1.1, 04-Q2501-78is-p040831.doc

Dated: 31/08/2004

Date Received: 16/09/2004

Document Type: Participant Consent Form

Version: 1, 04-Q2501-78cf-p040531.doc

Dated: 31/05/2004

Date Received: 21/07/2004

Document Type: Response to Request for Further Information

Version: 1

Dated: 31/08/2004

Date Received: 16/09/2004

## **Management approval**

The study may not commence until final management approval has been confirmed by the organisation hosting the research.

All researchers and research collaborators who will be participating in the research must obtain management approval from the relevant host organisation before commencing any research procedures. Where a substantive contract is not held with the host organisation, it

may be necessary for an honorary contract to be issued before approval for the research can be given.

### **Notification of other bodies**

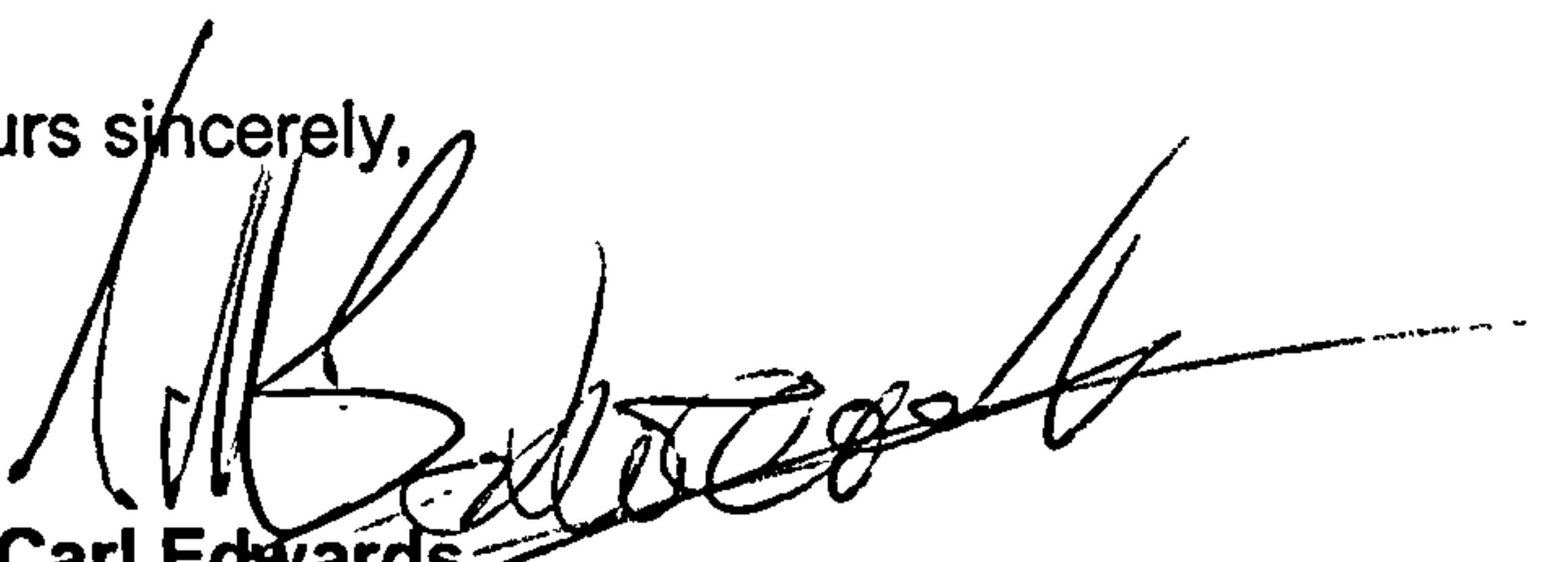
We shall notify the research sponsor, Paget House NHS Community Drug Team Drug Advice Centre - voluntary sector drug service and the Medicines and Health-Care Products Regulatory Agency that the study has a favourable ethical opinion.

