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Understanding problem drug use among young people accessing drug services: a multivariate approach using statistical modelling techniques

Helen Beckett
Jeremy Heap
Paul McArdle
Eilish Gilvarry
Jane Christian
Roger Bloor
Ilana Crome
Martin Frischer

Home Office Online Report 15/04

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Helen Beckett, Researcher, Department of Medicines Management, Keele University

Jeremy Heap, Researcher, Fleming Nuffield Unit, Child and Adolescent Mental Health Service, Newcastle-upon-Tyne

Paul McArdle, Consultant Psychiatrist, Fleming Nuffield Unit, Child and Adolescent Mental Health Service, Newcastle-upon-Tyne

Eilish Gilvarry, Consultant Psychiatrist, Fleming Nuffield Unit, Child and Adolescent Mental Health Service, Newcastle-upon-Tyne

Jane Christian, Manager, Druglink, Hanley, Stoke-on-Trent

Roger Bloor, Consultant Psychiatrist, Edward Myers Centre, Harplands Hospital, Stoke-on-Trent

Ilana Crome, Professor of Addiction Psychiatry, School of Medicine, Keele University

Martin Frischer, Senior Lecturer, Department of Medicines Management, Keele University

Online Report 15/04

Acknowledgements

We would like to acknowledge the input of the staff and management from the young people's drug services. Their support was invaluable and made this project viable.

We would also like to thank the young people themselves, and their parents, who gave up their time and shared their experience.

We thank Juliet Collins for help with questionnaire development and Christine Frischer and Corrina Knight for proof reading and editorial comments.

We are grateful to Tom Bucke and Gary Mundy for help and advice throughout the study; also to the independent reviewers for their constructive comments.

Dr Naomi Elton's comments and ideas have been invaluable in interpreting the results.

We also express our grateful thanks to Elly Reeve for the local administration of the project.

The views expressed in this report are those of the authors and not the Home Office, who funded the study.

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Executive summary

Background

- In 1995 the first designated service for adolescent drug misusers in England was established in Stoke-on-Trent. Later, in 1998, a similar service was developed in Newcastle-upon-Tyne.
- While there are barriers to researching young people attending designated drug services, this study interviewed 103 young drug users (response rate 95%) using a structured questionnaire in the two study centres. Although this population often has difficult relationships with their parents, 46 parents (response rate 70%) were also interviewed. Interviews took between 30-40 minutes and were conducted between June 2001 and June 2002. Great care was taken to protect the privacy of both the young people and the parents.
- An indicator of the level of problematic drug use (LPDU) was developed. This indicator takes account of a) frequency of use, b) types of drug used, c) reasons for drug use, d) route of administration and e) current spending on drugs. At the low end of the spectrum are young people who use cannabis occasionally; at the high end are heavy users of heroin and other drugs.
- Previous research indicates that young people who access drug services have problems in multiple domains (psychological, physical, familial and environmental) in addition to their identified substance misuse. However, there has been little progress within a UK context in understanding how these risk factors are linked.
- The primary aim of the study was to define the hierarchy of risk and protective factors among the adolescents attending designated drug services and to understand the direct and indirect links between these factors. The aim is constrained by the cross-sectional nature of the study and the relatively small sample size. However, the study will provide, for the first time in the UK, a picture of the relative importance of a range of factors and how they interact among this specific group of adolescent drug users, who are using drug services.
- The study employed Structural Equation Modelling (SEM) to develop path diagrams. This type of analysis is increasingly being used in American research and can provide greater understanding of the pathways leading to and from problematic drug use. In the present study two exploratory models were developed. The first model considers the precursors of the level of problematic drug use while the second model analyses the consequences of the level of problematic drug use.

Overview of the main findings

- One hundred and three young people attending drug services in Stoke and Newcastle were interviewed. Respondents' average age at interview was 16.3 (range: 11 to 20) and they had been using drugs for an average of 3.6 years (5.1 years from age began smoking).
- The SEM analysis indicates that the relative hierarchy of factors which predict increased LPDU within this sample is:
 1. Perceived lack of parental discipline
 2. Respondent's friends using drugs
 3. Age at interview
 4. History of running away from home
 5. Parental lack of concerns about smoking and alcohol problems
 6. More problems in area (e.g. assault, burglary)
 7. Perception of poor local amenities (places to meet, transport)
 8. Age began substance use
 9. Poor school attendance (+ left school before age 16)
 10. Not living in a household with adults

- Sixty per cent of respondents live in areas of moderate or high material deprivation (as indicated by Townsend score), but there is no direct relationship between material deprivation in the areas in which respondents live and their LPDU.
- Social exclusion, as measured in this study, accounts for 15 per cent of the variance of LPDU among this sample of young drug service users.
- Respondents whose parents impose less discipline have higher LPDU. Respondents whose parents disapprove of their smoking / alcohol use have lower LPDU.
- Parental discipline is stronger when they hold more disapproving attitudes towards their children's substance use. It is also stronger where local amenities are good and there are fewer area problems.
- Running away from home and not living with adults are likely to represent severe problems in family relationships. Both factors are related to higher LPDU.
- Self-reported problems (including mental health, social relationships and criminal activity) increase as a function of the respondents' drug use. The rate of self-reported problems before drug use was much lower and not as highly correlated with LPDU as problems subsequent to drug use.
- Of those respondents who had left school (79% of the sample), 64 per cent did so before the age of 16. The younger the age that respondents had left school, the higher their current LPDU. Poor attendance at school was also associated with higher LPDU.
- The Standard Assessment Tests (SATs) data for the Newcastle respondents highlight the educational difficulties experienced by the young service users in our study. The results at Key Stage 2 show how these difficulties are clearly apparent by the age of 11, before the onset of drug use. The results at Key Stage 3 highlight further deterioration by age 14.
- With regard to drug education, 95 per cent thought that taking drugs is harmful to health, 91 per cent of respondents thought that heroin is dangerous and 79 per cent said they know enough about the dangers of drugs.
- The vast majority of young service users interviewed (88%) are able to obtain their drug of choice within one hour.
- Licit drug use is also an issue: 92 per cent of the sample are current smokers.

Interpretation of the results

- *The impact of material deprivation and social exclusion on the level of problematic drug use is indirect.* A recent report notes that "poverty does not directly cause addiction" and that although the causes of deprivation are social "they are experienced individually". The data in this study further highlight this point. Material deprivation of the electoral wards in which respondents live (as measured by Townsend score) has no relationship to the level of problematic drug use. We did not ask respondents directly about their material status. Given the policy implications of this finding, this issue should be more fully addressed in future studies.
- *Indices of social exclusion, such as running away from home, poor school attendance and perception of neighbourhood problems, explain around 15 per cent of the variance in LPDU.* Local factors also influence parental behaviour, which in turn influences LPDU.
- *Level of problematic drug use is a developmental process.* The correlation of age with the development of drug misuse has important implications for prevention and treatment interventions. Among *this* sample of young service users, early experimentation with drugs at age 13 (preceded by smoking at 11, drinking at 12) invariably led to problematic drug use involving heroin at age 16.
- *Education and family.* A high proportion of the young service users in this sample left school before age 16 and their level of school attendance is low. Educational problems can be both a cause and a consequence of problematic drug use. A high proportion of the sample did not live with their natural parents and have a history of family problems (e.g. running away from home). Several familial factors predict higher LPDU.
- *Perceived parental controls and attitudes are important factors in relation to LPDU.* Poor parental control is perhaps the main determinant of the level of problematic drug use. The implication is that if children internalise parental attitudes condoning substance use, they are more likely to engage in substance use themselves. Our findings concur with previous research by the Social Exclusion Unit, which found that young frequent drinkers were more likely to be poorly supervised by their parents.

- *Improving parenting skills.* Given the preceding point, this may be a promising area for early intervention (where parents are willing to co-operate). Between spring 1999 and the end of 2001, nearly 3,000 parents participated in 34 parenting programmes across England and Wales. By the time parents left their projects, they reported significant positive changes in parenting skills and competencies. However, other research suggests more mixed outcomes in relation to problematic drug use.
- *Drug prevention and treatment could benefit from aspects of social learning theory.* Higher LPDU is usually the culmination of years of drug use. It is invariably initiated in a social environment with friends or family members. The initial reinforcement of the drug becomes associated with social behaviour and very often 'group' membership and thus offers a sense of positive identity. Social learning theory offers an explanation of the learning process and indicates how behaviours can potentially be unlearned. Recent analysis of effective interventions from the US reached similar conclusions.
- *Drug users seeking help should be carefully assessed with regard to their motivation to change their behaviour.* Many studies have highlighted the fact that motivation to change is likely to lead to better treatment outcomes, yet a recent review notes that "we know very little about the determinants of motivational variables that promote positive change in adolescents". Assessment of motivation is now seen as important, but equally important is assessment of how individuals judge themselves as being capable of making change. Locus of control can easily be measured and could offer therapists key insights into clients' potential for change.
- *Availability of drugs.* As nearly all respondents could get drugs in less than one hour, responding to supply side issues is important.
- *The direction of causality is not easy to determine from quantitative cross-sectional data (does drug use cause young people to run away from home or vice versa?).* Qualitative research with young service users would enable greater understanding of these events.

Recommendations for further research and service development

- The current data set provides new insights into adolescent drug use and should be subjected to more detailed analyses. Larger sample sizes and long term follow-up of young people entering services would enable the development of more robust structural equation models.
- Guided by the structural models in this study, qualitative methods should be used to understand the direction of causality (e.g. with regard to family conflict) and elicit adolescent drug users' perspectives on a range of issues (e.g. how their drug use developed over time). This may be achieved through new research with the study population.
- Different drugs affect the cognitive, neurological and emotional needs of children at different developmental stages. This is a relatively unexplored topic and should be the subject of further research.
- Previous research indicates that if "parents ... create a warm and supportive family environment with appropriate supervision and control throughout adolescence" then problematic drug use will be reduced. Unfortunately this is unlikely to occur in many families and the question should perhaps be, what intervention (if any) could lead to this state of affairs (where it does not currently exist)? The data suggest a number of promising options, including parenting skills training, cognitive behavioural therapy, Communities That Care (CTC-UK) and multi-systemic therapy. Although such approaches can be resource intensive, consideration should be given to training more people in these methods.
- Adolescent drug users seeking help should be assessed with regard to their motivation to change their behaviour (e.g. locus of control) as this may increase the probability of a positive outcome. Cognitive Behaviour Therapy (CBT) helps patients to recognise why they are using drugs and determine what they need to do to either avoid or cope with whatever triggers their use.

1. Introduction and description of drug services

The Government's Ten-Year Drug Strategy targets young people. It aims to reduce Class A drug use and frequent use of any illicit drug among all young people under the age of 25. A special focus has been placed on reducing drug misuse among 'vulnerable young people' who are at greater risk of becoming problem drug users in later life (Cabinet Office 1998; Home Office 2002).¹ This current study is one of a number of studies examining drug use among vulnerable groups of young people to provide a clearer picture of their drug use.

The role of the current study

This study examined drug use among young people accessing drug services. As well as interviews with the young service users, their parents were interviewed to investigate a wide range of topics including their experience of substance use and their attitudes to their child's substance use.

The study took place at three designated drug services, which have pioneered drug treatment services for young people in the United Kingdom. Two were located in Stoke-on-Trent and one in Newcastle-upon-Tyne. Initial studies in Stoke found early initiation into substance use (mean=13.3 years) and heroin use (mean=15.8 years), and development of heroin dependence within a year (Crome *et al* 1998; 2000). Fewer than half of the clients were living with both parents or had taken examinations and a quarter had been excluded from school. These findings suggest that young people who access drug services have problems in multiple domains i.e. psychological, physical, familial and environmental in addition to the identified substance misuse.

However, each young service user presents a unique set of circumstances and there has been little progress in recent years in discovering whether and how these risk factors are linked. The approach taken in this study is to closely analyse the experiences of 100 young service users and develop a model of risk and drug use. A statistical technique known as structural equation modelling (SEM) was used to develop this model. SEM provides a clear picture of complex processes. The key point about SEM is that it aims to provide a picture of how factors interact with each other.

The method has previously been used to understand paradoxical behaviour among female drug injectors in Glasgow. The model found that female injectors had *better* AIDS knowledge than male injectors, but reported *fewer* harm reduction activities (Barnard and Frischer 1995). Concurrent qualitative research indicated that many women were involved in relationships with male injectors with whom they report a high incidence of needle sharing and unprotected sex. The increased stigma attached to female injectors has an important influence on their patterns of behaviour.

An example of the practical nature of SEM comes from an American study, which asked whether age of initiation of alcohol use is simply a correlate of other factors that are the true cause of later alcohol abuse. Alternatively, are factors such as family cohesion associated with later abuse only through their effects on age of initiation? Hawkins *et al* (2000) suggest the latter and therefore conclude that efforts to delay initiation of alcohol use are well conceived.

A recent review by the Health Promotion Agency for Northern Ireland (www.drugsprevention.net 2001) indicated that drug use tends to occur when certain specific factors or variables are present. Examples of positive correlates include:

- intentions to use

¹ The Advisory Council on the Misuse of Drugs (ACMD) defined problematic drug users as "those who experience social, psychological, physical or legal problems related to their drug use" (ACMD 1982).

- impulsive behaviour
- excessive personal stress
- boredom
- anti-social tendencies
- scepticism about school drug education and media prevention efforts
- peer pro-drug attitudes and behaviour
- lack of parental concern.

A negative correlation indicates that drug misuse tends not to occur when other specified factors / variables are present. Examples of negative correlates include:

- self-esteem
- liking school
- achievement
- religious beliefs
- optimism about future
- parental intolerance of deviance
- presence of controls and regulations in the home.

Recent American studies have highlighted the complex ways in which many of these variables interact. Hoffman and Su (1998), for example, have developed a model that examines the effects of parental psychoactive substance use disorder (PSUD) on the reciprocal relationships between stressful life events, family attachment, peer drug use and adolescent drug use. The structural equation model with latent variables revealed that adolescents from PSUD families were at heightened risk of stressful life events, peer drug use, strained family attachments and drug use during the first follow-up period (one year later). In turn, peer drug use was strongly associated with drug use during the second follow-up period (two years later). However, drug use during the first follow-up also led to greater peer drug use and attenuated family attachment during the second follow-up period. They concluded that parental psychoactive substance use disorder puts adolescents at significant risk of becoming embedded in a cycle of drug use, associations with drug using peers, and poor family relations.

Study aims

The aims of the current study are to:

- determine the hierarchy of risk and protective factors associated with problematic drug use among adolescents attending designated drug services
- understand the direct and indirect links between these factors.

The aims are constrained by:

- the study population (young people accessing designated drug services, age range 11-20)
- the study design (cross-sectional)
- the method used to elicit information (structured questionnaire)
- the definition of the level of problematic drug use (LPDU - a new variable created from a score based on questionnaire items relating to drug use, explained fully on page 19)
- data analysis (structural equation modelling).

However, no single study can address the whole risk / protective domain, which includes genetic, familial, cognitive, psychological, social and economic factors. In addition, there is a developmental component in that these factors vary according to age. This is particularly relevant in this study of young people aged from 11-20. This age range includes at least two important transitions that all young people pass through and negotiate with different degrees of success. The first is the move from primary school to secondary school, and the second is the move from compulsory education to further study, vocational training, work or unemployment.

A further complication is also caused by findings from different study populations. What is true among a sample of the general population may not hold true for a sample of people whose drug use has become problematic or a sample such as this one which exclusively targets young drug users who are accessing drug services.

The study of alcohol abuse by Hawkins *et al* (2000) shows that efforts to delay initiation of alcohol use can prevent later abuse but interactions between risk / protective factors are not always easy to interpret or implement at a policy level. Furthermore, there have been many attempts to tackle the true 'cause' of drug use, which ignore the complexities of the real world. Together, these factors mean that findings from research require careful interpretation to enable policy makers to produce evidence-based policies based on research findings.

The Stoke-on-Trent services

The services chosen to access the study population for this study were among the first designated for young people. In Stoke-on-Trent two services were used: the Druglink street-level service and the Edward Myers Centre, which both provide medical treatment and non-medical interventions. The two services are linked and share clients who require both types of intervention. Druglink clients are under 18 while those attending the Edward Myers Centre are aged 18 and over.

The Druglink young people's service operates within a broad harm reduction approach. As a first step this approach concentrates on encouraging users to make lifestyle changes which reduce drug-related harm to themselves and others. The young people's service is a specialist multidisciplinary team developed as a partnership between Druglink (a voluntary agency) and the Combined Healthcare NHS Trust.

Young people mostly self-refer to the Druglink service. However, referrals are also made by parents/carers and from a number of agencies including schools, GPs, social services and Youth Offending Teams (YOTs). The service offers both weekly drop-in sessions and pre-arranged appointments and has a dedicated YOT worker.

Druglink does not demand parental or carer involvement in the care package. However, parents' participation is encouraged. It is only initiated with the consent of the young person. The aim is to enable young people who have problems with parents/carers to use the service.

The length and nature of contact with Druglink varies greatly. Some young people make only one contact to access drug information. Others require harm minimisation work that normally includes counselling and drug awareness work. A few require long-term support. This may include drug treatment involving prescriptions for addiction treatment such as methadone or buprenorphine and/or referral for detoxification/rehabilitation. It also may include ongoing counselling and relapse prevention. The last group can be in contact with the service for a number of years and, if necessary, are referred on to an adult caseworker when they reach 18 years of age.

The prescribing and detoxification / rehabilitation components of Druglink treatment are carried out at a specialist substance misuse facility called The Edward Myers Centre. The centre provides medical interventions (both community-based and residential), addiction treatment and support services. The centre works with clients in a secondary care setting, including treatment and testing clinics, home visits and joint working with other agencies (including primary care). On the residential ward, detoxification and rehabilitation services are provided, with stays ranging up to six months. Referrals are taken from primary care and drug services.

The Newcastle services

The Newcastle and North Tyneside Young People's Drug and Alcohol Service (YPDAS) is a specialist community service provided by the Newcastle, North Tyneside and Northumberland

Mental Health NHS Trust. It comprises three sessional commitments from consultants in child and adolescent psychiatry, addiction psychiatry and psychology, and two full-time addiction nurses. It has close links with education YOTs and youth orientated voluntary organisations.

Treatment is offered to any young person within the locality who is under 19 years of age and experiencing significant substance misuse problems. The service employs a variety of interventions to address the wide range of needs presented by clients. These include drugs education and psychological therapies such as motivational interviewing, cognitive behavioural therapy (CBT), relapse management and the use of a three-day Opiate Dependency Treatment Programme. The service also acts as a facilitator for young people to help them access primary health care, housing and benefit entitlement, and education, training and careers opportunities. The length of time young people have contact with the service varies considerably (from a single appointment to a number of years), but the average duration is three to six months.

Referrals to the service come from a number of different sources, including GPs, social services, Youth Offending Teams, Child and Mental Health Services (CAMHS) and the young people themselves. They are also received from the Fleming Nuffield Unit, which is the base for the Child and Adolescent Mental Health Service for children aged up to 15. Young people attend the unit for assessment and treatment of general psychological problems, such as Attention Deficit Hyperactivity Disorder (ADHD), anxiety and depression. The unit has close links with YPDAS. If, on assessment, they are found to have significant substance misuse problems they are referred to YPDAS in the same way as other referrals by GPs, social services or other agencies. Parental involvement is encouraged, unless the young person does not want their referral to be made known to their parents, in which case confidentiality is maintained.

2. Research design, methodology and analysis

Access and recruitment of the sample

In Stoke-on-Trent, the Druglink staff members were supportive and took an active role in facilitating the researcher's access to clients. Client and parent interviews primarily took place either at Druglink (usually on clinic days when the young people see the doctor and are more likely to attend), the Edward Myers Centre, or in participants' houses during home visits.

After seven months, referral rates slowed down as the majority of current clients had been interviewed and new client referrals to the service were low. This was resolved by utilising some of the adult services (case workers and needle exchange) to access the 18 to 21 age group.

Another successful addition to the Stoke referral resources was the Edward Myers Substance Misuse Centre at the Harplands Hospital. The centre handles prescribing and urine analysis for substance misusers. It shares a number of young clients with Druglink, but also takes referrals direct from GPs. This has allowed the study access to a broader scope of young people accessing drug services.

In Newcastle, the recruitment of subjects relied heavily on the committed support of the staff at YPDAS. From the outset, nurses and consultants were actively involved in informing clients about the research and offering them the chance to participate. It was considered important that the initial contact should come from a member of the YPDAS team to reassure potential subjects as to the credibility and trustworthiness of the study. However, once interviews were arranged, the researcher was careful to explain his independence and reassure subjects about the confidentiality of their answers.