### **Statement of compliance (*from 1 May 2004*)**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

<b>REC reference number: 04/Q2501/78 Please quote this number on all correspondence</b>
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Yours sincerely,



**Dr Carl Edwards**  
**Chairman**

*Enclosures    Standard approval conditions [SL-AC1 or SL-AC2]*

***Appendix 2 – Patient information sheet***



## ... Reasons for Drug Use ...

Community Drug Team  
Paget House  
2 West Street  
Leicester LE1 6XP

### Information about the study

Telephone: 0116 225 6400  
Fax: 0116 225 6496

*You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Discuss it with others if you wish. Ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.*

*Thank you for reading this.*

#### **What is the purpose of the study?**

The study wants to find out about 16-25 year olds who go to drug services and have taken heroin, crack, cannabis or alcohol in the last year. The study uses a questionnaire to ask about drug use, reasons for taking drugs and other health problems (like feeling depressed). Questionnaires are being handed out over the next few months. A report of the findings will be finished by summer 2005.

The study is important: We know that people can have complicated problems, and can find it hard to get the help they need. Findings from this study will help us to understand these problems and think about how drug services can help.

#### **Why have I been chosen?**

You have been chosen because you are 16-25 years old and go to Paget House or the Drug Advice Centre. We hope that about 40 people will fill out a questionnaire.

#### **Do I have to take part?**

It is up to you to decide whether or not to take part. Even if you start a questionnaire you can still decide to stop at any time, without saying why. If you decide not to take part, it will not affect the help you get from any service.

#### **Will my taking part in this study be kept confidential?**

Your questionnaire will not have your name or any other identifying information on it. The researcher will keep it. No-one will know it is yours. Your GP will not be told that you have taken part. Paget House and the Drug Advice Centre will not see what you have written.

#### **What will I have to do if I take part?**

To take part, all you need to do is fill out a questionnaire. This will take about 20 minutes. The researcher or your caseworker can help you if you want. We would like you to complete it when you are at the drug service. You can also choose to complete it somewhere else then send it back. You will not be asked to do anything else. Completing the questionnaire will not affect the help you get from any service.

Working with Leicester City Council, Leicestershire County Council and Rutland County Council  
to provide mental health and learning disability services

Trust Headquarters: George Hine House, Gipsy Lane, Leicester LE5 0TD Tel: 0116 225 6000  
Chairman: Dr Wendy Hickling OBE JP DL BA LLD Chief Executive: Dr Maggie Cork BA MSc PhD DMS DipM C.Psychol AFBPs





**What are the possible problems and risks of taking part?**

Because you are in contact with Paget House or the Drug Advice Centre, you have probably already done some questionnaires. There is still a chance that answering the questions in this questionnaire might upset you. The questionnaires don't have your name on them so we cannot link your answers to you. If you felt upset you would need to tell someone. The questionnaire tells you who to talk to if this happens. You will not have to deal with it on your own.

**What are the possible benefits of taking part?**

The information from the study will be shown to local drug services. This will help local drug services to understand more about drug users' problems. It may also help to improve treatment for people who take drugs in the future.

**What if something goes wrong?**

We do not believe you will be harmed by completing this questionnaire. However if you are harmed by taking part in this study, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for a legal action but you may have to pay for it. Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of this study, you can use the normal complaints procedure for the service you attend.

**What will happen to the results of the research study?**

A short report of the results will be sent to drug services in Leicester. They can pass it on to anyone who is interested. If you want to be sure that you will see the report, give your name and address to be sent a copy. The full report will be given to the University of Leicester in June 2005. It is planned to publish the results in an academic journal, by 2006. You will not be identified in any report or publication.

**Who has reviewed the study?**

The study has been reviewed and approved by the Leicestershire Local Research Ethics Committee One. All research that involves NHS patients or staff, information from NHS medical records or uses NHS premises or facilities must be approved by an NHS Research Ethics Committee before it goes ahead. Approval does not guarantee that you will not come to any harm if you take part. However, approval means that the Committee is satisfied that your rights will be respected, that any risks have been reduced to a minimum and balanced against possible benefits and that you have been given sufficient information on which to make an informed decision to take part or not.

**Contact for Further Information (the researcher)**

Catherine Blair                      ceb22@le.ac.uk                      Paget House (0116) 225 6400  
c/o Dept of Clinical Psychology, 104 Regent Road, Leicester, LE1 7RT (0116) 223 1639

**Thank you for reading this information.**

**Please feel free to talk it through with your worker, the researcher, your family,**

### ***Appendix 3 – Questionnaire booklet***

(NOTE: original questionnaire was printed double-sided on pale green paper, forming an A4 size booklet).





# **..Reasons for Drug Use..**

## **Questionnaire**

**Private and Confidential**

**Please return to**

Paget House, 2 West St, Leicester

or

Drug Advice Centre, 96 New Walk, Leicester

**Contact for Further Information** (the researcher)

Catherine Blair   ceb22@le.ac.uk   c/o Paget House (0116) 225 6400

# ...Reasons for Drug Use... Questionnaire

- **This questionnaire asks about 4 things**

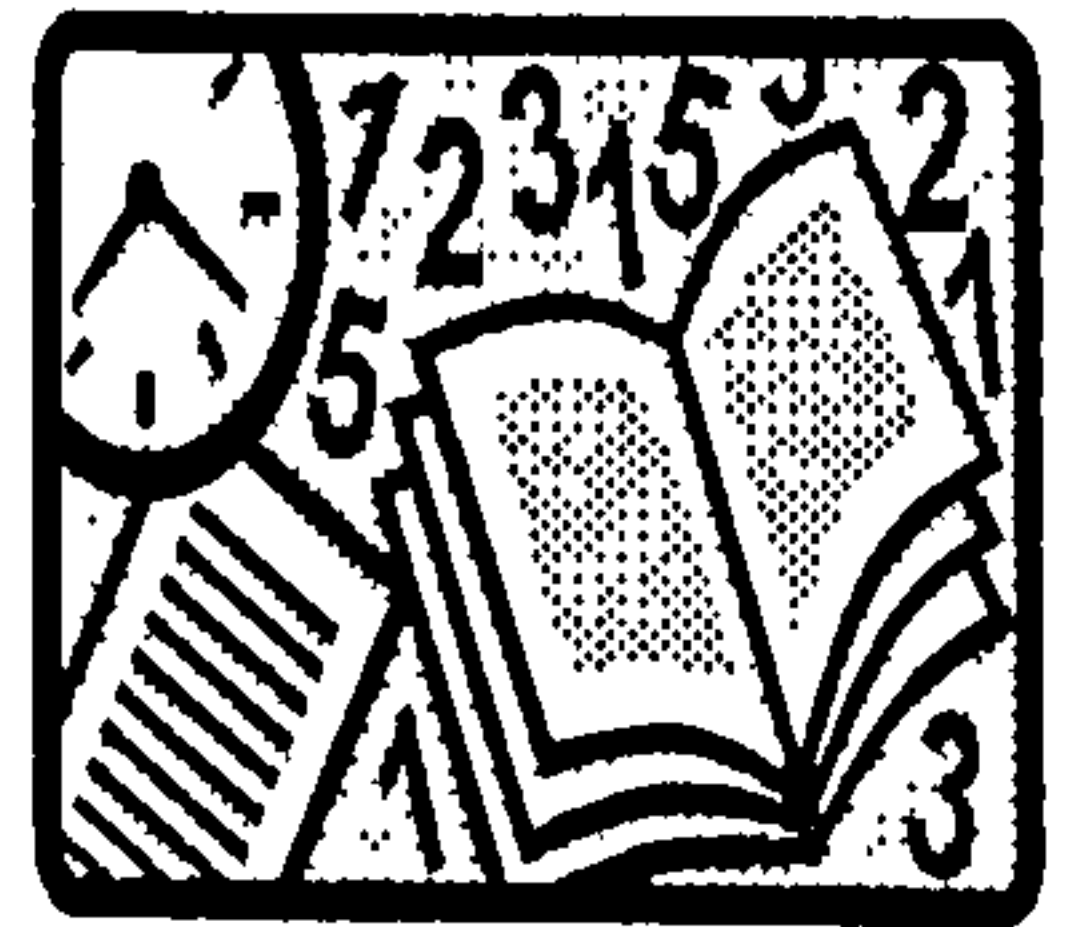
you (for example your age)  
your drug and alcohol use  
the reasons you take drugs  
your health generally