The Newcastle service is community-based in nature, so young people are generally seen either at home or in an appropriate neutral venue, such as the offices of Streetwise, a non-statutory confidential advisory service for young people. Consequently, most of the research interviews took place in these venues, subject at all times to the preferences of the interviewee. Where interviews took place at home, this often facilitated the recruitment of parents who were not inconvenienced by being asked to travel or take additional time off work or other commitments.

This study population may often have difficult relationships with their parents or no relationship at all. Whether this is a cause, or a consequence, of substance misuse, it nonetheless means that many have good reason for not wanting their parents involved. In view of this, the number of parents that the study has successfully managed to interview exceeded expectations.

The Newcastle site accessed a higher proportion of parents due to the nature of the service. Parents were seen as an integral part of the treatment process, and consequently were far more involved with the service than at Druglink. This meant they were more likely to be accessible to the researcher.

Engaging with young people and their parents

Working with young people and their parents required a large amount of planning, responsive researchers and a great deal of sensitivity. A number of issues emerged as important in working with such closely connected study populations.

Consent to interview parents

It was essential that the young people were asked for their consent before parents/carers were approached for interviews. This was primarily to uphold young people's rights and give them as much control as possible. Confidentiality also made this policy essential: to ask a parent to take part would mean explaining how the researchers had come into contact with their child. Clearly the mention of a drug service would break the confidence of those young people whose parents were unaware of their drug use. The policy meant that a number of parents were therefore excluded from the study. This was felt to be an acceptable cost as it enabled young people with problematic family situations, or whose parents who did not know about their drug use, to take part.

Establishing trust

In most cases the respondent had not had contact with the researcher prior to the interview. For some young people this made it very difficult to accept the assurance of confidentiality. Their concerns were understandable; they were being asked to trust a stranger. Some had also had previous experiences with services which they felt were negative and they were therefore guarded about giving information to people they did not know well.

An example was a young man who expressed concern about taking part in the study. He was given the opportunity to chat to the researcher and air these concerns before making a decision on whether to take part. He explained that when he first used the drug service he had been outraged to discover that his caseworker had discussed his case with another worker. He had not fully understood the drug service policy of confidentiality *within the team* rather than with an individual worker. He said he felt he had been misled and was concerned this might happen again if he took part in the study.

For this reason it was essential that the researcher took time in explaining the confidentiality section of the project information sheet, and to be very clear about the circumstances in which confidence would need to be broken (i.e. when child protection issues arose). Young people needed the opportunity to ask questions to establish the boundaries of the interview.

Protecting young people's rights

It was important to ask the young person whom they wanted present when the interview took place. Often caseworkers, carers or parents were in the room prior to the interview, and many assumed that their continued presence was acceptable. The researcher had to ascertain the young person's wishes and be prepared to ask people to leave. This both ensured confidentiality and made certain that there were no people in the room in front of whom the young person was uncomfortable being truthful.

Many parents understandably assume that they have a right to access all information about their children. It was up to the researcher to explain from the outset that the child's right to privacy is equal to that of the parent. It was important to help parents understand that in order to uphold confidentiality, information could not be passed on to them from their child's interview.

Another aspect of protecting young people's rights was ensuring that parents did not disclose information about them unnecessarily or inappropriately. An example of this was a parent who was keen to show the researcher the poor standard of their child's school report. The child was present and clearly uncomfortable with the situation. It did not occur to the parent to seek their child's consent before handing over the report. Fortunately the family therapist from the drug service was also present and was able to explain the child's right to privacy to the parent.

To try to avoid unfair or unethical revelations from parents about their children, the parents were only asked in the questionnaire about the extent of *their knowledge* of their child, rather than direct questions about how their children live.

Parental concerns

Many parents were defensive at the start of the interview. This was particularly the case with parents who were new to the service. Their defensiveness was due to a fear that they would be judged because their child was using drugs. These fears were personalised and they feared judgement from the researcher. This was evident in statements such as “you must think I’m terrible...”, “it must sound awful to you but..”. Many said that they themselves felt they were a ‘bad parent’ or that they believed others would see them this way. In view of this, it was important to ensure that parents realised that the research was non-judgemental. As in the case of the young people, this was achieved by ensuring the information sheet was fully explained and giving parents the opportunity to ask questions. Once parents fully understood the aim of the study, the defensiveness usually ceased to be an issue.

Unprompted disclosure

Parents often encounter various members of the young people’s drug team – for instance one parent could be involved with the psychiatrist, the caseworker and the family therapist. As a result parents may assume that any professional they come into contact with at the drug service is part of their child’s care plan despite clear introductions. This is particularly the case with parents who are new to the service.

Consequently, the researchers often found parents mistaking them for service staff and diverging from the study questions with asides and expressions of concern for their child. Occasionally, parents had many other concerns to express and would commence their disclosure as the researchers entered the room before the aims of the study had been explained. This was a difficult situation. To immediately interrupt or suppress the parents was likely to make them feel that their views were unimportant. To allow their assumptions about the researcher’s position to persist would be unethical.

The researchers found the best way to deal with anxious parents was to listen, be respectful, and make their position clear at the earliest opportunity. When parents continued to digress, the researchers explained that they were distinct from the drugs service staff again. It was also important to emphasise to parents how important their views were and to encourage them to repeat their concerns to the appropriate worker.

Interview settings

The researchers established a number of different ways of entering into an interview. This flexibility allowed a broader range of young people to be accessed. Some interviews were arranged in advance by caseworkers from the drug services, others by the researchers themselves. Other interviews were conducted on a more impromptu basis. This could be, for instance, gaining access when a young person attended the drop in centre. In Stoke-on-Trent the researcher gained a number of referrals by waiting outside the needle exchange and asking those within the age range to take part as they came out.

Many interviews were carried out at the drug service, but a considerable number were also carried out in people’s homes. The different settings had an effect on the tone of the interviews. At home people seemed to feel more comfortable which resulted in them being more confident and spending more time considering their answers. Interviews at the drug services were often faster, particularly the young people’s interviews, as they often had other priorities and were keen to conclude appointments rapidly.

Questionnaire development

The team developed a new research assessment instrument for this study. The starting point was the Wolverhampton Health Profile developed by Dr Isabel Gillis and colleagues at Wolverhampton Health Authority and Youth Offending Teams (Green *et al* 2000)². The focus of the current project also required some original questions asking about psychological state, communication problems, criminal activity and relationships before and after drug use initiation. Further questions concerned family composition and parental support. Other 'tried and tested' questions were drawn from the following questionnaires.

- Health Profile August 1999: Wolverhampton Health Authority and Wolverhampton Youth Offending Team
- Teenage Questionnaire 1999: West of Scotland 11-16 Study: Teenage Health
- National Statistics 1999: Survey of Smoking, Drinking and Drug Use among Schoolchildren – England
- Drug Usage and Drug Prevention 1993: The views and habits of the general public; Home Office
- West of Scotland 1995: Health in the Community
- 2000 CASA Survey of Teenagers. The National Center on Addiction and Substance Abuse at Columbia, USA.

The final questionnaire contained sections on:

- social background
- education, training and employment
- nature and extent of substance use
- problems encountered before drug use (psychological, relationships etc)
- problems encountered after drug use began
- parental discipline
- parental attitudes to substance use
- criminal and anti-social behaviour
- health and well being
- use of services
- friends' substance use
- local problems such as assault and burglary
- local amenities, e.g. places for young people to meet
- leisure activities.

Researchers from Keele University together with Drugs Services staff pre-piloted the questionnaire. Young people of a similar age were consulted about the appropriateness of the language. A number of questions were simplified following the preliminary pilots. The first five interviews at each site (ten in total) were then used as genuine pilots. The use of pre-pilots meant that the genuine pilots were successful, that no changes were made to the research instrument and that the ten pilot cases could then be included in the final sample.

The parents' questionnaire followed a similar structure to that of the young people in terms of subject content but included questions both about themselves and their children. The aim of this was twofold: first, to gain an insight into parental patterns of behaviour, family influences and substance (mis)use; second, to find out whether parental responses corroborated or contradicted young people's accounts of behaviour, family life and substance misuse.

Both the young people's and parents' questionnaires generated several hundred variables. The main variables used in this study are shown in Appendix A. Further information on school performance was also collected in Newcastle (see Appendix B). Copies of the research instruments are available on request.

² As part of the preparation for this study we reanalysed the data and are preparing a manuscript for publication (Frischer *et al* 2002).

Ethics: assessment procedure, informed consent and incentives

Assessment for study eligibility

Young people's substance misuse workers assessed clients in accordance with the service's operational policies and procedures, using the standard clinical assessment questionnaire administered to all clients. This was to ensure that potential respondents were able to make an informed decision regarding their participation in the study.

Informed consent

Informed consent was gained from each client before they were interviewed. Previous studies have experienced difficulties in gaining consent from vulnerable young people, particularly minors. Many studies have felt it more ethical to gain consent from the parents. However, the nature of this study (for instance the legal implications of drug use or young people not wanting parents' involvement in their treatment) meant that this was not possible. Allen worked on approaches for studies involving vulnerable young people. He concluded that "it is acceptable to obtain consent from minors if the study is explained to them in a language that is appropriate and that they would understand, and participants are aware of their right to refuse to contribute at any point" (Allen 2000).

In view of this, the study employed an information sheet, which was read by, or to, the young person, and a consent sheet. The young people were asked to sign a number of clauses on the consent sheet (that they understood the information sheet, gave permission for their notes to be accessed, and understood that participating in the study was voluntary and they could withdraw at any time). All forms were written in child friendly language and piloted with young people prior to the study.

The information sheet emphasised confidentiality by stating that confidence would only be broken if the young person said they intended to harm themselves, someone else, or spoke of matters which required the intervention of child protection services. Permission was also sought from the young people to contact a parent / designated caregiver in order to interview them, using the adapted version of the questionnaire. Parents were asked to participate only if the young people gave consent.

It was decided that interviews should take a maximum of 40 minutes, since clinical experience suggested that young people might become restless, bored and irritated during longer assessments.

Incentives

The design of the study required careful consideration of the ethics of offering incentives to participants. In the information sheet for the study, it was explained to participants that the overall aim of the study was to "help the Government understand the reasons why young people use drugs ... (in order) to be able to provide better services for young people".

Lengthy discussions took place with the drugs service staff and management, and a consensus was reached that the respondents should be rewarded for their time and participation. Considerations then moved on to what would be the most appropriate incentive.

It was decided that the use of vouchers as an incentive was the most appropriate option. In Stoke, the local shopping centre provided generic vouchers, which could be used in any shop in the centre. This option was not available in Newcastle, so respondents were presented with a number of different shop vouchers from which to choose.

The study protocol was approved by both the North Staffordshire and Newcastle Local Research Ethical Committees (LRECs)

Computerised prompt cards

Despite extensive editing, the questionnaire could not be reduced to fewer than 100 questions without undermining the need to cover all relevant areas. This made the 40 minute time limit for interviews a real challenge. However, computerised on-screen-prompt cards were developed which allowed the researchers to complete many of the interviews in less than 30 minutes. This varied depending on individual respondents' literacy levels.

The use of a laptop for interview also proved beneficial for a number of reasons:

- Respondents were not obliged to face the researcher, making the interview less intimidating.
- The prompt cards were particularly useful for those who had poor communication skills – they could simply point to an option on screen if they found it difficult to articulate their responses.
- The screen allowed people to break eye contact when answering a particularly personal / difficult question – this made it easier to give uncomfortable answers.
- The prompts helped to keep interviews concise by ensuring that respondents' answers did not deviate from the question.
- The laptop was a visual point of interest that helped to retain respondents' attention.

Helen Beckett conducted all interviews in Stoke and Jeremy Heap those in Newcastle. Interviews with young people and parents/carers took approximately 30-40 minutes. The interviews were conducted between June 2001 and June 2002.

Constructing an indicator for the Level of Problematic Drug Use (LPDU)

Determining respondents' level of problematic drug use was central to the study. As the Government's focus is on the reduction of problematic drug use, we sought to develop a score, which would indicate respondents' involvement with the drugs. The following drug information was collected from the questionnaire and used as an indicator for each young service user's level of problematic drug use (LPDU):

- Lifetime drug use. Young service users were asked about the following drugs (in line with the British Crime Survey): cannabis, amphetamine, LSD, ecstasy, poppers, non-prescribed tranquillisers, heroin, magic mushrooms, non-prescribed methadone, crack, cocaine, steroids, glue / solvents, inhalants (gas) and 'other' non-prescribed drugs.
- Drug spend in the last week (ranging from no spend to being given or swapping items for drugs through to spending exceeding £40).
- Number of reasons for drug use (including curiosity, for energy, to work, to feel normal, due to addiction, etc, on a scale of often, sometimes or never). Experience during interviews suggested that the more reasons a young person reported (i.e. the more 'needs' that drug use 'fulfils'), the more likely they were to be a heavier user and the more likely they are to feel the compulsion to continue using the drugs.
- Ever injected (yes or no).
- Class of drugs used as defined by the Misuse of Drugs Act.

Frequency and class of drug use were weighted.³ As the five variables were measured on different scales, these scales were standardised. This means that they were represented on the same scale where the mean average is equal to zero and the standard deviation is equal to one (mean=0, SD=1). Thus each variable had an equal weighting before they were added together to give an overall score. For the following discussion in this report, the score is referred to as the Level of Problematic Drug Use (LPDU).

³ Frequency: ever used [named drug] =1, use of [named drug] during the last year=2, use of [named drug] during the last month=3. Classification of drug: Class A=3, Class B=2, Class C =1.

Bivariate analysis

The first set of analyses was aimed at assessing the relationship between individual variables and the LPDU. One hundred and five variables were considered; each variable was either categorical (e.g. gender-males/ females) or assigned categorical values (e.g. arguing with parents often/rare/never). The relationship between each variable and LPDU was determined using One Way Analysis of Variance (ANOVA)⁴.

Factor analysis

In view of the large number of variables available, we sought to determine whether our intuitive notions of which variables measure similar dimensions were grounded in fact. Factor analysis attempts to identify underlying factors that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. Several methods of factor extraction are available. In this study the principal components method was used. In this method, linear combinations of the observed variables are formed. The first principal component is the combination that accounts for the largest amount of variance in the sample. Successive components explain progressively smaller portions of the total sample variance and none is correlated with any other. In order to decide how many factors are needed to represent the data, reference is made to the Eigenvalue.⁵ One good rule of thumb for determining the number of factors is the "Eigenvalue greater than 1" criterion. Where factors are identified it is up to the researchers to decide what this factor actually represents. The analysis was conducted using SPSS.

Multiple linear regression

Linear regression estimates the coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable. For example, can the drug score (the dependent variable) be predicted from independent variables such as age, education and gender? Variables can be entered or removed from the model depending on either the significance (probability) of the F value or the F value itself. The forward stepwise method was used to enter and remove variables at each step. At each step the proportion of variance explained (R^2), adjusted R^2 and the change in R^2 from the previous step are presented. The sample R^2 tends to optimistically estimate how well the model fits the population. The model usually does not fit the population as well as it fits the sample from which it is derived. Adjusted R^2 attempts to correct R^2 to more closely reflect the goodness of fit of the model in the population. The analysis was conducted using SPSS.

Structural equation modelling

The EQS structural equation modelling program was used to develop a model representing the relationships among the observed data (Byrne 1994). The key features of the EQS approach are the measurement model and the structural model (or path analysis). The *measurement model* specifies the properties of observed variables and their relationship to latent variables.⁶ The *structural model* identifies predictive relationships among latent variables. As the latent variables reduce the amount of measurement error, EQS can detect stronger relationships between latent variables than between observed variables. This is particularly important when dealing with behaviours, such as the level of problematic drug use, which may be measured in different ways. It is important to note that differing measures of independent and dependent variable may elicit variable findings.⁷

⁴ ANOVA involves computing the F ratio which is the between groups variance divided by the within groups variance. The F ratio is compared with the F distribution (which is the distribution of F where there are no significant differences between the groups) in order to determine the significance level. Where the significance level is less than 0.05 (i.e. there is less than 5% probability that this F ratio would have resulted by chance) the null hypothesis can be rejected, i.e. that there is no significant difference between the groups. The analysis was conducted using SPSS. Univariate analysis does not control for the effect of other factors. For example, males may have higher LPDU scores than females but this may be influenced by other factors such as education.

⁵ The Eigen value is the variance explained by a factor.

⁶ The term latent variable is similar to the term factor as used in factor analysis, meaning an unobserved or hypothetical trait.

⁷ To understand measurement error, imagine measuring the length of a table with a ruler – each time it is measured the answer will be slightly different. Thus the length measure consists of the true length plus measurement error.

Path analysis may be defined as 'the process of estimating the coefficients of a set of linear equations representing the predictive relationships hypothesised by the investigator' (Cuttance and Ecob 1987). Rather than estimating each equation separately (as in regression analysis), it is possible to consider the model as a system of equations and estimate all the regression coefficients simultaneously. Because the path coefficients are standardised (i.e. they are in a common unit), the magnitudes of the coefficients for effects can be directly compared. One of the strengths of path analysis is the ability to differentiate between direct and indirect effects between variables. For example, do parental attitudes to drugs have a direct influence on drug use or are they mediated by parental controls on young people's behaviour?

While the process involved in path analysis can be complex there is a simple logic that underlies the method. There are four steps involved:

1. Set up (hypothesised) relationships between the variables. This is most often done through the use of a path diagram.
2. Test the variances and co-variances to see if they fit the model.
3. Review the results and decide if the model is a good fit for the data.
4. Modify the model on the basis of model output until a satisfactory fit is achieved.

In the current study, the relationships were determined from careful study of the previous univariate and multivariate analysis. In some cases the direction of pathways was straightforward, e.g. problems before drug use were set to be predictive of drug use. In other situations it was not so obvious. For example, does drug use lead to crime or vice versa? In such cases, competing models can fit observed data equally well and the analyses should be considered as exploratory. Only when an explicit theory is being tested is it possible to conduct confirmatory analyses. Variables with missing values were assigned the variables' mean value.

A limitation of the current analyses was the small sample size. For path analysis, a parameter:cases ratio $\geq 10:1$ has been recommended (Tabachnick and Fidell 1996). In the grant proposal we envisaged up to ten parameters, necessitating a minimum of 100 subjects. However, in practice we found that more paths were necessary to realistically represent the data and therefore the models should be considered as exploratory. The analysis was conducted using the EQS for Windows software package (Bentler 1995).

3. Discussion of results

Response rate

In Stoke-on-Trent, the response rate for the young service users was 95 per cent. Of the 56 young people asked, only three refused to take part. The most common reason for refusals was “not having time to stay and complete the questionnaire”. The rate was 72 per cent for the parents, with a total of 17 interviewed and five others who either refused or failed to respond when the researcher contacted them. This rate excludes the 34 parents whose children asked us not to contact them.

In Newcastle, out of 49 potential young people, only two refused to take part. This is a response rate of 96 per cent. One refusal did not have enough time and one young man wanted only minimal contact with the drug service itself, as he was apprehensive about ‘officialdom’. Any unnecessary contact was therefore not a priority for him.

Only 13 young people in Newcastle refused access to their parents. This was lower than the Stoke figure of 34, possibly due to the differing nature of the services – in Newcastle parents were more often seen as part of the treatment programme whereas in Stoke young people were more often seen independently. Twenty-five parents were interviewed, which is 76 per cent of those asked; eight failed to respond.

Response rates were kept high through flexible arrangements for interviews, which accommodated all participants’ circumstances. Participants were given a choice of locations for their interview. All chose either their homes or one of the designated young people’s services. Interview times were arranged to fit round work and/or use patterns, college and/or other commitments.

Some young people gave permission for their parents to be interviewed, but stated that their parents worked long and/or unsociable hours and would be unlikely or unable to attend an interview regardless of the location. This difficulty was resolved by the introduction of a self-complete version of the questionnaire. Considering the length and complexity of the questionnaire, this worked well. Those that were returned had been fully completed, thanks to clear instructions throughout the questionnaire. The inclusion of postage paid envelopes also helped encourage parents to return the completed questionnaires. In Stoke, of the ten sent out, six were returned. Newcastle did not require the self-complete questionnaire as the majority of parents were involved in the young people’s treatment package and were often available for interview at the same time as their child.

Most parents seemed to treat participation in the study as an opportunity to contribute to the care of their child and others like them, expressing the opinion that more needed to be done for young drug users and their families.

Profile of the study population

Table 3.1 provides an overview of the heterogeneity of young service users sampled in this study. For example, 60 per cent live in areas characterised by moderate to high material deprivation, while the remainder live in more affluent areas. Eighty per cent like the area they live in. Twenty seven per cent live with both natural parents, while 28 per cent had lived in care and 23 per cent had been fostered. However, 89 per cent said that their parent(s) or carers were loving (either always or mostly) and 94 per cent said parent(s) or carers gave as much help as they needed (either always or mostly).

Table 3.1. Key characteristics of 103 young service users interviewed in the study.

<p>Socio-demographic</p> <p>61% male, 39% female 16.8 years old – average age at interview (range 11-20) 84% had lived in the area 10+ years 80% like the area they live in 54% like present home, 33% think it's OK 59% live in areas of moderate or high material deprivation</p>
<p>Household</p> <p>24 % live with their birth mother but not their birth father, 6% with their birth father but not their birth mother, 27% with both birth parents, 43% do not live with either of their birth parents 18% live alone (e.g. living in hostels, B&Bs) 42% not living with the same people as last year 28% have lived in care, 23% have been fostered 27% had run away from home at some point 52% frequently had rows with adults when growing up</p>
<p>Education and schooling</p> <p>25% did/do not go to school regularly 36% left school due to exclusion, suspension, truancy 26% of those who had left school did so before 15 33% have bullied others 51% have been bullied</p>
<p>Views on parents/carers</p> <p>89% describe parents/carers as loving always or sometimes 94% said parents/carers help as much as needed 70% said parents/carers understand them most/all of the time</p>
<p>Crime</p> <p>60% had been arrested, 64% had committed acquisitive crime 37% had committed violent crime, 18% vehicle crime 15% had committed criminal damage, 10% had committed drug-related crime</p>
<p>Substance use</p> <p>Average age began smoking 11.7, drinking alcohol 12.1, taking drugs 13.2 73% drank alcohol in last month; 13% drink more than 4 units of alcohol daily 92% currently smoke; 54% smoke more than 10 cigarettes a day 100% have ever used cannabis, 63% have ever used heroin, 47% have ever used crack 88% can buy their preferred drug in less than 1 hour 45% spend more than £40 per week on drugs 40% have injected drugs 68% first used drugs with friends, family member 17%, partner 7% 57% obtained most recent drugs from dealer, older friends 8%, partner 3%</p>
<p>Views on drugs</p> <p>96% thought heroin is dangerous 79% thought they knew enough about the dangers of drugs 56% have had serious discussion with adult about risk of drugs Main sources of drug info: friends 72%, siblings 72%, TV 63%, GP 53%, teachers 38%, parents 35%</p>
<p>Health and treatment</p> <p>53% felt physically fair/poor, yet 80% said they have no illness 35% had used A&E in the last 6 months 25% had suffered physical injury requiring hospital treatment in the last 6 months 20% have a current illness 13% were prescribed methadone 6% had been treated for ADHD, 3% had drug treatment for ADHD 26% had used other mental health/psychiatric services/therapist in the last 6 months</p>

It should be noted that drug use among these young people who are in contact with drug services is much higher than found in the general population of young people matched for age. This will be discussed below.

Table 3.2 profiles the 46 parents interviewed in the study. Further analysis of the parent data is contained in Appendix C.

Table 3.2. Key characteristics of parents interviewed in the study.

Socio-demographic
91% female, 9% male 69% lived with a partner, 78% of whom were married 83% lived with some or all of their children 39% had their first child before age 20 65% shared problems with non-family members, 78% with family 17% had been in trouble as a teenager (expelled, run away or offended) 13% had been to a psychiatrist/therapist in the last 6 months
Education
65% left school with no qualifications 52% had completed courses post-school – 40% vocational, 7% academic 59% were currently employed, 44% had been in the same job for more than 3 years 72% had lived in the same area for more than 10 years
Substance use
60% smoked, 48% smoked more than 10 a day 87% drank alcohol in the last month, 46% drank more than 4 units weekly or more often 32% admitted ever trying drugs 9% had tried Class A drugs, 24% Class B, 2% Class C 4% had used a drug in the last month – all Class B
Attitudes
35% felt it was likely their child would receive a custodial sentence in the next 6 months 94% were aware that their children used drugs 89% had discussed risks of using drugs with their children 63% said they did not like their child smoking 35% said they did not approve of their child drinking alcohol 93% were upset when they found out about their child's use of drugs

Prevalence of drug use – comparison with British Crime Survey (BCS)

To understand how drug use among this specific sample of service users differed from other young people, prevalence of drug use in this sample was compared with the rates reported in the British Crime Survey 2000 matched for age. It should be noted that the BCS sample is representative of the general population, while this sample only includes young people accessing designated drug services. Consequently, it would be expected that drug use would be much higher among the young people sampled in this study. This is what was found.

The levels of crack, cocaine, benzodiazepines and heroin use 'ever', 'in the last year' and 'in the last month' are of particular interest; they remain consistently high, and notably higher than the use of other drugs 'in the last year' and 'in the last month' (Figures 3.1, 3.2 and 3.3).

Figure 3.1 Comparison of young service users and age matched young people in the general population for 'ever use' of drugs.

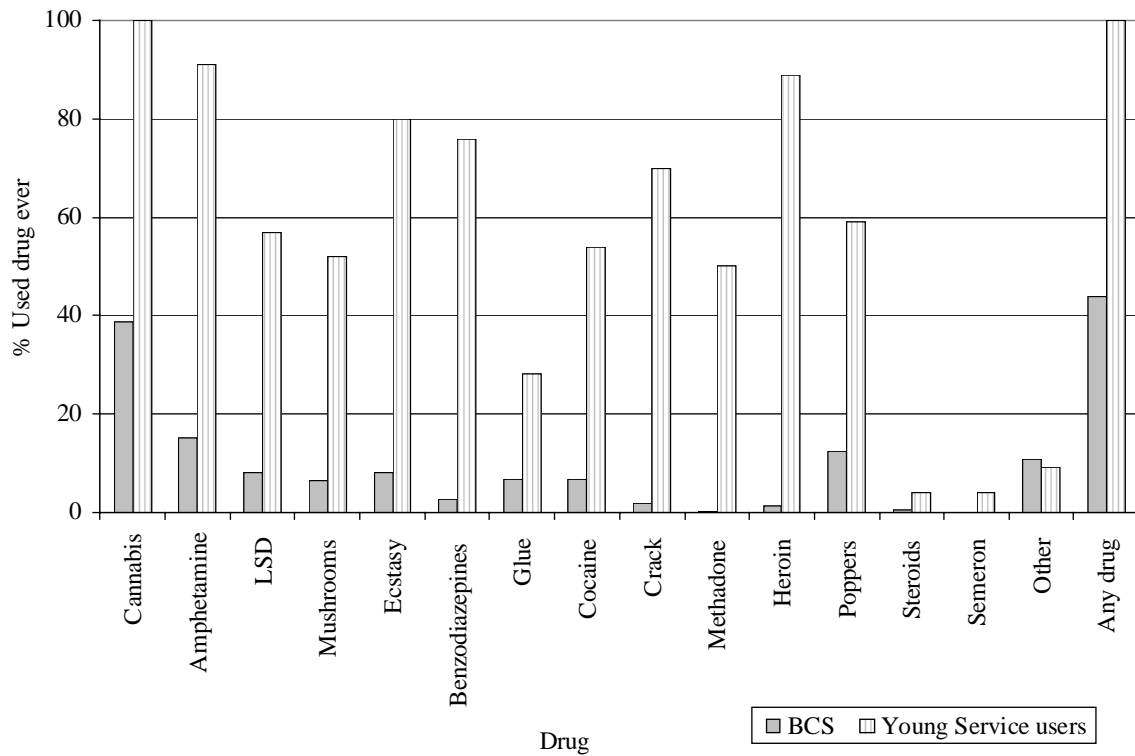


Figure 3.2 Comparison of young service users and age matched young people in the general population for drugs used 'in the last year'.

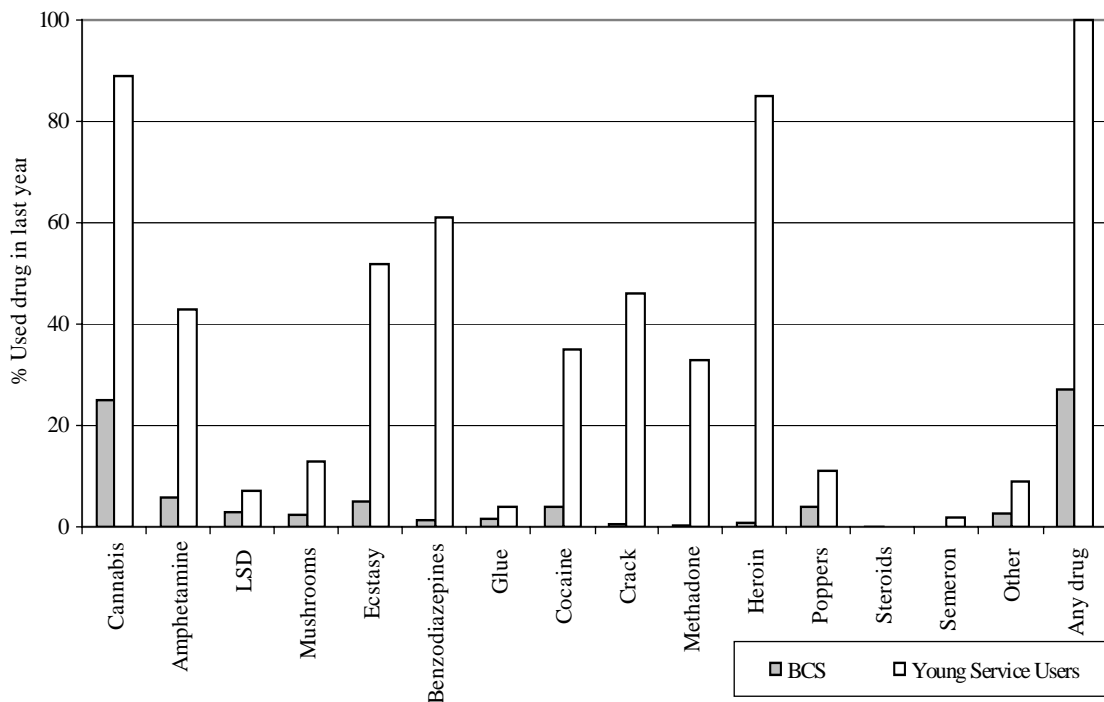
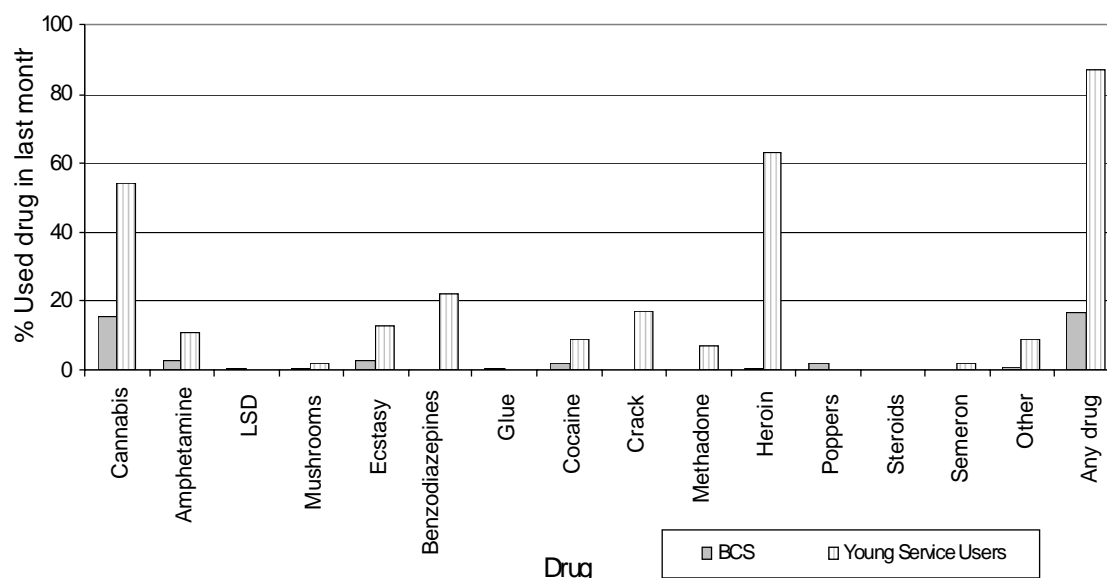


Figure 3.3 Comparison of young service users and age matched young people in the general population for drugs 'used in last month'.



Data comparing the drug use in the two locations is presented in Appendix D as it is not central to the study and may reflect respondents' age at interview rather than any intrinsic differences between the localities.

Level of Problematic Drug Use (LPDU)

Table 3.3 shows the correlations between five drugs variables (range: 0.29 to 0.78). Factor analysis of these variables resulted in one factor, which accounted for 56 per cent of the variation of the scores on the five variables. This factor had an Eigen value of 2.82 (the next one was 0.8). This indicates that the five variables can be interpreted as indicating one underlying dimension, which we have labelled LPDU.

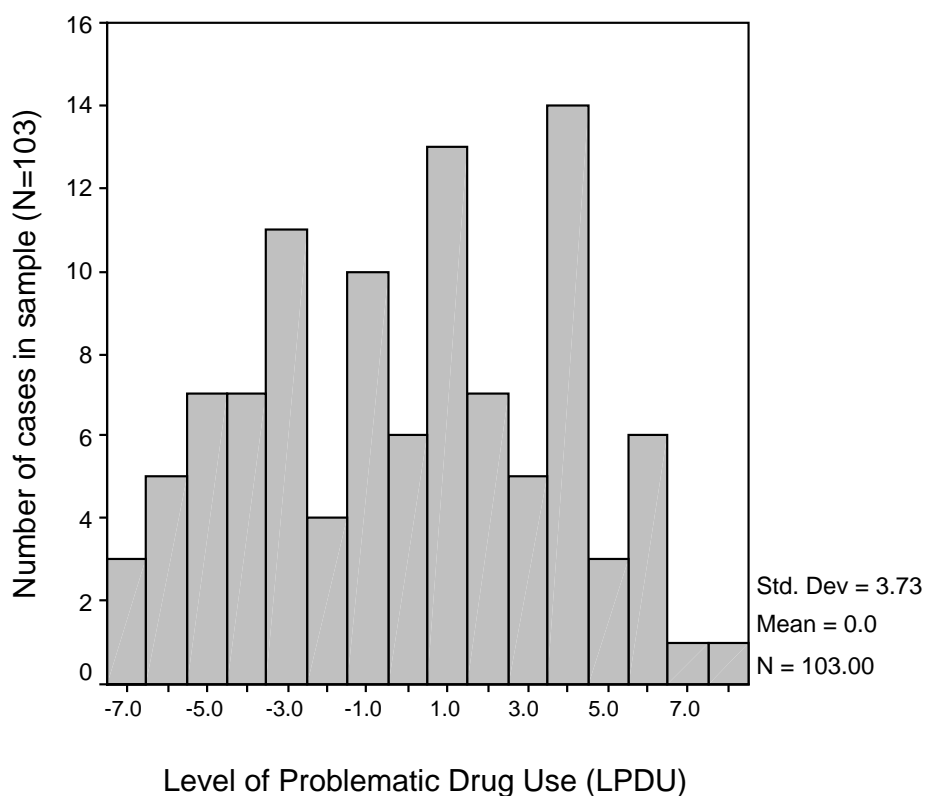
Table 3.3 Correlations between the five drug variables.

	Current spending on drugs	All drugs used and frequency - weighted	Number of reasons for using drugs	Ever injected drugs	Class of drug used
Current spending on drugs	1.00	0.46	0.50	0.33	0.51
All drugs used and frequency - weighted	0.46	1.00	0.39	0.47	0.78
Number of reasons for using drugs	0.50	0.39	1.00	0.39	0.32
Ever injected drugs	0.33	0.47	0.39	1.00	0.29
Class of drug used	0.51	0.78	0.32	0.29	1.00

Figure 3.4 shows the distribution of the dimension that indicates the level of problematic drug use (LPDU). This variable has a mean of 0 and a standard deviation of 3.73. Thus 68% (1

standard deviation) of respondents have a drug score between -3.73 to $+3.73$; 96% (2 standard deviations) have a score between -7.46 to $+7.46$.

Figure 3.4 Distribution of Level of Problematic Drug Use (LPDU)



What does the LPDU represent?

In order to convey the meaning of the LPDU, the sample was divided into quartiles, where low LPDU = 1 and high LPDU = 4.

Table 3.4 Profile of drug use by respondents' LPDU quartile.

Quartiles of LPDU	N cases	LPDU mean	Age Mean	Used Class A* %	Used Class B* %	Used Class C* %	Ever Injected %
1	25	-4.89	15.47	4	28	0	4
2	26	-1.58	16.19	35	77	4	15
3	26	1.60	17.72	77	66	8	50
4	26	4.68	17.94	95	54	54	96

*drug use in last month.

Group 1: The majority of respondents in this group had not used any drugs in the previous month; 28 per cent had used cannabis and only 4 per cent had used Class A drugs.

Group 2: A much higher proportion of this group had used drugs in the last month, although mostly cannabis.

- Group3: The majority of this group had used Class A drugs in the previous month; half had ever injected.
- Group 4: Very heavy users of drugs: Class A predominate but around half also using Class B and C drugs. Almost all had injected.

Table 3.4 shows a strong association between age at interview and level of problematic drug use, with LPDU increasing with age. One interpretation of this finding is that the older service users are more likely to engage in more serious drug use. In addition, the data could suggest that the service users interviewed tend to progress from less serious 'soft' to more serious 'hard' drugs as they get older. A longitudinal study would be required to confirm this hypothesis.

These data tentatively support the concept of a single continuum of the level of problematic drug use. LPDU appears to be a valid construct and was therefore used in this study as a key dependent variable.

Factor analyses were also conducted on groups of variables, which appeared to measure:

- problems before drug use
- problems after drug use
- parental discipline
- parental attitudes to substance use
- criminal behaviour
- current well being
- friends' substance use
- local neighbourhood problems such as assault and burglary
- local amenities, e.g. places for young people to meet.

These analyses all resulted in one factor emerging with an Eigen value greater than one. This is important when considering the pathways to and from drug use. The latent variables in the models (e.g. parental discipline) should have substantive relationships to their indicators.

Material deprivation

Respondents' full postcodes were used to derive Townsend Material Deprivation Scores. The score is calculated by combining four census variables:

1. Percentage of households that were not owner occupied
2. Percentage of households with no car
3. Percentage of households with more than one person per room (overcrowding)
4. Percentage of persons who were unemployed.

The score related to an electoral ward. Electoral wards contain an average of 2000 households.⁸ In the current study there were 53 unique wards. The average ward population was 9,614 (minimum =3,332 and the maximum=15,588). The Townsend Score is a sum of the standardised scores (z scores) for each variable, so scores greater than zero indicate greater levels of material deprivation (Townsend *et al* 1988). While the Townsend score is widely used in medical studies (Whitley *et al* 1999), it should be noted that attributing the characteristics of an area to an individual who lives within this area has the potential to lead to misclassification. For example, an affluent individual may live in a deprived area.

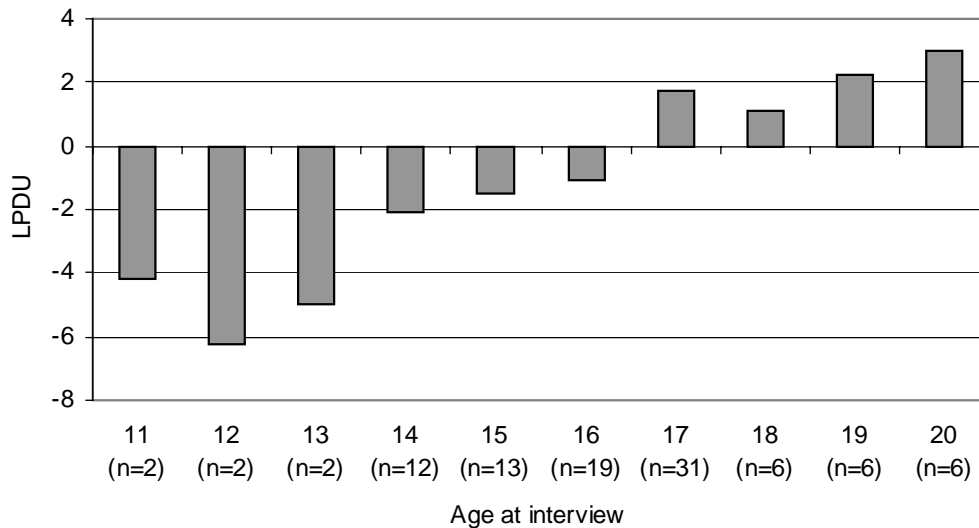
The influence of age at interview

In order to make reasonable interpretations of changes to LPDU, it is important to understand the impact of age at interview on LPDU. Hence the influence of age on young service users' LPDU is considered before discussing the results of the univariate and multivariate analysis.