- **You do not have to say your name.** Only the researcher will see what you have written.

No-one can link your answers to you.

- The questionnaire might seem a bit long, but it should only take a few minutes to do. It is really important that you answer all the questions as truthfully as you can.

**If you are not sure just give your best guess.**



- Questionnaires can be difficult to do.

For information to help you answer the questions look for this picture →



Please ask your caseworker or the researcher if you want extra help.

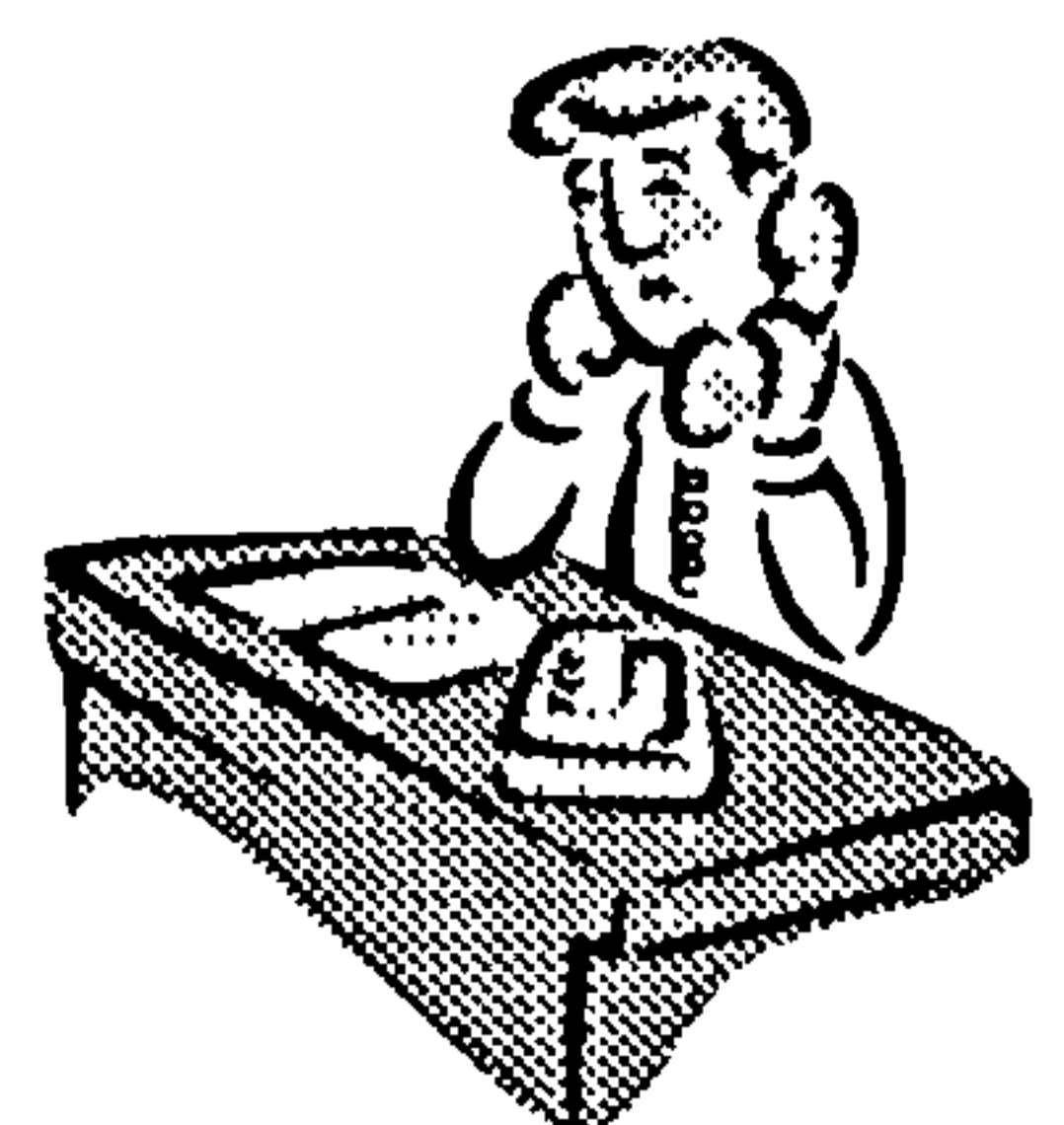
Answering questions can sometimes make people think about difficult things in their life. This can bother them or get them down.

If you want to talk to someone, please talk to;

Your caseworker

The National Drugs Helpline - 0800 776600

NHS Direct - 0845 4647



## A. Questions about you

1. How old are you? \_\_\_\_\_ years

2. Are you ☐ Male  
☐ Female

3. How would you describe your ethnic origin? Tick one box

<div style="text-align: center;">✓</div> <div> <input type="checkbox"/> White  <input type="checkbox"/> White - Irish  <input type="checkbox"/> White - other  <input type="checkbox"/> Mixed - white/ black Caribbean  <input type="checkbox"/> Mixed - white/ black African  <input type="checkbox"/> Mixed - white/ Asian  <input type="checkbox"/> Mixed - other  <input type="checkbox"/> Black - British  <input type="checkbox"/> Black - Caribbean  <input type="checkbox"/> Black - African  <input type="checkbox"/> Black - other         </div>	<div style="text-align: center;">✓</div>	<div> <input type="checkbox"/> Asian - Indian  <input type="checkbox"/> Asian - Pakistani  <input type="checkbox"/> Asian - Bangladeshi  <input type="checkbox"/> Asian - Other  <input type="checkbox"/> Chinese  <input type="checkbox"/> Other (please write here)        </div>
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4. What is your occupation?

- ☐ Unemployed
- ☐ Full-time education
- ☐ Part-time education
- ☐ Full-time work
- ☐ Part-time work
- ☐ Other (please write here) \_\_\_\_\_

5. How long have you been in touch with your main drug service this time? (✓ tick one)



Do not count any times that you came to a drug service in the past.

- ☐ Assessed only (not been allocated a worker/ picked up)  
Or - the time since I was picked up/ started seeing a worker is
- ☐ Less than 1 month
- ☐ 1-2 months
- ☐ 2-3 months
- ☐ 3-6 months
- ☐ More than 6 months
- ☐ Other (please write here) \_\_\_\_\_

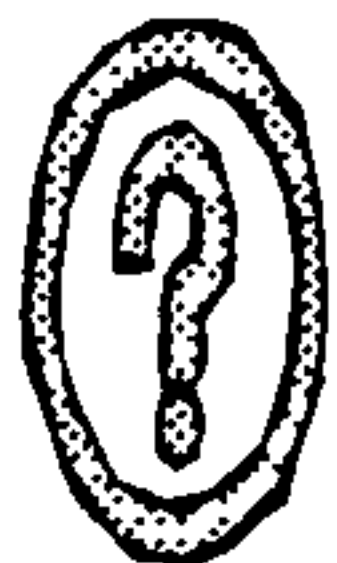


## B. Questions about drugs and alcohol

6. Please tick the box that shows the last time you took each drug

	Never taken	Taken in the last month	Taken in the last 3 months	Taken in the last year	Taken more than a year ago
Alcohol					
Cannabis					
Amphetamine/ speed					
Cocaine powder					
Crack cocaine					
Ecstasy					
Heroin					
Codeine, DF118s					
Methadone <u>prescribed</u> to you					
Methadone <u>not prescribed</u> to you					
Buprenorphine/ Subutex <u>prescribed</u> to you					
Buprenorphine/ Subutex <u>not prescribed</u> to you					
LSD/ acid/ mushrooms					
Sedatives/ tranquillisers (like diazepam, nitrazepam)					
Solvents – aerosol, glue, petrol					
Steroids					

To answer question 6 and the other questions like it;



- Read the question at the top
- Look at each item on the left hand side (e.g. Alcohol)
- Put a tick on each line in turn, underneath the answer from the top line that is right for you.