⁸ For further details see http://census.ac.uk/cdu/Datasets/1991_Census_datasets/Area_Stats/General_Topics/Geography/GB_91_Census_geography/default.htm

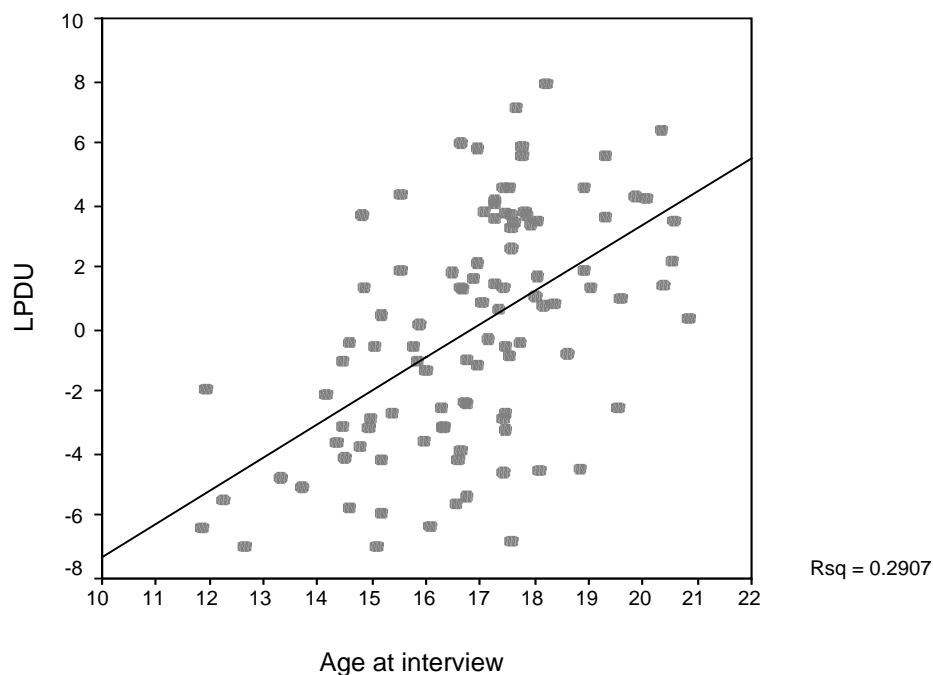
As this study is cross-sectional it is not possible to directly trace respondents' developmental sequence. However, their age ranged from 11-20, providing a partial perspective on the developmental process. The caveat is that all the young service users included in this study are using drugs at the time of their interview and have continued to use drugs. This cannot be assumed for the younger service users, for example it is impossible to predict whether respondents at age 12 will still be using drugs at age 16. Similarly those in the sample using drugs at 16 may not have been drug users at 12. Figure 3.5 shows the gradual increase in LPDU across with age.

Figure 3.5 Average LPDU by young service users' age at interview.



The scattergram in Figure 3.6 shows that 29 per cent of the variance in young service users' drug score is attributable to their age.

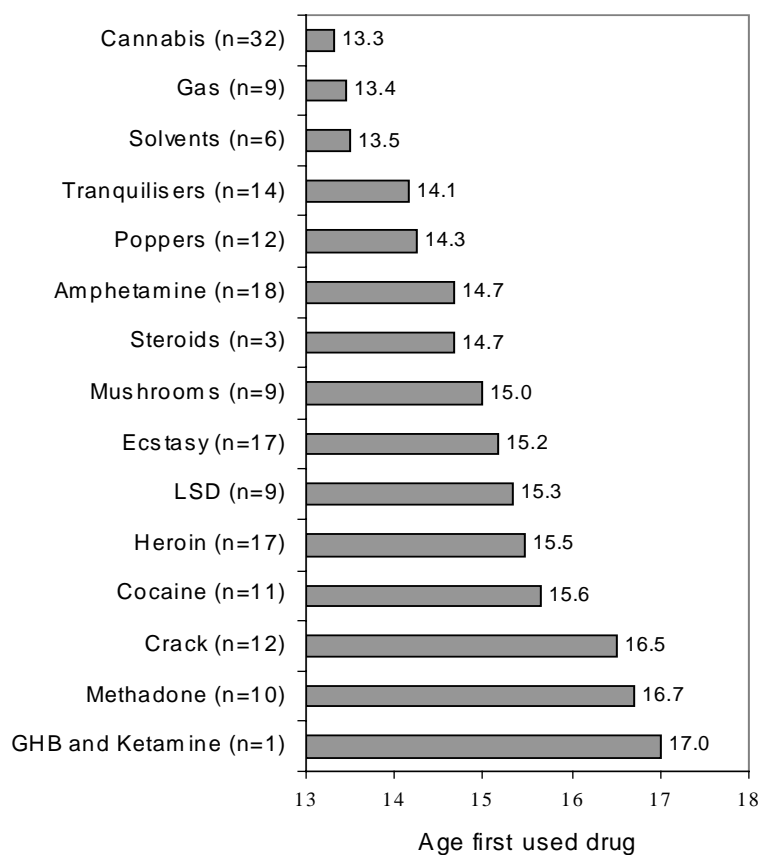
Figure 3.6 Scattergram of LPDU by respondents' age at interview.



Drug use is clearly a complex process, in which age interacts with other factors. Ideally we would have liked to construct different models for different age groups, but the present sample size precludes this. However, young service users' age at interview is included in the multivariate analyses reported in the next section.

Figure 3.7 shows the average age of first use among a sub-sample (N=32) who were asked about their first use of any drugs that they had ever used.

Figure 3.7 Age of first drug use



Relationship between age at interview and other variables

The univariate results, which are discussed in details below, indicate that young service users' age at interview has an important bearing on risk and protective factors in relation to their drug use. In addition to older respondents' having higher LPDU scores, they also report:

- parents set time for them to be home less frequently
- less likely to live with adults
- get on better with parents than others in household
- have fewer daily leisure activities
- parents have less control over what they do
- more locality problems
- fewer places for young people to meet
- more friends using drugs.

There was also an association between age at interview and reported age of first use of cigarettes, alcohol and tobacco.

Bivariate relationships between variables and level of problematic drug use (LPDU)⁹

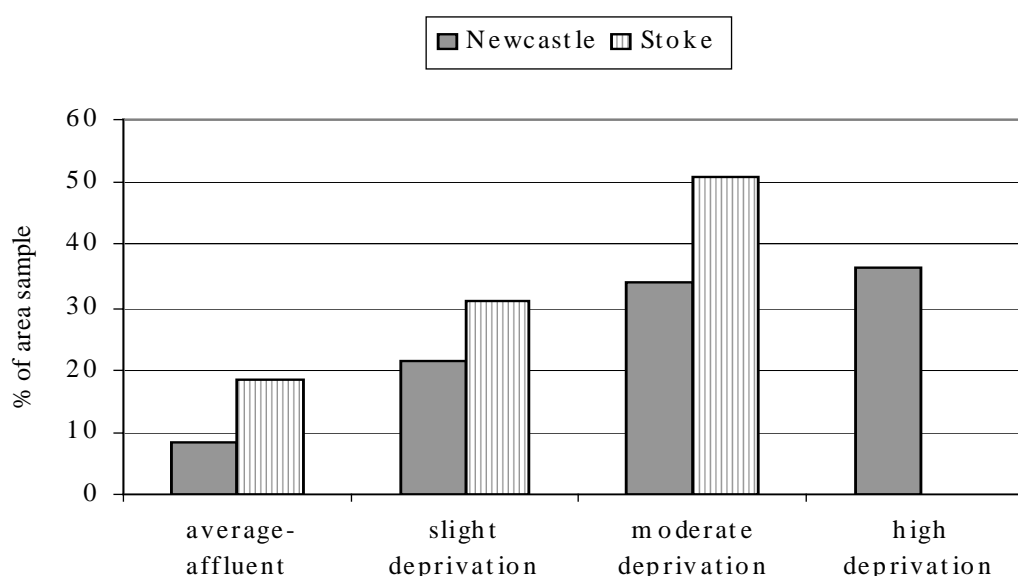
Demography

As noted in the previous section, age at interview was strongly associated with LPDU. Respondents from Stoke-on-Trent had higher levels of LPDU than those from Newcastle-upon-Tyne.

Material deprivation and housing

The longer respondents had lived in an area, the higher the LPDU. One possible explanation could be that the longer young people live in one place the larger their social networks and the more time they have had to find out about other drug users, drug using networks and dealers. Figure 3.8 shows the material deprivation of the area of residence for the young service users in the two study centres.

Figure 3.8. Young service users' Townsend scores



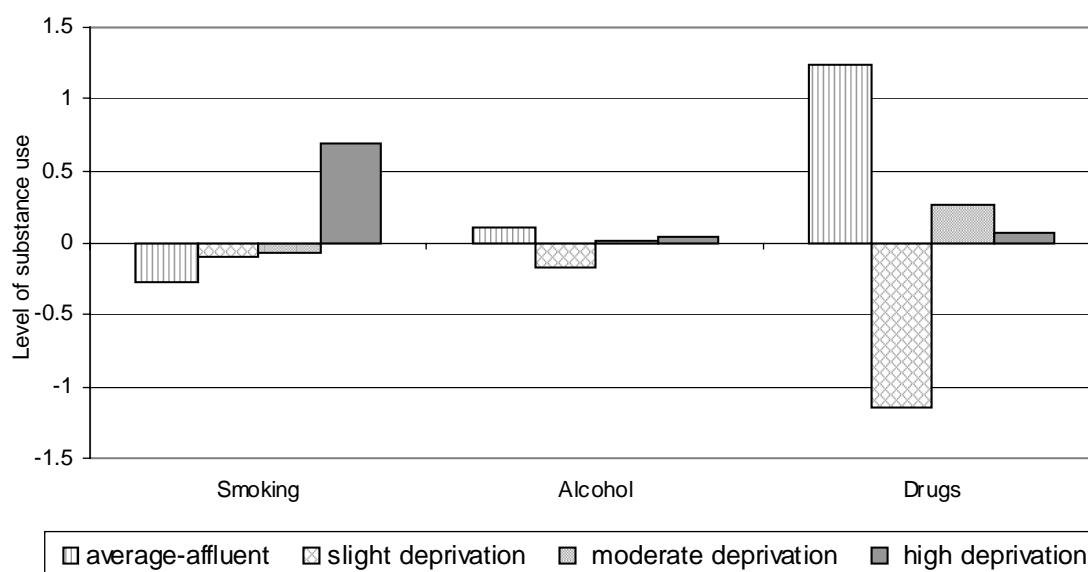
Note: Average-affluent = -4 to 0, slight deprivation >0 to 2, moderate deprivation 3 to 5, high deprivation 6 to 12

However, no association was found between LPDU and material deprivation of the electoral wards in which young service users live using the Townsend Score ($R^2 = 0.0012$). Although there are no absolute criteria for 'deprivation' the areas can be classified as follows. Average-affluent = -4 to 0, slight deprivation = >0 to 2, moderate deprivation = 3 to 5, and high deprivation = 6 to 12. On this classification, 60 per cent of young service users in the whole sample live in areas of moderate to high deprivation, 26 per cent in slightly deprived areas and 14 per cent in average to affluent areas.

Figure 3.9 shows the relationship between level of substance use and Townsend score. Only smoking appears to be related to material deprivation.

⁹ This section contains a brief summary of univariate data. The complete univariate analysis is available at: www.medman.org.uk/drug-misuse.

Figure 3.9. Level of substance use (standardised, sample mean=0) and Townsend score.



Education and schooling

Subjects who attended school less often or had left school before the age of 16 reported higher levels of drug use. When controlling for age at interview the correlation between LPDU and age left school is -0.23 ($p < .05$) compared with -0.06 ($p = 0.59$) with no control for age at interview. In other words, the relationship between LPDU and age left school is partially masked by respondents' age at interview. None of the other education / schooling variables was related to LPDU.

Of the 78 young service users with valid data for 'age left school' and 'age first used drugs', 65 (83%) used drugs before leaving school. Some of those interviewed and still attending school would not be included in this sub-sample. Drug use among the group who had left school began on average two years (range 0-7 years) before leaving school. Thirteen young service users started using drugs after they had left school (average 1.8 years; range 1-4 years). The average age of the former group when they left school was 15.0, and 13.6 for the latter group ($F = 17.5$, $p < .001$). Thus there is a small group who leave school at a very young age and do not begin to use drugs for another 1.8 years.

People living in household with young service users

Respondents living with adults had significantly lower LPDU. However, this is likely to be affected by age as the younger service users within the sample would be more likely to live in households with adults. Respondents living with their mother had lower LPDU; living with father had no effect. Only 27 per cent of the sample were living with both natural parents. In contrast, 70 per cent of a sample of 18-24 year olds in a recent national survey reported that they had spent the whole of their childhood with their birth parents (Cawson *et al* 2002).

Family relationships

The regularity of arguments between parents and young people and arguments between adults in the home were related to LPDU. It is not possible to tell from the data the direction of the relationship, i.e. whether LPDU is a cause or a consequence of family arguments.

Running away from home was a significant indicator of LPDU, although again the direction of the relationship is unclear.

Living in residential care and living with foster parents were not predictive of higher LPDU in this specific sample, all of whom were drug users. However, a high proportion of young service users had been in care (27%) at some time during their lives compared with the general population.

The young people were asked 'who in their family they got along best with'. Those who got along best with their parents surprisingly had *higher levels* of LPDU.

Perceived parenting behaviour

Young service users whose parents set a time for their child to be home had significantly lower LPDU (although this is likely to be partially associated with age). In the same way, parents who were perceived to be 'controlling' had children with lower LPDU. However, the other parental variables (know where I am, let me do things I like, understand me etc) were not associated with LPDU.

Sixty-nine per cent of respondents described their parents as being loving 'almost always', 23 per cent 'sometimes' and eight per cent 'never'. In comparison, 77 per cent of a national survey of 18 – 27 year olds strongly agreed with the statement that they had a 'warm and loving family background'. Fifteen per cent slightly agreed with this and five per cent disagreed (the remainder were neutral) (Cawson *et al*, 2002).

Parental attitudes to substance use

If parents were perceived as disapproving of drinking alcohol, the respondent was less likely to have a high level of LPDU. Disapproval of children's drug use cannot be evaluated as only four respondents said their parents did not mind their drug use. Parental disapproval of smoking was not related to LPDU.

Health and happiness

Poor current health and unhappiness were associated with lower levels of LPDU.

Illness, hospital and treatment

Serious illness in the past was not associated with LPDU, although respondents who had been in hospital due to a physical injury had higher LPDU.

Attention Deficit Hyperactivity Disorder

The estimated prevalence of ADHD is around five per cent of school-aged children in England and Wales (NICE 2000). The proportion likely to have seen a psychiatrist is much lower. In the current study, five per cent had seen a psychiatrist in relation to ADHD suggesting a higher percentage when including those who have not seen a psychiatrist. This supports the view that ADHD occurs in substance users at a rate higher than that in the general population (Clure 1999). However, we also found that those who had been treated for ADHD actually had *lower* levels of drug use than other respondents. This may be due to methylphenidate, which it has been suggested reduces the effect of illicit drugs among young people with ADHD (Seay 2001). These results should be interpreted with caution due to the low number of ADHD cases and possible differences in levels of referral to psychiatrists between the two young populations.

Treatment for drug use

Young service users with higher LPDU were more likely to have been hospitalised due to overdose and to have been prescribed methadone.

Age of first substance use initiation

Young service users reported first smoking at 11.7 years, drinking at 12.1 years and drug use at 13.1 years. A sub-sample was asked about each drug they used, and the average ages were 13.3 for cannabis, 14.7 for amphetamine and 15.5 for heroin.

Age of initiation into substance use was not a significant predictor of LPDU. Younger initiation of smoking was associated with *lower* LPDU.

As with previous studies, there was a strong association between age at interview and reported age of first drug use ($r=0.54$, $p<.001$) which is probably due to recall bias (Davies 1992). There is a further complication in that younger respondents are obviously limited in terms of the age at which they started using drugs.

Parents/carers' use of tobacco and alcohol

In this study, parental use of substances has little significance in relation to young service users' LPDU.

Friends' use of substances

The number of young service users' friends who smoke or take drugs was significant in relation to LPDU, although not alcohol.

Area problems and amenities

Some local neighbourhood problems such as assaults, excessive traffic fumes and burglaries were related to LPDU. Lack of local amenities such as poor transport and no places to meet were also linked to LPDU.

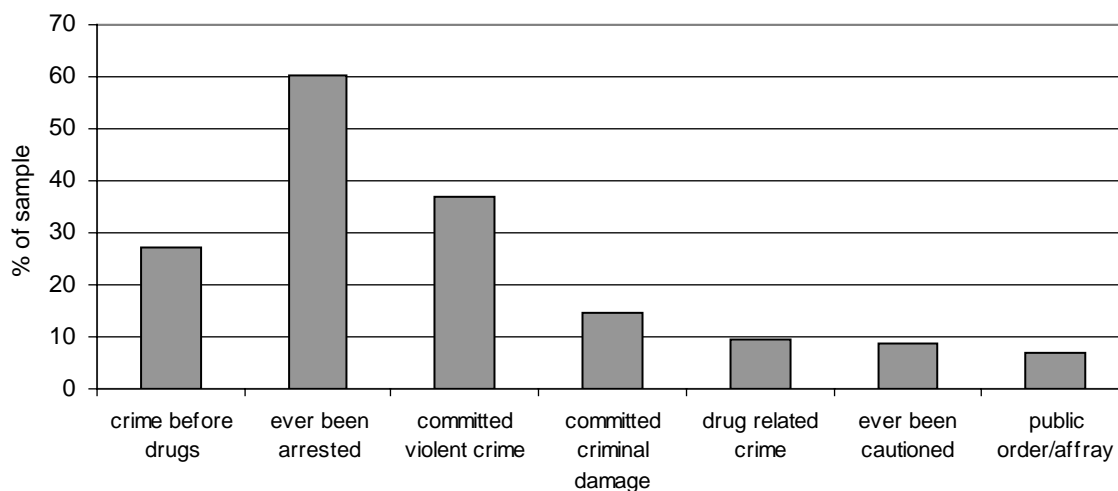
Leisure activities

Young service users who took part in daily and weekly leisure activities had lower LPDU. However, the direction of causality cannot be established from our data.

Criminal and antisocial behaviour

Figure 3.10 shows that 27 per cent of respondents had committed theft prior to drug use.

Figure 3.10 Proportion of sample reporting criminal behaviour.



Young service users with high LPDU were more likely to have been arrested and/or committed acquisitive, violent, vehicle and drug crime. However LPDU was not related to criminal damage.

Psychosocial problems before first use of illegal drugs

Many of the young service users reported problems in their mental health, social skills and criminal activities *before* they were involved in substance use. However, none of the problems before drug use was related to LPDU.

Psychosocial problems at time of interview

Young service users with high LPDU scores reported more serious current problems in their communication, mental health and criminal activities. This suggests that drug use was more likely to cause future problems than to be a consequence of previous problems.

If there was systematic bias due to the level of problematic drug use this might equally be expected to affect problems before drug use (i.e. attributing drug use to pre-existing problems). Figures 3.11 and 3.12 show that the level of problematic drug use had no relationship to pre-drug problems, but a strong relationship to post-drug problems. Nearly all respondents reported more problems after drug use.

Figure 3.11 Relationship between LPDU and the number of problems before drug use.