**EXAMPLE** - Your answers would look like this if you had taken alcohol in the last month and cannabis in the last 3 months

When is the last time you took each drug?	Never taken	Taken in the last month	Taken in last 3 months	Taken in the last year	Taken more than a year ago
Alcohol		√			
Cannabis			√		

### **C. Questions about injecting drugs**

- If you have never injected or not injected in the last month **go to question 9**
- If you have taken a drug in the last month by injecting **answer questions 7 & 8**



**7. On how many days in the last month did you inject?**  
**(Include injecting yourself and being injected by someone else)**

Tick one box

- ☐ 1-5 days (about once a week)
- ☐ 6-10 days (about 1-3 times a week)
- ☐ 11-15 days (about 3 or 4 times a week)
- ☐ 16-20 days (about 4 or 5 times a week)
- ☐ 21- 25 days (about 5 or 6 times a week)
- ☐ 26-30 days (nearly every day)
- ☐ 30 days (every day)

**8. On a typical day when you injected, how many times did you inject?**  
**(Include injecting yourself and being injected by someone else)**

Tick one box

- ☐ 1 time a day
- ☐ 2 times a day
- ☐ 3 times a day
- ☐ 4 times a day
- ☐ 5 or more times a day

### **D. Questions about your reasons for taking drugs**

The next questions are about Heroin, Crack Cocaine, Alcohol and Cannabis.  
**Only answer questions about the drugs that you have taken in the last year.**

Reasons for taking Heroin

Have you taken heroin in the last year? **No.** go to page 7  
**Yes.** answer this page



If you have stopped taking heroin, answer question 9 by thinking about the time when you still took it.

9. When you have taken heroin <u>in the last year</u> , how often have you used heroin to;	Never	Rarely	Sometimes	Often	Always
Make yourself feel better when down or depressed					
Help you 'keep going' on a night out with friends					
Help you stop worrying about a problem					
Help you enjoy the company of friends					
Block out bad things that have happened to you in the past					
Block out bad things that are happening to you at the moment					
Help you to relax					
Help you feel more confident or more able to talk to people in a social situation					
Help you lose your inhibitions (do things you might not do when you are sober)					
Help make something you were doing less boring					
Make an activity better (such as listening to music or playing a game or sport)					



Answer question 10 & 11 by marking on the line where it seems right for you.  
**EXAMPLE** - If your drug use is not much of a problem you might do this.

Not a problemA serious problem

10. How much of a problem is your heroin use at the moment?

Not a problemA serious problem

11. How much of a problem has your heroin use been in the last year?

Not a problemA serious problem



Reasons for taking Crack Cocaine

Have you taken Crack in the last year? No. go to page 8  
Yes. answer this page



If you have stopped taking crack, answer question 12 by thinking about the time when you still took it.

12. When you have taken crack <u>in the last year</u> how often have you used crack to;	Never	Rarely	Sometimes	Often	Always
Make yourself feel better when down or depressed					
Help you 'keep going' on a night out with friends					
Help you stop worrying about a problem					
Help you enjoy the company of friends					
Block out bad things that have happened to you in the past					
Block out bad things that are happening to you at the moment					
Help you to relax					
Help you feel more confident or more able to talk to people in a social situation					
Help you lose your inhibitions (do things you might not do when you are sober)					
Help make something you were doing less boring					
Make an activity better (such as listening to music or playing a game or sport)					



Answer question 13 & 14 by marking on the line where it seems right for you.  
EXAMPLE - If your drug use is not much of a problem you might do this.