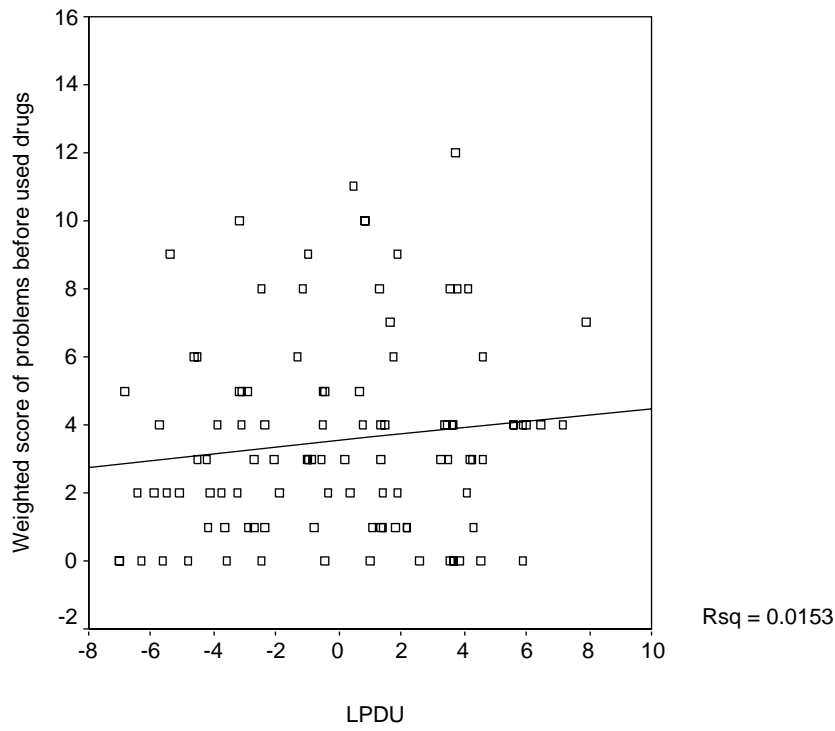
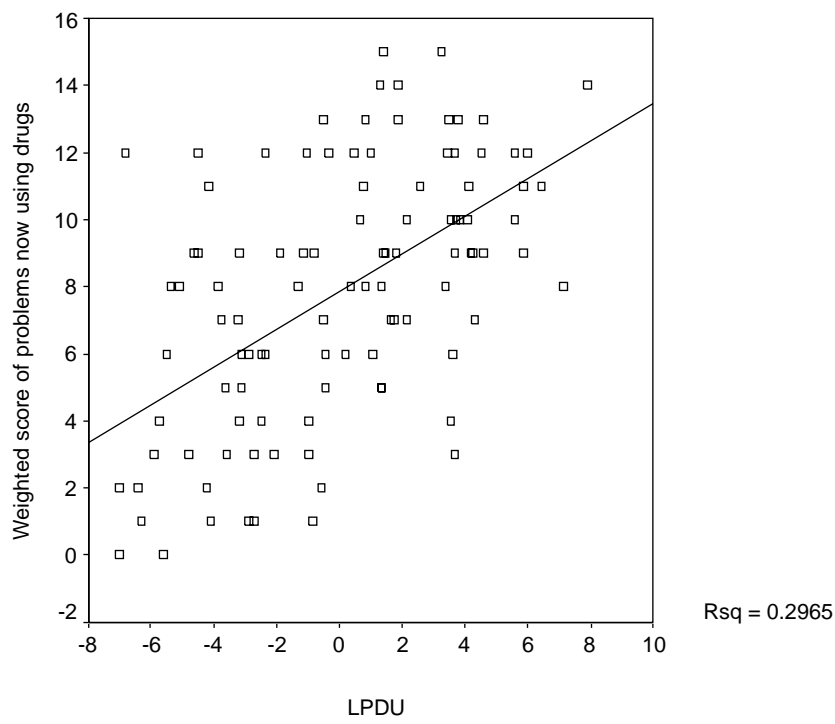


Figure 3.12 Relationship between LPDU and the number of problems after drug use.



Multivariate analysis: predicting LPDU

Due to the influence of age at interview on many variables, it was not possible to ascertain from the univariate analysis which variables should be entered into the multivariate analysis as predictors of LPDU. Furthermore, many of the potential predictor variables are highly correlated, which creates problems when running the analysis. For example, the correlation between 'do not live with adults' and 'live alone' is 0.69, the correlation between 'age left school' and 'age at interview' is 0.41. Only one of the correlated variables will feature in the model, which does not mean that the other is unimportant, but simply that it does not add predictive value in relation to LPDU.

Therefore 36 variables were entered in the analysis, based on their F ratio. This analysis was then repeated without age at interview. Table 3.5 and Table 3.6 show the results of the multivariate analyses.

Table 3.5 Variables remaining in the multivariate model (including age at interview).

Variable	Stage of entry into model	Univariate F Ratio	Standardized coefficients	R ²	Change in R ²	Adjusted R ²
Age at interview	1	19.70	0.41	0.29	0.29	0.27
What do your parents think about you drinking	2	9.09	0.34	0.39	0.10	0.35
Ever run away from home?	3	5.82	0.19	0.43	0.05	0.39
Younger brothers live in household	4	8.71	-0.23	0.47	0.03	0.41
Burglaries are a problem in your area	5	3.07	-0.17	0.49	0.03	0.42

Table 3.6 Variables remaining in the multivariate model (excluding age at interview).

Variable	Stage of entry into model	Univariate F Ratio	Standardized coefficients	R ²	Change in R ²	Adjusted R ²
Parents set time to be home	1	11.28	-0.24	0.18	0.18	0.16
What do your parents think about you drinking?	2	9.09	0.37	0.29	0.11	0.25
Younger brothers live in household	3	8.71	-0.23	0.36	0.07	0.31
Places for young people to meet in your area	4	2.03	0.18	0.40	0.04	0.33
Burglaries are a problem in your area	5	3.07	-0.18	0.43	0.03	0.35
How many of your friends use drugs?	6	9.62	0.18	0.46	0.03	0.36

Both models explain a similar amount of variance in drug score. When age is excluded from the analysis, 'parents setting time to come home', 'friends' use of drugs' and 'places for young people to meet' enter the analysis. These variables are all correlated with age. 'Running away from home' (which is not correlated with age) dropped out of the analysis. 'Parents' attitudes to drinking' remains in both models, although as noted above, parents of older respondents were more relaxed about their children's drinking.

The model including age at interview explains 49 per cent of the variance in the samples' drug use score. The adjusted R² (42%) more closely reflects the goodness of fit of the model in the population from which the sample was drawn. In the model without age at interview, six variables explain 46 per cent of the variance in the samples' drug use score, while the adjusted R² was 36 per cent.

In order to examine the impact of social exclusion on LPDU, a third analysis was conducted. Twenty-six variables potentially relating to social exclusion (see Appendix E) were entered into the analysis. Only four variables remained in the final model, explaining 19 per cent of the variance in the sample's LPDU. The adjusted R² was 14 per cent. The four variables are shown in Table 3.7.

Table 3.7 Social exclusion variables remaining in the multivariate model.

Variable	Standardized coefficient	R ²	Adjusted R ²
Smell/fumes in your area	-0.16	0.07	0.06
Ever run away from home	0.22	0.12	0.10
Do you live with any adults?	0.21	0.16	0.13
Burglaries in your area	-0.16	0.19	0.14

Structural equation models

Whereas multiple regression involves finding the combinations of variables that predict LPDU, this analysis involves the development of a more realistic model where the independent variables can interact with each other. This is represented by a path diagram and is intended to be a more realistic representation of drug use.

However, as there are so many potential pathways linking the variables, it is necessary to be guided by the analysis done so far and the need to construct a relatively simple model. The latter consideration is necessary for two reasons; first, the sample contains only 103 cases; second, we do not have an explicit theory to test. Therefore the models are exploratory and we have not included statistical evaluations, such as the overall goodness of fit or p values for individual pathways.

At the outset a decision was made to develop two models. The first model contains potential predictors of drug use, 'the precursor model', while the second model deals with problems which develop after the initiation of drug use 'the consequences model'. There are no absolute rules for variable selection and the choice was determined through study of the univariate/multivariate analyses.

Measurement models

The measurement models identify real dimensions of behaviour or attributes (the latent variables). Each latent variable was determined from two or more indicators, e.g. the latent variable 'level of problematic drug use' was defined in terms of five variables which were used

to construct the LPDU score described above. The correlation between the indicators and the latent variables are shown in Tables 3.8 and 3.9. These are measures of the validity of the measurement model. It has been suggested that it would be inappropriate to interpret a latent construct as a measure of substantive importance in relation to its indicators where the correlation is less than 0.3 (Cuttance 1987). As this occurs for only one of the variables in the present analysis (marked with a *), we can be satisfied that observed variables are reliable indicators of the latent constructs used in the structural model.

Table 3.8. Correlation between indicators and latent variable (precursor model)

Latent variable	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
Level of Problematic Drug Use	All drugs used	Class of drugs used	Amount spent on drugs	Reasons for drug use	Ever injected
Correlation between indicator and latent variable	0.90	0.82	0.59	0.49	0.50
Perceived parental discipline	Set time to come home	Try to control behaviour			
Correlation between indicator and latent variable	0.67	0.43			
Parental attitudes to smoking/Drinking	Smoking	Drinking			
Correlation between indicator and latent variable	0.24*	0.44			
Friends' substance use	Drugs	Smoking			
Correlation between indicator and latent variable	0.58	0.31			
Perceived local problems	Assault	Burglary			
Correlation between indicator and latent variable	0.91	0.52			
Perceived local amenities	Places to meet	Transport			
Correlation between indicator and latent variable	0.58	0.54			
Age began substance use	Smoking	Alcohol	Illicit drugs		
Correlation between indicator and latent variable	0.964	0.328	0.567		

Table 3.9 Correlation between indicators and latent variable (consequences model).

Latent variable	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5
Level of Problematic Drug Use	All drugs used	Class of drugs used	Amount spent on drugs	Reasons for drug use	Ever injected
Correlation between indicator and latent variable	0.90	0.82	0.59	0.49	0.50
Problems before drug use (self -report)	Anxiety	Talking to family	Depression		
Correlation between indicator and latent variable	0.63	0.73	0.58		
Problems after drug use (self report)	Concentration	Anxiety	Depression		
Correlation between indicator and latent variable	0.79	0.82	0.81		
Criminal behaviour	Acquisitive	Violence			
Correlation between indicator and latent variable	0.64	0.42			
Current physical and mental State	Healthy	Happy			
Correlation between indicator and latent variable	0.65	0.75			
Problems in neighbourhood	Assault	Burglary			
Correlation between indicator and latent variable	0.58	0.81			

Structural models

Rather than estimating each equation separately, EQS (the structural equation modelling program) considers the model as a system of equations and estimates all the structural coefficients simultaneously using the method of maximum likelihood (Ecob and Cuttance 1987).

Although the actual magnitudes of regression coefficients are not directly comparable because most of the variables are measured in different units, EQS computes standardised coefficients, which may be meaningfully compared¹⁰. However, the values of standardised coefficients are contingent on the other dependent variables in the equation. They are also affected by the correlation between the independent variables and therefore do not in any absolute sense reflect the importance of the various independent variables.

It is important to keep path diagrams as clear as possible. Many studies focus on a relatively small group of factors. We decided to conduct two sets of path analysis. The first model concerns precursors of LPDU. The second model concerns LPDU and its consequences. However, even with a relatively small group of variables, the resultant path diagrams are fairly complex.

As explained in the method section, an initial starting model was defined and then modified on the basis of model indicators. The actual modifications made were relatively minor (e.g. addition of a pathway between locality problems and parental discipline in the precursor model).

It should be noted that in the multivariate analysis, parental attitudes to their child's substance use (smoking and alcohol) are strong predictors of drug use, whereas in the model we have postulated that parental attitudes exert their influences indirectly via parental behaviour. As

¹⁰ Standardisation involves taking variables measured on different scales and rescaling them all to have a mean of 0 and a standard deviation of 1.

well as the latent variables, age at interview was included as an independent variable in the precursor model.

Model 1: Predictors of the Level of Problematic Drug Use

Figure 3.13 shows the pathways in the final model concerned with predictors of the level of drug use. As it is recommended that there should be 10-15 cases per pathway, caution is required in assessing the model. However, earlier versions of the model with fewer pathways were not judged to be realistic representations of the data. Some assurance may be derived from the final models by the fact that changing the model parameters (e.g. systematically examining the effect of removing pathways) had little impact on other model parameters.

Figure 3.13. Hypothesised pathways – precursors of LPDU.

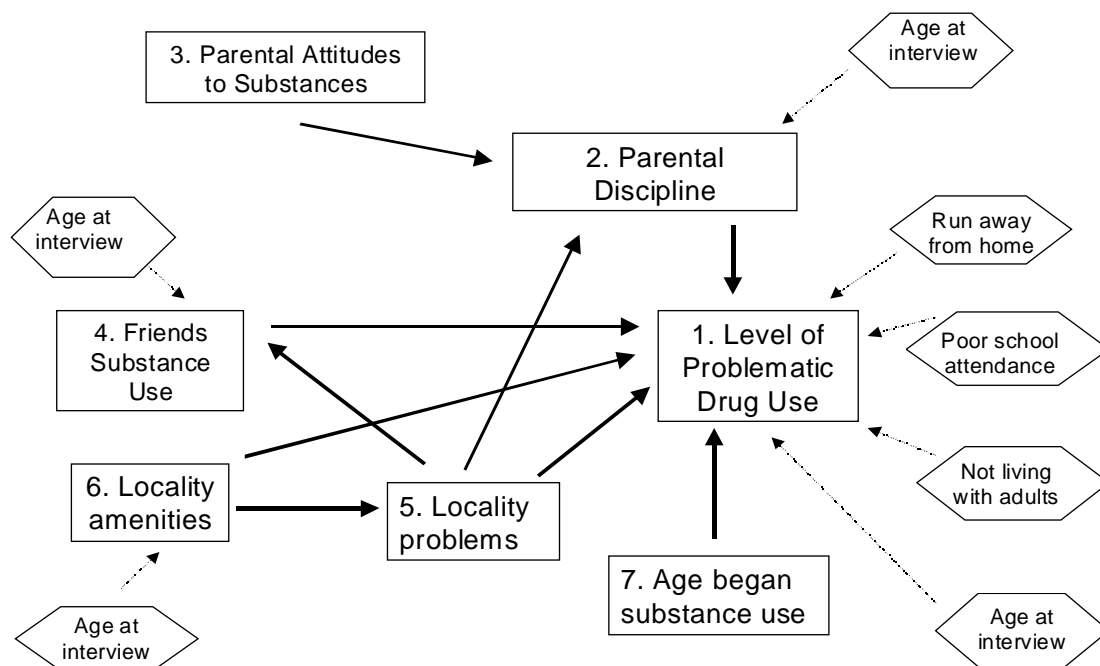


Table 3.10 shows the standardised total effects (direct plus indirect effects) of all hypothesised dependent variables on all hypothesised independent variables.

Table 3.10 Precursor model pathways (standardised coefficients).

Independent variables	Dependent Variables (Total Effects)					
	Level of Problematic Drug Use	Parental discipline	Parental attitudes (S/D)	Friends' substance use	Local problems	Local amenities
Level of Problematic Drug Use	x					
Parental discipline	-0.47	x				
Parental attitudes to smoking/Drinking	0.18	-0.38	x			
Friends' substance use	0.46			x		
Local problems	-0.16	0.25		-0.52	x	
Local amenities	0.12	-0.10		0.21	-0.40	x
Age began substance use	-0.07					
Age at interview	0.37	-0.77		0.12	-0.23	0.56
Run away from home	0.26					
Poor school attendance	0.06					
Living in household without adults	-0.04					

Interpretation of pathways to LPDU

LPDU increases as a function of:

- perceived lack of parental discipline
- the proportion of respondent's friends using drugs
- older age at interview (mainly indirect effects via parental discipline)
 - younger respondents → more discipline → lower LPDU
 - older respondents → more friends using substance → higher LPDU
- history of running away from home
- parental lack of concerns about smoking and alcohol problems
- more problems in area (e.g. assault, burglary)
- perception of poor local amenities (places to meet, transport)
- age began substance use
- poor school attendance (+ left school before age 16)
- not living in a household with adults.

Interpretation of pathways to perceived parental discipline

Perceived parental discipline increases as a function of:

- older age at interview
- fewer problems in areas (e.g. assault, burglary)

- better local amenities (via effect on problems in area)
 - better amenities → fewer problems → more discipline.

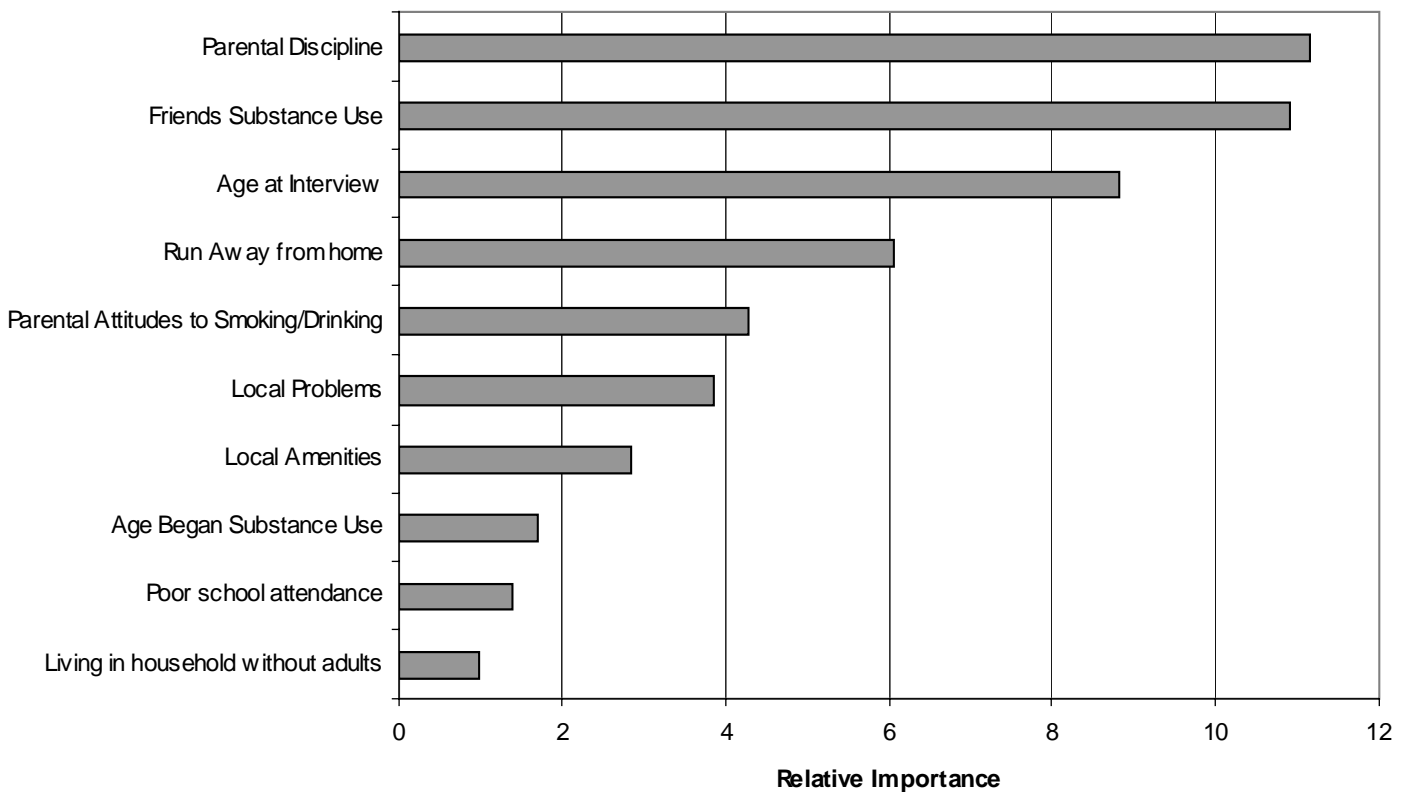
Interpretation of pathways to friends substance use

Friends' substance use increases as a function of:

- older age at interview
- the influence of local amenities / problems (but negligible).

Bearing in mind the caveats about variable interaction, Figure 3.14 shows the relative predictive impact of the factors on the LPDU. The values were standardised relative to the value of the least important predictor. Thus parental discipline is eleven times more important than living in a household without adults.

Figure 3.14 Relative importance of factors predicting LPDU.



Model 2: Consequences of Level of Problematic Drug Use

Figure 3.15 shows the pathways in the final model concerned with consequences of LPDU.

Figure 3.15 Hypothesised pathways - consequences of drug use.