Not a problem \_\_\_\_\_ A serious problem

13. How much of a problem is your crack use at the moment?

Not a problem \_\_\_\_\_ A serious problem

14. How much of a problem has your crack use been in the last year?

Not a problem \_\_\_\_\_ A serious problem

Reasons for drinking Alcohol

Have you drunk alcohol in the last year? No. go to page 9  
Yes. answer this page,



If you have stopped drinking alcohol, answer question 15 by thinking about the time when you still drank it.

15. When you have drunk alcohol <u>in the last year</u> how often have you drunk alcohol to;	Never	Rarely	Sometimes	Often	Always
Make yourself feel better when down or depressed					
Help you 'keep going' on a night out with friends					
Help you stop worrying about a problem					
Help you enjoy the company of friends					
Block out bad things that have happened to you in the past					
Block out bad things that are happening to you at the moment					
Help you to relax					
Help you feel more confident or more able to talk to people in a social situation					
Help you lose your inhibitions (do things you might not do when you are sober)					
Help make something you were doing less boring					
Make an activity better (such as listening to music or playing a game or sport)					



Answer question 16 & 17 by marking on the line where it seems right for you.  
EXAMPLE - If your drinking alcohol is not much of a problem you might do this.

Not a problem

A serious problem

16. How much of a problem is your alcohol use at the moment?

Not a problem

A serious problem

17. How much of a problem has your alcohol use been in the last year?

Not a problem

A serious problem

Reasons for taking Cannabis

Have you taken Cannabis in the last year? No. go to page 10  
Yes. answer this page



If you have stopped smoking cannabis, answer question 18 by thinking about the time when you still took it.

18. When you have used cannabis <u>in the last year</u> how often have you used cannabis to;	Never	Rarely	Sometimes	Often	Always
Make yourself feel better when down or depressed					
Help you 'keep going' on a night out with friends					
Help you stop worrying about a problem					
Help you enjoy the company of friends					
Block out bad things that have happened to you in the past					
Block out bad things that are happening to you at the moment					
Help you to relax					
Help you feel more confident or more able to talk to people in a social situation					
Help you lose your inhibitions (do things you might not do when you are sober)					
Help make something you were doing less boring					
Make an activity better (such as listening to music or playing a game or sport)					



Answer question 19 & 20 by marking on the line where it seems right for you.  
**EXAMPLE** - If your drinking alcohol is not much of a problem you might do this.

Not a problemA serious problem

19. How much of a problem is your cannabis use at the moment?

Not a problemA serious Problem

20. How much of a problem has your cannabis use been in the last year?

Not a problemA serious Problem



## **E. Questions about your health generally (not drug use)**



- Read each item below.
- Underline the reply that comes closest to  
**how you have been feeling in the last week.**

Don't take too long over your replies. Your immediate reaction to each item will probably be more accurate than a long thought-out response.

### **I feel tense or wound up**

Most of the time  
A lot of the time  
From time to time, occasionally  
Not at all

### **I feel as if I am slowed down**

Nearly all the time  
Very often  
Sometimes  
Not at all

### **I still enjoy the things I used to enjoy**

Definitely as much  
Not quite so much  
Only a little  
Hardly at all

### **I get a sort of frightened feeling like 'butterflies' in the stomach**

Not at all  
Occasionally  
Quite often  
Very often

### **I get a sort of frightened feeling as if something awful is about to happen**

Very definitely and quite badly  
Yes, but not too badly  
A little, but it doesn't worry me  
Not at all

### **I have lost interest in my appearance**

Definitely  
I don't take as much care as I should  
I may not take quite as much care  
I take just as much care as ever

### **I can laugh and see the funny side of things**

As much as I always could  
Not quite as much now  
Definitely not so much now  
Not at all

### **I feel restless as if I have to be on the move**

Very much indeed  
Quite a lot  
Not very much  
Not at all

### **Worrying thoughts go through my mind**

A great deal of the time  
A lot of the time  
Not too often  
Very little

### **I look forward with enjoyment to things**

As much as I ever did  
Rather less than I used to  
Definitely less than I used to  
Hardly at all

### **I feel cheerful**

Never  
Not often  
Sometimes  
Most of the time

### **I get sudden feelings of panic**

Very often indeed  
Quite often  
Not very often  
Not at all


### **I can sit at ease and feel relaxed**

Definitely  
Usually  
Not often  
Not at all

### **I can enjoy a good book or radio or television programme**

Often  
Sometimes  
Not often  
Very seldom

**The End!**



**Please check that you have answered all the questions**

**...Thank you for your time...**

- If there is anything else that you want to say, write it here ...

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**Appendix 4 – Number (%) of sample whose last use of each substance fell within each time category (N=51)**

Substance	Time of last use					
	Last month	Last 3 months	Last year	More than a year	Never used	Missing data
Alcohol	35 (68.6%)	5 (9.8%)	2 (3.9%)	7 (13.7%)	1 (2.0%)	1 (2.0%)
Prescribed methadone	29 (56.9%)	-	1 (2.0%)	2 (3.9%)	18 (35.3%)	1 (2.0%)
Prescribed subutex	12 (23.5%)	3 (5.9%)	4 (7.8%)	17 (33.3%)	13 (25.5%)	2 (3.9%)
Illicit methadone	9 (17.6%)	8 (15.7%)	5 (9.8%)	8 (15.7%)	19 (37.3%)	2 (3.9%)
Illicit subutex	5 (9.8%)	1 (2.0%)	1 (2.0%)	14 (27.5%)	25 (49.0%)	5 (9.8%)
Heroin	36 (70.6%)	4 (7.8%)	4 (7.8%)	4 (7.8%)	2 (3.9%)	1 (2.0%)
Crack cocaine	12 (23.5%)	9 (17.6%)	9 (17.6%)	13 (25.5%)	6 (11.8%)	2 (3.9%)
Cocaine powder	4 (7.8%)	4 (7.8%)	10 (19.6%)	16 (31.4%)	13 (25.5%)	4 (7.8%)
Ecstasy	3 (5.9%)	-	10 (19.6%)	31 (60.8%)	21 (41.2%)	4 (7.8%)
Amphetamine	2 (3.9%)	2 (3.9%)	7 (13.7%)	27 (52.9%)	12 (23.5%)	-
Cannabis	29 (56.9%)	6 (11.8%)	6 (11.8%)	6 (11.8%)	4 (7.8%)	-
LSD/ mushrooms	-	2 (3.9%)	3 (5.9%)	24 (47.1%)	19 (37.3%)	3 (5.9%)
Sedatives /tranquillisers	7 (13.7%)	5 (9.8%)	8 (15.7%)	12 (23.5%)	16 (31.4%)	3 (5.9%)
Solvents	-	-	2 (3.9%)	15 (29.4%)	30 (58.8%)	4 (7.8%)
Steroids	-	-	-	2 (3.9%)	44 (86.3%)	5 (9.8%)

**Appendix 5 – Relationship between anxiety and depression scores and time in substance misuse treatment**

(Chi-square test for independence, n=50)

		<u>Time in treatment</u>		<u>Time in treatment</u>	
		< 2 mths	2 mths +	< 6 mths	6 mths +
		n=15	n=35	n=23	n=27
Anxiety	Significance	$\chi^2=.645, p=.422$		$\chi^2=.000, p=.1000$	
	Sub-clinical	6	20	12	14
		40%	57.1%	52.2%	15.1%
	Clinical	9	15	11	13
		60%	42.9%	47.8%	48.1%
Depression	Significance	$\chi^2=.000, p=.1000$		$\chi^2=.000, p=.1000$	
	Sub-clinical	11	27	17	21
		73.3%	77.1%	73.6%	77.8%
	Clinical	4	8	6	6
		26.7%	22.9%	26.1%	22.2%