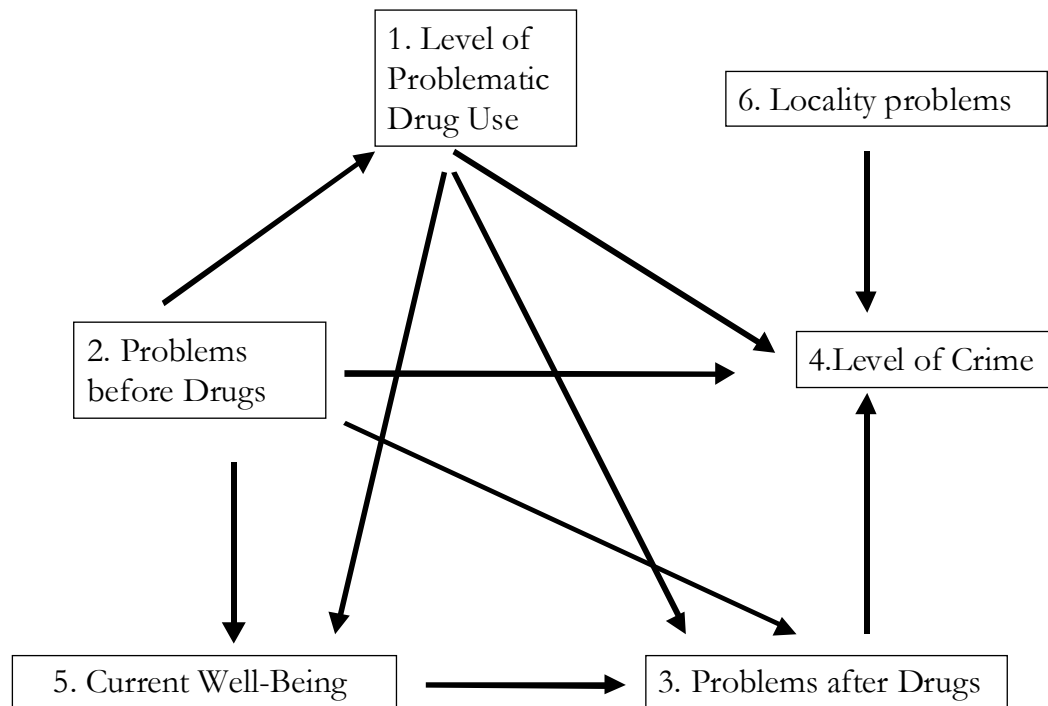


Table 3.11 Post LPDU pathways (standardised coefficients).

Independent variables	Level of problematic drug use	Problems before drug use	Problems after drug use	Criminal behaviour	Current state	Local problems
Level of problematic drug use	x		-0.57	0.41	0.50	
Problems before drug use	-0.20	x	0.19	-0.11	-0.22	
Problems after drug use			x	-0.32		
Criminal behaviour				x		
Current state			-0.55	0.18	x	
Local problems				-0.42		x

Interpretation of pathways to problems after drugs

Problems after drugs increase as a function of:

- level of problematic drug use (includes indirect effect via current lack of well being)
- problems before drug use (no direct effect; indirect effect via impact of current lack of well being).

Interpretation of pathways to crime

Crime increases as a function of:

- perceived problems in neighbourhood (assault, burglary)
- level of problematic drug use (includes indirect effect via problems after drug use)
- current well being (indirect effect via problems after drug use)
- more problems before drug use (indirect effect via level of problematic drug use).

4. Discussion and recommendations

Introductory remarks

The aim of this study was to determine the hierarchy of factors which predict the level of problematic drug use (LPDU) among young people accessing designated drug services in Newcastle-upon-Tyne and Stoke-on-Trent. In adopting a quantitative approach we have developed a framework which can now be studied in greater detail via qualitative research.

One of the potential advantages of the quantitative approach is the opportunity to assess variables which young service users might not think were causally associated with their drug use (e.g. perception of parental controls). Furthermore people are adept at finding reasons for their behaviour which may not accord with the actual causes (i.e. poor exam performance explained by not feeling well). Interestingly, Measham *et al* note that “The experience of the Manchester University research team, and that of other *qualitative* researchers, suggests that respondents are not always aware of the reasons why they do or do not engage in certain behaviours” (Measham *et al* 1998).

Davies (1992) highlighted the importance of studying causality carefully. In a study of life events, problem users of licit and illicit drugs and a matched control group of non-problem users were asked to provide rating of the perceived impact of life events. Respondents were interviewed five times over a 15-month period. The results illustrated a higher level of significant events in the weeks immediately preceding the interview. Thus subjects relate “changes in substance use to the events they have reported, simply because it is the obvious thing to do within the context of the study”. Uncritical reliance on retrospective memory and poor experimental control are likely to lead to erroneous conclusions.

Discussion of findings

Summary of causes and consequences of LPDU

The key variables which predict the level of problematic drug use are summarised in Table 4.1 (relative importance shown in second column).

Table 4.1 Key variables predicting LPDU.

Perceived lack of parental discipline	11.2
Respondent's friends using drugs	10.9
Age at interview	8.8
History of running away from home	6.1
Parental lack of concerns about smoking and alcohol problems	4.3
More problems in area (e.g. assault, burglary)	3.9
Perception of poor local amenities (places to meet, transport)	2.8
Age began substance use	1.7
Poor school attendance (+ left school before age 16)	1.4
Not living in a household with adults	1.0

The key consequential variables are:

- psychosocial problems experienced before and after drug use began
- types of criminal behaviour
- current unhappiness and poor health.

Development of problematic drug use

The average age at interview was 16.8 years and the average age of first drug use was 13.2 years. Although we did not track people over time, the cross-sectional data indicate a gradual progression towards higher levels of problematic drug use. There were small effects of early initiation of substance use on LPDU, after controlling for age at interview.

These data could be used to argue that prevention activities should be directed and initiated in early adolescence. Among *this* sample, a high proportion of 16-year-olds with problematic drug use involving heroin and cocaine began experimenting with drugs at age 13. Balding states that only a small proportion of 13-year-olds who experiment with drugs will become problematic users (Balding 2000). It should be noted that the small proportion that Balding is referring to, are likely to be similar to those in this sample of young service users. This would mean that early intervention would only be necessary in this small number of cases, but there are obviously difficulties with trying to prevent a behaviour (i.e. problematic drug use) which has not yet occurred. Another possible argument against early intervention is that the age of onset only has a small impact on LPDU. As higher levels of problematic drug use seem to develop around the age of 15-16, attempts to modify behaviour at these ages may be more productive.

The development of problematic drug use within a social context means that the differential impact of familial, parental models and peer pressures as the young person develops need also to be considered. Previous American research, for example, has indicated that the effect of peers' antisocial activities on drug use begins to increase after the age of 15 (Guo *et al* 2002).

Furthermore, how different drugs specifically affect the cognitive, neurological and emotional needs of children at different developmental stages is, as far as we are aware, unexplored, though highly relevant, information. In addition, how drugs directly impact on behaviour should not be forgotten (Leavitt 1995).

We have only studied a very small segment of the developmental process in the current study. The complexity of the process is highlighted in a study by Mennella *et al*, who found that infants who had more exposure to alcohol, as inferred from questionnaires about parental alcoholism and alcohol intake, mouthed an ethanol-scented toy more compared with less exposed infants (Mennella and Garcia 2000).

Although we have implied a gradual developmental process, in reality the process is often punctuated by a series of complex switches (see Measham *et al* 1998).

The role of parental attitudes and discipline

In this study, respondents' perception of parental supervision was a major factor in mitigating young people's level of problematic drug use. Although this effect was age-related there was a significant effect of parental supervision, even after taking account of age. Parental supervision tended to be stronger in areas where respondents reported fewer problems and better amenities.

Previous research indicates that the effect of family bonding begins to decline after age 18 and that "parents should create a warm and supportive family environment with appropriate supervision and control throughout adolescence" (Guo *et. al.*, 2002). Unfortunately this is unlikely to occur in many families and the question should perhaps be, what intervention (if any) could lead to this state of affairs (where it does not currently exist)?

Parents who accompany young people being treated for problematic drug use should be questioned regarding parental responsibilities. This group is a “captive” audience in terms of support for children and the need for supervision and discipline for their children in order to reduce drug use should be emphasised. Given the role of parents, there is a need to focus on specific treatment interventions for families.

A Home Office study (Graham and Bowling 1995) showed that 42 per cent of juveniles who had low or medium levels of parental supervision had offended, whereas for those juveniles who had experienced high levels of parental supervision the figure was only 20 per cent. The same research showed that the quality of relationship between the parent and child is crucial. Research (Farrington 1978) also suggests that the children of parents whose behaviour towards their children is harsh or erratic are twice as likely to offend.

Our findings concur with research which found that alcohol misuse is a significant contributory factor to the incidence of anti-social behaviour in certain areas, highlighting the fact that poor neighbourhoods have a disproportionate number of problems of alcohol-fuelled anti-social behaviour. Young frequent drinkers are more likely to damage property and to be poorly supervised by their parents (Social Exclusion Unit Policy Action Team 2000).

A recent National Society for the Prevention of Cruelty to Children (NSPCC) study found that:

parents are crying out for sensible advice on how to maintain discipline among children. They say this parenting task, more than any other, is useful to know about. In particular, they want to know how to deal with their children's challenging behaviour and their own stress without resorting to harmful punishments (Cawson *et al* 2002).

An NSPCC pack entitled *Parenting - A Rough Guide* enables professionals to support parents in the difficult task of managing children's behaviour. It is primarily aimed at parents of 2-7 year old children but can help parents with children of all ages.

Recent legislation also enables courts to impose a “parenting order”. This is a new court disposal designed primarily to help and support parents when their children get into trouble (for further details see www.homeoffice.gov.uk/cdact/parent.htm).

Between spring 1999 and the end of 2001, nearly 3,000 parents participated in 34 parenting programmes across England and Wales. Two thirds came on a voluntary basis while one in six were referred to the programme by the court as part of a parenting order. By the time parents left their projects, they reported significant positive changes in parenting skills and competencies. However, other research suggests more mixed outcomes in relation to drug use (Bancroft *et al* 2000).

Parental correlates of LPDU

Even after controlling for age at interview, parental discipline and parental attitudes to smoking/drinking are related to LPDU. Young service users whose parents imposed less discipline had higher LPDU. Those whose parents disapproved of them smoking/drinking reported lower LPDU.

The item (‘problems now talking to family’) was chosen as an index of the quality of the relationship between the young person and his or her family. This was strongly associated with LPDU.

Running away from home and not living with adults are likely to represent severe problems in family relationships. Both factors are related to high levels of LPDU.

Parental smoking and drinking (as measured in this study) were not related to LPDU. However, this study did not assess parental substance use disorders (PSUD), which has been found to be associated with adolescent drug abuse, although the relationship is far from straightforward (Hoffmann and Cerbone 2002; Li *et al* 2002).

The study does indicate that many parents are themselves vulnerable; 17 per cent report being in serious trouble as a teenager and 13 per cent had seen a psychiatrist or a therapist in the previous six months.

Friends' use of drugs

The data show a strong link between the proportion of young service users' friends using drugs and their own LPDU. Although it is not known whether drug-using friends predated respondents' use of drugs, it is instructive to note that on their first use of drugs, 68 per cent used with friends, 17 per cent with family member, 7 per cent with boyfriend/girlfriend and 1 per cent alone. At the most recent episode of drug use, 58 per cent of respondents reported using with friend, 15 per cent with boyfriend/girlfriend; the proportion using alone rose to 22 per cent. Ad-hoc analyses did not indicate that use alone or with friends was related to the LPDU. A limitation of our data is that no information was obtained on friends' actual level of drug use or the many positive and negative ways in which the peer group can influence drug-taking behaviour. For a qualitative into peer influence and drug consumption see Measham *et al* (1998).

Education

Of those who had left school (79% of the sample), 64 per cent did so before the age of 16. After controlling for age at interview, the younger the age that respondents left school, the higher the current LPDU. Poor attendance at school was associated with LPDU. Again, the direction of causality could not be determined from cross-sectional data.

The Standard Assessment Tests (SATs) data for the Newcastle respondents gives a stark picture of the educational difficulties experienced by the young people in our study. The results at Key Stage 2 show how these difficulties are clearly apparent by the age of 11, before the onset of drug use. The results at Key Stage 3 give another illustration of how the use of drugs has a negative effect on school performance, as the poor performance apparent at age 11 has deteriorated even further by age 14. Drug use appears to have an exacerbating effect on vulnerable young people's lack of commitment to school. This is also apparent in the attendance figures for these pupils: prior to Year 7 the average attendance was 92.2 per cent (n=11), but from Year 7 onwards this falls to 61.6 per cent (n=20).

Other school-related variables were not associated with severity of drug use. These include 'happiness at primary or secondary school' and 'ever expelled'. However, since almost half the young people reported that they had been expelled from school, it may be that serious school problems expose them to risk of other factors (e.g. peer or family) which determine the level of problematic drug use.

With regard to drug education, 95 per cent thought that taking drugs is harmful to health, 91 per cent said they thought that heroin is dangerous and 79 per cent said they knew enough about the dangers of drugs. The main sources of information on drugs are: friends 72 per cent, siblings 72 per cent, TV 63 per cent, books, magazines etc 57 per cent, GP 53 per cent, teachers 38 per cent, parents 35 per cent, internet 18 per cent, radio 13 per cent.

Neighbourhood

The vast majority of respondents (88%) were able to obtain their drug of choice within one hour. Qualitative research in the North West of England found that "issues of access and availability in each locality were in part determined by individual drugs" and that "availability of drugs could be a key determinant of frequency of drug use" (Measham *et al* 1998).

Respondents' assessments of local amenities were predictive of LPDU. There was also an indirect effect on parental discipline. In areas with better amenities, respondents report stronger parental discipline. These findings are consistent with American research, which has

generally found a small but significant effect of neighbourhood, after controlling for other factors (Scheier *et al* 2001).

Psychological problems and mechanisms

As the focus of this study was social factors, we did not assess psychological state in any detail. The measures we have are self-reports from respondents. It must also be remembered that the pre-drug state was, on average, 3.6 years prior to interview (depending on age at interview). The consequences model indicates a small effect of pre-drug psychological state on LPDU and subsequent psychological problems.

When shown pictorial representations of happiness, respondents with higher LPDU reported significantly higher levels of unhappiness compared with those with lower LPDU. However, there was no association between happiness at primary or secondary school and LPDU.

Although the current study did not identify psychological state as an important precursor of problematic drug use, many respondents reported depression, anxiety, poor concentration, a sense of poor physical health and unhappiness. All of these were related to their level of problematic drug use. Clearly among this sample, drug use does not lead to a state of well being.

Previous research suggests that stress, strain, low self-esteem and mental health problems may predispose to drug misuse, either directly or through self-selection of other like-minded and/or drug-using peers. Although in current study psychiatric co-morbidity did not appear to precede drug misuse, there is an extensive body of literature which demonstrates an association between substance misuse and psychological disorders (Zeitlin 1999). In the UK this appears to be increasing in young people (Frischer *et al* 2002). Furthermore, it is recognised that psychiatric disorders which commence in childhood have a strong likelihood of continuing into later life (Mannuzza *et al* 1998; Moffitt *et al* 2002).

Beitchman *et al* (2001) showed that young people identified as having early speech and language developmental problems in childhood subsequently displayed co-morbidity of depressive symptoms and drug abuse. Follow-up studies of large general population samples also show that young people with anxiety or depressive disorders are at increased risk of subsequent illicit drug abuse and dependence (Woodward *et al* 2001). Since the study reported here is cross sectional, the sequence of events and the direction of causality are unclear. However, subjects did report co-morbidity of affective symptoms and severity of substance abuse.

Unravelling the role of the psychological mechanisms involved in the development of substance misuse has the potential to inform the most appropriate techniques for the prevention and treatment process.

Crime and antisocial behaviour

Twenty seven per cent of respondents reported that they had committed theft prior to commencing drug use. In the consequences model, there was a strong association between LPDU and criminal behaviour. Perhaps most surprising was the association between LPDU and violent crime. It is possible that some of the violence is related to funding substance misuse. However, violence may be related to behavioural disturbances antecedent to substance abuse (Arsenault *et al* 2000).

In a Scottish study (Hammersley *et al* 1990), drug users attributed their crimes directly to drug use when the specific question was asked. This seemed to be confirmed by regression analysis, which found that opiate use was the best predictor of theft. In the current study 27 per cent of the sample reported committing robbery prior to drug use. While we did not ask about other types of criminality before drug use, this high percentage indicates that the relationship between drugs and crime is not as straightforward as might appear at first sight.

The data show that the LPDU is associated with problems in relation to concentration, anxiety, depression, arguing with family, arguing with friends and stealing.

In both centres, around 70 per cent of young people begin their drug using careers with cannabis and 30 per cent with a range of other drugs (heroin, ecstasy, glue, gas and amphetamines). Some cannabis users do not progress to other drugs while others do. In the general population, the vast majority of cannabis users do not progress to any other drug. As with social exclusion, it would seem that cannabis is neither a necessary nor a sufficient cause of 'harder' drug use.

Social exclusion and material deprivation

The descriptive data show that many of the young people interviewed have experienced some form or multiple forms of social exclusion. Thus, for example, 60 per cent of the sample live in moderately or very deprived areas; 22 per cent had been expelled from school and 28 per cent had lived in care.

'Social exclusion' variables linked to level of problematic drug use

- running away from home (indicating serious problems in family relations)
- respondents' perceptions of burglaries and assaults in the neighbourhood
- respondents' perception of poor local amenities (places to meet, transport)
- poor school attendance and leaving school before age 16
- not living in a household with adults (especially natural mother)
- arguments with adults and arguments between adults in the household.

'Social exclusion' variables NOT linked to level of problematic drug use

- material deprivation of area of residence (Townsend score)
- perceived safety or vandalism of neighbourhood
- regular parental drinking or parental smoking
- being expelled from school
- being bullied or bullying others
- living with foster parents
- living in residential care.

Material deprivation *per se* does not correlate with LPDU, although respondents' perceptions of burglaries and assaults in the neighbourhood are associated with LPDU. Respondents reporting having run away from home and not living with adults in the household could be interpreted as forms of social exclusion. This also applies to poor school attendance. A possible objection is that many of the respondents are at the top end of the spectrum of social exclusion and that the low correlation with LPDU is due to a 'ceiling effect'. Where this has been investigated further, we have not found this to be the case.

If social exclusion variables do not explain the level of problematic drug use, then it may be that additional factors operate within or on certain individuals to dispose them to using drugs. This idea has received some attention and the literature on this topic focuses on cognitive explanations. For example, in a study of early adolescence (Sobeck *et al* 2000), drug users were found to have weaker decision making skills, more susceptibility to peer pressure, more negative perceptions of school and less confidence in their skills. Previous research has also indicated that certain personality traits are associated with the transition from use to problematic use. Individuals who go on to abuse drugs tend to be more rebellious, impulsive and oriented towards sensation seeking (Sarafino 1990).

It may be argued that many of these concepts require further explanation. What, for example, is 'susceptibility'? Why are some people more susceptible than others? Under what conditions are some people likely to be susceptible to the influence of others, while others remain impervious? Similar explanations are required, with notions such as impulsivity and rebelliousness. Without understanding such psychological constructs, we are unlikely to make any progress in understanding 'risk factors'.

Integrating the project findings

Overall, these findings are consistent with developmental approaches that hypothesise problematic drug use to emerge from loosened ties between family and the young person and a corresponding rise in influence of peers, often the conduit through whom drug availability arises (McArdle *et al* 2002).

Although our findings cover many strands, taken together they indicate that social learning is central to understanding LPDU. The behaviours and attitudes regarding drug use that adolescents perceive among peers and important adult figures such as parents and celebrities are extremely important (Sarafino 1990). American research has found that friends' substance use affects teenage cannabis use more than parents' substance use and the first introduction of most young people is through a friend (Kandel 1974). After drug use commences it is likely to continue if the experience is rewarding. Many studies have found that people report 'positive' reasons for drug use (Boys *et al* 1999).

As our results indicate, people reported that their most recent episode of drug use was in the presence of friends or partners (73%). The social setting therefore plays a role in maintaining and reinforcing drug use. This is an area requiring further exploration within our data. For present purposes we highlight four concepts that might inform efforts to understand, prevent and treat adolescent drug use.

The Power of Conformity

Drug prevention often assumes that clear information will lead to rational behaviour. However, an experiment by Asch (1953) demonstrated how even simple responses can be manipulated by group opinion.

Implication for adolescent drug use

If individuals are willing to conform with a group of people they hardly know about a clearly incorrect judgement, how strong must this influence be in real life where groups exert even stronger forces and issues are more ambiguous?

Asch's work has obvious importance for drug use research. Our study found that the proportion of respondents' friends who use drugs is a powerful determinant of respondents' own drug use. Drug prevention strategies need to incorporate Asch's findings, which have been extensively developed since the original experiment. Conformity is a powerful determinant of behaviour which should be understood more clearly before efforts to effect change can be implemented.

Imitation of adult role models

One of the striking results of the current study is the importance of perceived parental controls and attitudes in relation to drug use. Albert Bandura and colleagues (1961) demonstrated how children learn to be aggressive. They concluded that children's observation of adults engaging in violence sends a message to children that this form of violence is permissible. Consequently, there is an increased probability that the child will respond with aggressive behaviour. Bandura also found that children imitate violence more when they see it being rewarded, but less when the model is punished.

Implications for problematic drug use

This experiment demonstrates dramatically how children can acquire new behaviours by observing adults and, to a lesser extent, television. Although we did not find that parents' substance use had a direct influence on problematic drug use, our research hints at the importance of parental role models. The implication is that if children observe parental

attitudes, which condone substance use, they may be more likely to engage in substance use themselves.

Locus of control

Bandura's work was instrumental in the genesis of social learning theory, which contends that learning is the primary factor in the development of personality and that learning occurs through interactions with other people. Rotter (1966) proposed that individuals differ considerably in where they place the *responsibility* for what happens to them and that the notion of responsibility develops through learning. When people interpret the consequences of their behaviour to be in the control of luck, fate or powerful 'others' this indicates a belief in an 'external locus of control'. Conversely if people interpret their own behaviour as their own responsibility they have an 'internal locus of control'. In Rotter's view, as a person develops behaviours are learned because some form of reinforcement follows them. He proposed that the totality of an individual's learning experiences creates a generalised expectancy about whether reinforcement is internally or externally controlled.

Rotter went on to develop the I-E scale, which measures an individual's locus of control. A range of studies has found significant correlations between I-E scores and situations involving misusing behaviour, gambling, smoking, achievement motivation and conformity and give a range of explanations (Davies 1992; Haynes and Aycliffe 1991).

Implications for problematic drug use

One does not need to accept any of the explanations as the correct model. It may be that different explanations apply to different people or different drugs. To some extent the locus of control denies the existence of one 'objective' explanation which is correct. However, the explanation we accept has different implications for how to deal with problematic drug use as shown on Table 4.2 (Davies 1992).

Table 4.2 Locus of control and stability of attribution.

Locus x stability	Problematic drug use	Consequences
Internal x stable	Disease (addiction)	Medical treatment
Internal x unstable	Individual preference	Replace drugs with other rewards or rewarding behaviours
External x stable	Bad environment	Change environment
External x stable	High availability	Target suppliers

Learned Helplessness

A variation of Rotter's work is the notion of learned helplessness. People who feel they do not have the power or control to make changes in their lives can end up feeling helpless and hopeless; depression can follow. Seligman and Maier (1967) proposed that perceptions of power and control are learned from experience. When a person's efforts at controlling life events fail repeatedly the person may stop attempting to exercise control altogether. A person may generalise the perception of lack of control to all situations, even when control may be possible. Seligman called this 'learned helplessness'.

Implications for problematic drug use

The theory of learned helplessness has been applied in many practical settings. In relation to problematic drug use, learned helplessness may explain many drug users' feelings that there

is little they can do to change their behaviour. Problematic drug use may be emblematic of learned helplessness.

Inter-group processes

Tajfel (1978) examined the role of identification within a group. In his analysis, issues of inter-group relations turn on the individual sense of belonging to, or identification with his/her group. Tajfel describes a continuum from extremely interpersonal to extremely inter-group. At the interpersonal extreme, individuals relate to one another purely as individuals without regard to their membership of social categories. At the inter-group extreme, individual attributes of the participants lose relevance and interactions are based on membership of social categories. The key feature of inter-group rather than interpersonal situations is a shared in-group affiliation and a shared interpretation of the relations between the in-group and out-group. Thus phenomena are treated as a function of situations rather than of an individual's drives and characteristics. Tajfel also analyses individuals' commitment to a group. For example, an individual will tend to remain a member of a group if the group makes a contribution to the positive aspects of his/her identity. Tajfel stresses the role that inter-group comparisons play in self-evaluation, thus individuals will avoid inter-group comparisons, which make a negative contribution to a person's identity. An interesting application of Tajfel's theory relates to groups that find themselves disadvantaged in terms of one dimension. Such groups will look for new comparisons to achieve a positive identity.

Implications for problematic drug use

Young people who may be disadvantaged in other aspects of their lives may choose drugs as a means of enhancing social identity. Our results indicate the important role of friends in using drugs. People who are not part of the drug 'in-group' may find it difficult to have an impact. As noted above, individuals will avoid inter-group comparisons, which make a negative contribution to a person's identity.

It is interesting to note that a recent review entitled '*Promoting science based prevention in communities*' (Hawkins *et al* 2002) also stresses the importance of social factors in modifying problematic drug use. The authors advocate community-wide risk reduction, which can involve:

- parenting skills training
- school policy and curriculum changes
- peer participation.

This approach has been generalised into a system called Communities That Care (CTC) (in the UK: CTC-UK). The system is theoretically rooted in the social development model, which builds on social learning theory. It posits that social bonding and clear norms against antisocial behaviour are protective factors that inhibit the development of health risk behaviours (such as problematic drug use) (Hawkins *et al* 2002).

Implications for understanding the level of problematic drug use

In an ideal world problematic drug use would be susceptible to experimental manipulation and it would be possible to identify causal factors, which in turn could be manipulated. Rutter and Smith (1995) stated that "if there has been such a marked rise over time (in drug misuse and other psychosocial disorders), then it ought to be possible to provide an equally dramatic fall, if we understood the processes that underlined the rise". Against this view it has been argued that "it is unlikely that the search for 'risk factors' in terms of indicators of personality disorder and social malaise will be adequate. Such analyses will link social exclusion with problematic drug use but will have little potency in predicting the scale or range of future problem users in such a large normative population of ordinary youth" (Aldridge *et al* 1999).

Our study shows that both views are partially correct. We found that a defined range of factors could explain about 50 per cent of the variance of the young service users' LPDU.

The other 50 per cent is due to factors which we have not been able to account for. This may be because:

- variables were not measured in sufficient detail (e.g. our measures of family conflict were too crude)
- variables were not measured in this study (e.g. personality)
- variables are beyond the reach of current scientific methods
- some things are intrinsically not measurable (an individual's need for esteem).

With regard to the last option, consideration should be given to humanistic views, which reject deterministic accounts of human behaviour. One approach which may be useful in this context is Abraham Maslow's theory of self-actualisation (Maslow 1987). Rather than viewing people's behaviour as the product of antecedents and consequences, Maslow sees people as striving for an upper level of capabilities. Maslow regarded human beings' needs in a hierarchy. Beyond physical and safety needs, there is a need for esteem, involving both self-esteem and esteem a person gets from others. When these needs are satisfied, a person feels self-confident and valuable. When not met people feel inferior, weak, helpless, and worthless. Maslow's psychology gave rise to several different therapies, all guided by the idea that people possess the inner resources for growth and healing and that the point of therapy is to help remove obstacles to individuals' achieving this.

Our results show that change in LPDU may be possible if precursors of drug use can be modified. However, the fact that we could not explain all the variance means that there is a danger in labelling people who have some of the risk factors for problematic drug use. As we have shown elsewhere (Frischer and Elliot 1993), even fairly good models can result in individuals being wrongly labelled (i.e. as being problematic drug users). It has previously been noted that there is a fine line between targeting and labelling and it should not be assumed that vulnerability implies drug use (Dale-Perera 1998).

The structural equation models yield new insights into processes, which can lead to, and follow on from, problematic drug use. The results from the two models reveal the following about LPDU.

- LPDU is a development process. LPDU gradually increases between the ages of 11-20.
- The vast majority of young service users report first use with friends, and friends' drug use is a key predictor of the level of problematic drug.
- After controlling for respondents' age, higher levels of parental discipline were associated with lower LPDU.
- Parental discipline is stronger where local amenities are good and where there are fewer problems in the area.
- Parental discipline is influenced by parental attitudes to their children's alcohol/drug use.
- Running away from home and not living in a household with adults (especially the natural mother) are predictive of LPDU.
- Early initiation of smoking, alcohol and drug use has a modest effect on LPDU.
- Poor attendance and leaving school before the age of 16 are predictive of LPDU.
- Some local problems and lack of amenities have an effect on the LPDU.
- LPDU is associated with a range of psychosocial problems. Generally, these problems develop after the initiation of drug use.
- LPDU is associated with various forms of criminal activity (acquisitive, violent, vehicle, drug). However, a high proportion of the young service users interviewed also reported theft prior to ever having used drugs.
- LPDU among this sample of young service users is not well predicted by material deprivation and several other possible measures of social exclusion.

Achievements and limitations of the study

The conclusions only apply to the population of young people attending drug services. As our sample is, by definition, all people attending drug services, it does not contain people who have commenced drug use and then stopped or those who are no longer in contact with a drug service, whatever the outcome of that intervention.

It was acknowledged at the outset that young people using designated drug services would be difficult to access. We expressed the hope that, subject to the young people's agreement, we would also be able to interview one of their parents. We have achieved both goals and, with regards to the parents, exceeded our expectations.

The data illustrate that the LPDU is a developmental process. The age range of our sample was 11-20 years, therefore many of the potential risk factors are age related; for example parental discipline is stronger at a younger age. In determining causality with only 103 cases it is not possible to construct models for different age groups. It is important to distinguish a) risk factors for initiation of drug use from b) risk factors for the LPDU. This study is primarily concerned with the latter, but the key role of age at interview means that it is not always easy to distinguish the two topics.

Inevitably the models we have developed here should be seen as a first step and raise additional questions. These questions could be addressed in four ways:

1. Applying the same methods with larger samples, so that for example we could construct models for specific ages.
2. Conducting longitudinal follow-up studies so that the influences of a factor at *time a* on a factor at *time b* could be determined. Elsewhere, we have used this method to trace the impact of health and non-health life events on the psychological well being of an elderly population (Frischer *et al* 1991).
3. Using the model as a framework for qualitative study. For example, the model highlights the importance of the variable running away from home yet this was only measured by a simple yes / no response. Similarly with friends' use of drugs. Did these friends predate initiation into drug use, or did the respondent gravitate towards friends who were already drug users?
4. Exploring personality and social factors in quasi-experimental settings. The field of cognitive social psychology offers numerous paradigms, which could be used to explore drug users' behaviour (Eiser 1990). For example, the Prisoner's Dilemma Game can be used to study co-operative strategies (Pruitt and Kimmell 1977). While there are considerable feasibility issues, this approach may ultimately lead to a more advanced understanding of drug users' behaviours than the other options.

It is our intention to use the data to develop more detailed models around subsections of the data (e.g. in regard to specific drugs, households where adults are present etc). In comparison to many American studies, we were restricted in terms of sample size and the cross-sectional study design.

As this was a cross-sectional study, we did not feel that it was feasible to investigate life events. (The Davies study, cited above, highlights the danger of retrospectively investigating life events as causal factors.) However, it has been suggested that respondents with high LPDU have frequently experienced traumatic life events (personal communication, Kay Schreiber, Druglink). This requires further investigation, i.e. how many people who have experienced traumatic life events do not use drugs? Many of the constructs identified in the study could be more comprehensively assessed (e.g. crime, family conflict, friends substance use). It was not possible to conduct personality or psychological assessment in the study framework.

The data collected in this study is voluminous. With such data sets it is difficult to forecast how much time will be required to produce new and meaningful results. This is particularly true when new methods are being employed to analyse the data. The path diagrams are a step forward in conceptualising the causes and consequences of problematic drug use; nevertheless more time and resources are required to develop the analysis. The parental data requires further integration into the models as it has not yet been possible to fully analyse the data from the parents' questionnaire. We have stressed the difficulty in disentangling cause and effect in relation to problematic drug use. However, this unique data set will enable comparison of young people's and their parents' behaviours and views in relation to drugs. Additionally, it has not been possible to compare the data from the two services, which have different types and levels of resources and interventions.

As noted in the introduction, cross-sectional data cannot hope to address all the issues surrounding drug use. Furthermore our relatively small sample means that some parameter estimates do not attain statistical significance. We sought to overcome this by using latent variances by measuring underlying dimensions of behaviour with two or more indicators. To some extent this was successful, but larger sample sizes would enable the development of more robust models. It should be restated that the models are exploratory and are not a substitute for hypothesis development. In some situations statistics can be used to evaluate natural experiments as in the case of identifying the role of smoking in lung cancer (Lilienfeld and Stolley 1994). The analogy in drug use would be to follow a large cohort, some of who progress to problematic drug use, some of who remain 'non problematic' and others who never use drugs. However, the practical considerations are daunting and it seems likely that we will have to rely on non-experimental interview data for the foreseeable future.

Recommendations

1. *Attempts to lower LPDU among service attendees should take into account the hierarchy of risk factors found in this study (see Table 4.1 Key variables in predicting LPDU).*
2. *Policy initiatives based on social exclusion should be balanced by an understanding of the psychological determinants of drug use when considering interventions with young service users.*

The literature contains conflicting data on social exclusion. Young (2002) states that there is a "close link between drug misuse and social exclusion". She details many unassailable facts which convincingly demonstrate that in the general population, those with higher levels of social deprivation/exclusion are much more likely to experience problematic drug use. However, she is careful to note that "poverty does not directly cause addiction" and that although the causes of deprivation are social "they are *experienced individually*". This is precisely the point which the data in this study further highlights, perhaps more clearly than in earlier studies. This is because our sample was drawn from people attending drug treatment services, 60 per cent of whom lived in areas of moderate to high deprivation. Despite this, there was no association between the level of material deprivation of the electoral ward in which young service users live and LPDU. Rather, LPDU was higher among those who had experienced individual circumstances (e.g. running away from home, truancy), which in turn are predictive of high LPDU. Nevertheless, even these variables are not efficient predictors of LPDU, unless we also consider the developmental nature of LPDU along with the influence of friends and family.

3. *Drug prevention and treatment could benefit from the application of social learning theory.*

Problematic drug use is the culmination of several years of drug use. It is a behaviour that is invariably initiated in a social environment with friends or family members. The initial reinforcement of the drug becomes associated with social behaviour and very often 'group' membership. It thus offers a sense of positive identity. Social learning theory describes how learning occurs and indicates how behaviours can potentially be unlearned. Recent analysis of effective interventions from the US has reached similar conclusions.

4. *Professionals working in the drug field should have an understanding of learning theory and other evidence based approaches to treatment in order to help young drug service users unlearn harmful behaviour or learn new behaviour.*

As noted in a recent review of drug services for young people (Burniston *et al* 2002), four out of five of the effective interventions highlighted in the international literature were limited in scale and distribution in Scotland (this is probably true for England as well). Three of the four effective interventions, which are not widely available, potentially involve aspects of learning theory (behaviour therapy; family therapy; the Minnesota 12-Step Programme; therapeutic community and residential care). The one intervention, that is available (counselling) is not based on learning theory. Also, the Communities That Care (CTC) approach is not widely available, although there are pilot projects currently underway. While our interpretation of the

data has been based on learning theory, there is controversy as to how learning theory might help problematic drug users (Niaura 2002).

Another promising approach is Multi-systemic therapy (MST). MST “can be viewed as a package of interventions that are deployed with children and their families and which focuses on the multiple systems (family, school, peers, neighbourhood) which impact on the child or young person” (Kazdin 2001). It is a more comprehensive approach than other family therapies. At its core is a family-based treatment approach that uses techniques familiar to family therapists such as ‘joining, re-framing, enactment, paradox and assigning specific tasks’ as well as techniques derived from behaviour therapy such as problem solving skills training. It also recognises that other groupings such as peers and the school are crucial and require parallel intervention, “employing indigenous community resources” (Henggeler *et al* 1999). Randomised trials have demonstrated effectiveness in the management of young people’s substance problems (Henggeler *et al* 1998, 1999). However, multi-systemic therapy is resource intensive and expensive.

How psychological treatments may be most appropriately combined with pharmacological treatments should also be considered in a young age group where some youngsters might indeed require medication because of severity of substance dependence. This is due to the fact that where treatment services for young people do exist, if pharmacological therapies are the mainstay of treatment these may not be effective if other factors are not taken into account.

5. *Young drug service users seeking help should be carefully assessed with regard to their motivation to change their behaviour (e.g. locus of control).*

Many studies have highlighted the fact that motivation to change is likely to lead to better treatment outcomes, yet a recent review notes that “we know very little about the determinants of motivational variables that promote positive change in adolescents” (Winters *et al* 2001). Assessment of motivation is now seen as important, but equally important is assessment of individuals’ perception of themselves as being capable of making change. Locus of control can easily be measured and could offer therapists key insights into clients’ potential for change.

6. *Structural equation models should be further developed. Larger sample sizes and long term follow-up of young people entering drug services would enable the development of more robust models.*

Focusing on a single outcome has limited value in the context of problematic drug use. We have illustrated how problematic drug use is a developmental process, interacting with a range of factors which themselves interact with each other. In other analyses on longitudinal data we have demonstrated how events at time one can influence events at time two. We were unable to do this in this study and our interpretation is at best tentative. A model, which enabled the evaluation of for example, friendship or family conflict, prior to and during the emergence of problematic drug use, would be of greater utility. We also observed the role of prior criminal behaviour in our study; again proper longitudinal data are required.

7. *Part of this development should involve qualitative methods, for example, to understand the direction of causality. This may be achieved through discourse with the other projects in this strand of the research programme.*

Many of the findings in this report would be greatly enriched by using further open-ended questioning of the young service users about important factors. These were: reasons for running away from home; why they are not living in a household with adults; how their pattern of drug use developed over time; whether it was influenced by friends; what they think of parental discipline etc. While the model enables quantification of those factors, which are important in relation to problematic drug use, insights from some of the participants in this study would greatly add to our understanding of the processes involved while also providing a humanistic perspective.

Appendix A Main variables in the questionnaire

VARIABLE DESCRIPTION AND NAME	SPSS VARIABLE NAME	VALUES	CODES
INTERVIEW / RESPONDENT INFORMATION			
interview location	place	Newcastle	1
		Stoke	2
gender	gender	male	1
		female	2
FAMILY MEMBERS			
currently live with older brothers	oldbrliv	none	1
		1+	2
currently live with younger brothers	youbrliv	none	1
		1+	2
currently live with older sisters	oldsiliv	none	1
		1+	2
currently live with younger sisters	yousiliv	none	1
		1+	2
currently living with adults	livewoad	yes	1
		no	2
live with same people as last year	livsame	yes	1
		no	2
FAMILY RELATIONSHIPS			
how often argue with adults in household	rowad	often	1
		rare	2
		never	3
how often adults in household argue with each other	rowbwad	1 often	1
		2 rare	2
		3 never	3
ever run away from home	runaway	no	0
		yes	1
FAMILY STABILITY			
live with same people as last year	livsame	yes	1
		no	2
ever lived in residential care	livres	yes	1
		no	2
ever lived with foster parents	livfost	yes	1
		no	2
of all family, get on best with parents	getonwi1	yes	1
		no	2

PARENTING SKILLS			
parents know where I am	parknow	never	0
		sometime	1
		always	2
parents set times for me to be home when I go out	parset	never	0
		sometime	1
		always	2
my parents help me as much as I need them to	help	almost always	1
		sometimes	2
		never	3
my parents let me do things I like	let	almost always	1
		sometimes	2
		never	3
my parents are loving	love	almost always	1
		sometimes	2
		never	3
my parents understand my problems and worries	unders	almost always	1
		sometimes	2
		never	3
my parents like me to make my own decisions	owndecs	almost always	1
		sometimes	2
		never	3
my parents try to control what I do	control	almost always	1
		sometimes	2
		never	3
my parents treat me like a baby	baby	almost always	1
		sometimes	2
		never	3
my parents make me feel better when I am upset	feelbet	almost always	1
		sometimes	2
		never	3
what do parents think about you smoking	smokad	don't like it	1
		don't mind	2
what do parents think about you drinking	alcad	don't like it	1
		don't mind	2
what do parents think about you using drugs	drugad	don't like it	1
		don't mind	2

ANTI-SOCIAL BEHAVIOUR			
ever been arrested	arrest	no	0
		yes	1
ever been cautioned	caution	no	0
		yes	1
ever committed acquisitive crime	aquisiti	no	0
		yes	1
ever committed violent crime	violence	no	0
		yes	1
ever committed vehicle crime	vehicle	no	0
		yes	1
ever committed drug crime	drug	no	0
		yes	1
ever committed public order/affray	publicor	no	0
		yes	1
ever committed criminal damage	crimdam	no	0
		yes	1
ever bullied anyone	bulyoth	yes	1
		no	2
ever been expelled	expulsio	no	0
		yes	1

HEALTH – ILLNESS			
current physical health	health	well	1
		not well	2
have current illnesses	illnow	yes	1
		no	2
how happy at primary school	hapypri	happy	1
		ok	2
		sad	3
how happy at secondary school	hapysec	happy	1
		ok	2
		sad	3
how happy now	hapynow	happy	1
		ok	2
		sad	3
been to hospital in last 6 months due to overdose	overdose	no	0
		yes	1
been to hospital in last 6 months due to physical injury	physinj	no	0
		yes	1
been to hospital in last 6 months due to vehicle injury	autoinj	no	0
		yes	1
been to hospital in last 6 months for drug prescribing/urine analysis	clinic	no	0
		yes	1
had serious illness in the past	illpast	yes	1
		no	2

HEALTH – TREATMENT			
been prescribed methadone in last 6 months	methodon	no	0
		yes	1
been prescribed antidepressants in last 6 months	antidepr	no	0
		yes	1
been prescribed adhd treatment in last 6 months	adhd	no	0
		yes	1
been prescribed asthma treatment in last 6 months	asthma	no	0
		yes	1
number of services used in last 6 months	alserv	none	0
		1+	1
seen psychiatrist in last 6 months	psych	yes	1
		no	2
seen psychiatrist for adhd in last 6 months	psycadhd	no	1
		yes	2
seen psychiatrist for depression in last 6 months	psycdepr	no	1
		yes	2
seen psychiatrist for drug use in last 6 months	psycdrug	no	1
		yes	2

SUBSTANCE USE INITIATION			
age first smoked	agesmoke	4-11	1
		12	2
		13-18	3
age first drank alcohol	alcfst	5-11	1
		12-13	2
		14-15	3
age first used drugs	drugage	8-12	1
		13-14	2
		15-18	3

PARENTAL AND MATES USE OF SUBSTANCES			
do your parents smoke	smokead2	no adults smoke	1
		1+ adults smoke	2
do your parents ever drink more than 4 units in one session	drinkad	no adults drink	1
		1+ adults drink	2
how many of your friends use drugs	drugmat	none	1
		up to half	2
		more than half	3
how many of your friends drink	alcmat	none	1
		up to half	2
		more than half	3
how many of your friends smoke	smokmat	none	1
		up to half	2
		more than half	3

PROBLEMS BEFORE COMMENCEMENT OF SUBSTANCE USE			
problems concentrating before drug use initiation	drb4con	often	1
		sometimes	2
		never	3
problems with anxiety before drug use initiation	drb4anx	often	1
		sometimes	2
		never	3
problems with depression before drug use initiation	drb4dep	often	1
		sometimes	2
		never	3
problems talking to family before drug use initiation	drb4tfa	often	1
		sometimes	2
		never	3
problems talking to friends before drug use initiation	drb4tfr	often	1
		sometimes	2
		never	3
problems arguing with family before drug use initiation	drb4afa	often	1
		sometimes	2
		never	3
problems arguing with friends before drug use initiation	drb4afr	often	1
		sometimes	2
		never	3
problems with stealing before drug use initiation	drb4rob	often	1
		sometimes	2
		never	3

PROBLEMS AFTER COMMENCEMENT OF SUBSTANCE USE			
problems now with concentration	drnowcon	often	1
		sometimes	2
		never	3
problems now with anxiety	drnowanx	often	1
		sometimes	2
		never	3
problems now with depression	drnowdep	often	1
		sometimes	2
		never	3
problems now talking to family	drnowtfa	often	1
		sometimes	2
		never	3
problems now talking to friends	drnowtfr	often	1
		sometimes	2
		never	3
problems arguing with family	drnowafa	often	1
		sometimes	2
		never	3

problems arguing with friends	drnowafr	often	1
		sometimes	2
		never	3
problems now with stealing	drnowrob	often	1
		sometimes	2
		never	3

EDUCATION AND TRAINING			
age left school	agelefts	11-15	1
		16+	2
do you want to do further education	furtherd	yes	1
		no	2
how often do/did you go to school	schoaten	regular	1
		less often	2
how many high schools did you go to	nohischo	1	1
		2+	2
favourite subject is academic	academic	no	2
		yes	3

HOUSING			
how many times in your life have you moved house		never	1
		1-3 times	2
		4 times+	3
how long lived in this area	livearea	0-12 yrs	1
		13yrs+	2
years lived at current address	livecur	0-8 yrs	1
		9yrs+	2
no. of times current home broken into	breakno	not broken into	1
		broken	2
is vandalism a problem in your area	probvand	serious problem	1
		minor problem	2
		not a problem	3
is litter a problem in your area	problitt	serious problem	1
		minor problem	2
		not a problem	3
are smells/fumes a problem in your area	probsmel	serious problem	1
		minor problem	2
		not a problem	3
are assaults a problem in your area	probasal	serious problem	1
		minor problem	2
		not a problem	3
is burglary a problem in your area	probburg	serious problem	1
		minor problem	2
		not a problem	3
is disturbance by kids/yp's a problem in your area	probkids	serious problem	1
		minor problem	2
		not a problem	3
rate places for yp to meet in your area	ratemeet	good	1
		average	2
		bad	3
rate sports facilities in your area	ratespor	good	1
		average	2

		bad	3
rate transport in your area	ratetran	good	1
		average	2
		bad	3
rate safety in your area	ratesafe	good	1
		average	2
		bad	3
rate tidiness in your area	ratetidy	good	1
		average	2
		bad	3

LEISURE			
total leisure activities done daily	alleisd	1-2	1
		3-4	2
		5-9	3
total leisure activities done weekly	alleisw	0-3	1
		4	2
		5-8	3
total leisure activities done monthly	alleism	0-3	1
		4	2
		5-11	3
total leisure activities done yearly	alleisy	0	1
		1-2	2
		3-7	3

Appendix B School indicators (Newcastle)

An additional element of the Newcastle arm of the study was the collection of data relating to the school performance of those participants who were willing to release such information. The main aim of the extra data was to identify possible links between difficulties in school and subsequent substance misuse. As well as providing possible indicators of the pathways into drugs, it was hoped to give a more detailed picture of how drug misuse impacts on academic performance.

Data collected

The data collected was the results of Key Stages 1, 2 and 3 of the Standard Assessment Tests (SATs) and attendance rates for participants' entire school career. These were seen as consistent and objective measures of commitment to school and academic achievement that, in the case of SATs results, could be compared with a normal population using local and national statistics.

Issues relating to data collection

Because this part of the research was not crucial to the main study, separate consent for access to school records was sought from participants after they had completed the questionnaire with the researcher. Of the 47 participants interviewed in Newcastle, 24 consented to allow the researcher to access their school records. There were various reasons why the remaining 23 did not give their consent. One reason was when participants were showing signs of agitation or distraction, and it was felt inappropriate to insist on them giving further time and effort to a part of the study they had not originally agreed to. Another reason was when participants did not want to risk making their school aware of their use of drugs and also when parents did not want to involve the schools.

For those that did give their consent, the actual process of data collection was complicated by a number of factors that made it impossible to achieve a full set of data. These included:

- The relative newness of SATs. Key Stages 1,2 and 3 of SATs are key indicators of pupils' performance in the areas of English, Maths and Science that are taken at the ages of 7, 11 and 14 years. They were not fully introduced until 1992, which meant that 11 of the 23 participants were not required to take Key Stage 1, and 3 were not required to take Key Stage 2. In fact, only 1 participant had SAT results recorded for Key Stage 1, so this part of the analysis was disregarded.
- Not all had taken Key Stage 3. One participant was due to take KS3 after the interview, and one had left school when only 13 years old.
- Inconsistent record keeping. A major obstacle to obtaining full information was the individualised approach to record keeping taken by schools. Without an agreed, centralised system, schools attached different priorities to which records they kept and for how long. Many did not have computerised records, but even those that did often contained gaps in the data. This did not seem to be a problem for more recent SATs results, which schools are obliged to record and pass on, but was a particular problem for attendance figures, which schools have not been required to collate.
- Records lost in transfers between schools. This could occur where pupils had transferred either from primary to high school, or from high school to high school, or even where schools had merged.
- Partial success in retrieving records centrally. In an attempt to fill in the gaps, the education departments of Newcastle City Council and North Tyneside Council were contacted. Newcastle were able to supply records for 20 named pupils once they had been reassured about issues of consent, and a number of SATs results were located for the first time from this source. Their information did not include attendance figures, and they had no record of five pupils having been educated within the area. The request for

information on the other four pupils from North Tyneside was unsuccessful as they could find no SATs results at all.

- In the case of one participant, no records for SATs or attendance could be located anywhere, making the final number of participants available for this part of the study 23.

Results

SATs results were grouped for individual subjects for Key Stage 2 and Key Stage 3 in order to facilitate comparisons with national and local statistics. Thus, the percentage of participants achieving level 4 or above at Key Stage 2, and level 5 or above at Key Stage 3 was calculated for each of the three core subjects (see Table B1). Those participants who had not taken the exams because SATs had not been introduced were excluded from these statistics.

Table B1. Percentage of pupils attaining at least level 4 at Key Stage 2 and the percentage attaining at least level 5 at Key Stage 3.

	KEY STAGE 2: % attaining \geq level 4			KEY STAGE 3: % attaining \geq level 5		
	English	Maths	Science	English	Maths	Science
Study participants	15.8	31.6	31.6	10.5	10.5	10.5
Newcastle	66	62	82	65	67	67
England	75	71	87	73	68	66

These figures give a stark picture of the educational difficulties experienced by the young people in our study. The results at Key Stage 2 show how these difficulties are clearly apparent by the age of 11, before the onset of drug use – mean age of first use of drugs for this population is 12.6 years.

The results at Key Stage 3 give another illustration of how the use of drugs has a negative effect on school performance, as the poor performance apparent at age 11 has deteriorated even further by age 14. The exacerbating effect drug use appears to have on vulnerable young people's lack of commitment to school is also apparent in the attendance figures for these pupils. Prior to Year 7 the average attendance was 92.2 per cent (n=11), but from Year 7 onwards this falls to 61.6 per cent (n=20).

The SATs results suggest that these young people are unlikely to see the school environment as a very positive one. However, it may be that schools have a vital role in protecting young people against drug misuse by more actively engaging those who are struggling academically at an early age and offering them the chance to succeed.

The detailed analysis of the school data was unable to locate a significant relationship between the LPDU and SATs results or attendance figures. This suggests that the link between school performance and drug use is a complex one and that failure in school may have more effect on the initiation of drug use rather than the degree of subsequent misuse. However, the current data does not lend itself to any firm conclusions about this.

Appendix C Parental data

In considering the parental data, it is important to bear in mind that parents whose children did not give permission for them to be interviewed were excluded from the study. In total 46 parents were interviewed, compared to 103 young people. Throughout the text we refer to the child interviewed in this study; discussion of any other dependants will be made explicit.

Demographics

Of the parents interviewed, 42 were female and four male. Those interviewed were almost always the main person caring for the child, so we can infer that the overrepresentation of female parents in the study is a reflection of gender trends in primary carers. Age of parents ranged between 30 and 57. Forty per cent had their first child between 15 and 19 years of age. The vast majority (90%) had four children or fewer, although the remaining 10 per cent had up to eight children. Sixty-nine per cent of parents lived with a partner, of whom 78 per cent were married.

Family - relationships

The study asked a number of questions regarding parental support networks. The purpose was to ascertain whether or not parents were socially isolated. Sixty five per cent of parents said they had people within the family that they could talk to, 78 per cent said they could share problems with non-family members. The majority of those who felt they could share problems with family talked to their female siblings. Only 24 per cent felt they could share with their partner.

As in the young people's questionnaire, parents were asked about family dynamics. This included overt questions about relationships as well as more indirect indicators. Only a third of parents said they often ate meals with their child. Sixty per cent said they argued with their child often or quite often, although well over half said their relationship with their child was good, very good or excellent.

Only 13 per cent of parents admitted to arguing often or quite often with their partners, despite contrary evidence from the young people who reported almost triple this level of regular arguing between their parents.

Family - parenting skills

A number of indicators were used to assess the level of parenting skills the young people experienced in the home, including: eating meals together, levels of parental knowledge and control over children's whereabouts, and parents' views and knowledge about substance use.

Of those with children of school age, only 30 per cent of parents said that there was an adult at home when their child returned home, 83 per cent of these were the child's mother. Forty six per cent said they had jobs which their child was expected to do around the house.

Only 37 per cent of parents said that they knew at all times where their child was, 70 per cent said they set times for their child to be home. These figures make interesting reading when compared with what their children said: in agreement with the parents, 39 per cent of young people said their parents always knew where they were, but only 36 per cent said their parents set times for them to be home. The discrepancy could be due to parents overstating their level of discipline with their children, or could equally be young people understating the discipline at home in order to feel more 'grown up'.

Both parents and young people were asked whether they had discussed the risks of using illegal drugs with one another. Eighty-nine per cent of parents said they had discussed the

risks of using drugs with their children. By contrast, only 57 per cent of young people said that such discussions had taken place. However, of these, 84 per cent said they would not want such a discussion even if they had been given the option.

Parents were asked their views about their children's smoking and alcohol use. They were also asked about how they felt when they found out that their child was taking illegal drugs. The table below shows their level of disapproval compared with how the young people thought their parents felt. [Although the wording on the young peoples and parents questionnaires was not identical, we have combined categories in order to facilitate comparison].

Table C1. Parent view and young people's perceptions of parents' view in relation to respondents' substance use.

	Smoking		Alcohol		Drugs	
	Parent's opinion (%)	Young person's view of parent's opinion (%)	Parent's opinion (%)	Young person's view of parent's opinion (%)	Parent's opinion (%)	Young person's view of parent's opinion (%)
Do not like it	63	19	35	22	93	70
Rather they didn't	15	22	13	5	0	11
Don't mind	13	56	50	61	0	5
Don't know if they use	9	3	2	11	7	14

Notably, the young people underestimated the level of their parents' disapproval in the case of all substances. The young people felt their parents would disapprove most of drug use, less of alcohol and least of smoking. In fact, after drug use, parents were most concerned about smoking (63% said they did not like it). Alcohol was seen as much less of a problem with 50 per cent of parents reporting that they did not mind their children drinking.

Health

Sixty-three per cent of parents described their physical health as good or excellent. Those who felt unwell had been so for between one and ten years.

Parental service uptake was high compared to the general population. Eighty per cent of parents in the study had seen their GP in the last six months, 20 per cent had been to hospital, 33 per cent had been an outpatient and 17 per cent had been an inpatient. This compares with the general population figure of 39 per cent who saw their GP in 1991-1992 (most recent available figures) (Office of Population Consensus and Surveys, Morbidity statistics from general practice: fourth national study, 1991-1992. London: HMSO, 1995. (Series MB5; No. 3)).

Uptake of psychiatric services, though not overwhelming, was also high – four per cent had seen a psychiatrist in the last six months and nine per cent had been to a therapist.

Only three per cent of parents said they were unhappy when they were of school age, but 37 per cent said they felt unhappy with their life now.

Parental use of substances

Sixty-one per cent of parents said they smoked, of whom 78 per cent smoked more than ten a day. The majority (75%) of the smokers said they started at or before the age of 16, the youngest being nine years old.

Eighty-seven per cent of parents said they had drunk alcohol in the last month. The majority (90%) said they started drinking between the ages of 14 and 18. Fifty-two per cent of parents said they drank more than four units of alcohol weekly or daily. However, 25 per cent said they never drank this amount. Eighty-seven per cent said that their children did not mind them drinking.

The drug section of the parents' questionnaire was divided into attitudes towards their child's use, and their own personal use of drugs. Their opinions on their children's use of drugs are shown above. Sixty-seven per cent said they were surprised when they discovered that their child was using drugs.

All but one parent knew that drugs were harmful to health, but 28 per cent said that they did not know enough about the dangers of drugs. Eighty per cent said realistically that most young people would try out drugs at some time in their lives. One hundred per cent of parents said that drug dealers should be punished.

A third of parents admitted to ever having tried a drug themselves. The table below shows the frequency and regularity of the use of different drugs classes. Notably, the highest level of drug use was class B. This is due to the presence of cannabis in this class, which is the most commonly and frequently used drug both for the parents and the young people.

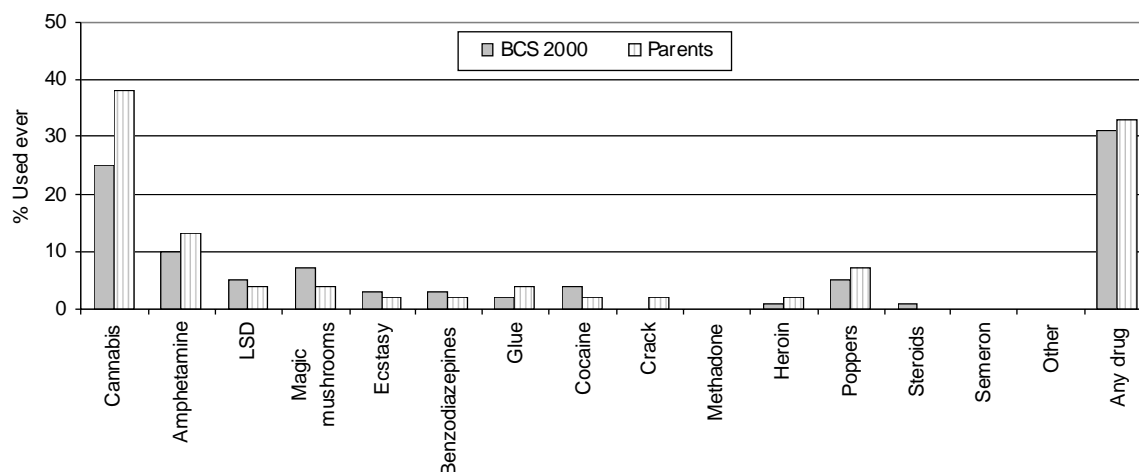
Table C2. Parents' use of drugs.

	Class A (%)	Class B (%)	Class C (%)
Used ever	9	33	2
Used in last 12 months	2	15	0
Used in last month	0	4	0

The levels of drug use reported in the parent sample of this study were not significantly different to those of the general population when compared with the age-matched figures from the British Crime Survey 2000 (Figure C1). Use of cannabis was the most distinct, with the parents using 13 per cent more than the general population. Parents also reported very slightly higher use of amphetamine, glue and poppers, but this is balanced out by lower use than the general population in all other substances.

It is important to note that the sample sizes and data collection methods differed greatly between the two sets of data. They are presented only to give an indication of prevalence, based on the best available current information.

Figure C1. Comparison of parents' drug use ever with the general population (aged 30-59 BCS 2000)



The patterns of parental use show that, despite a third having tried drugs, almost none appears to have continued to use them for any significant length of time. There were only three current users – two using cannabis and one using amphetamine. When asked questions about purchasing drugs or preferred drugs, all except three parents said they had little more than experimental experience of drugs, or had used so long ago that they were unable to answer such questions.

Education and training

The majority of parents (61%) left school at age 16 or above. The remaining 39 per cent left at age 14 or 15. Only one of the parents had ever been expelled from school, although 65 per cent admitted to ever having played truant. Only 37 per cent of the parents left school with qualifications, although over half had completed college or university courses since leaving school. Of these courses, 14 per cent were academic and 86 per cent were vocational.

Employment

Fifty-nine per cent of parents were working currently. Of these 63 per cent worked full time. Forty-three per cent had held their current job for more than three years.

Of those not currently working, most left work left to have a family (26%). Others left work through ill health (21%), end of contract (16%), did not like their job (16%), family problems (16%) and to go to college (2%).

Housing

There was a great deal of stability among the parents in terms of the area in which they lived, although many had moved frequently within the area: Ninety-eight per cent had lived in the area for between 11 and 57 years. Forty-one per cent had moved between one and four times in their lifetime, whilst 46 per cent had moved between five and ten times. A small group (9%) had moved up to 25 times.

Accommodation type was quite evenly spread between private and public housing – 52 per cent owned their own home and 42 per cent lived in council or housing association rented housing. The remainder lived in private rented accommodation. Forty-six per cent had lived at their current address for between one and ten years. The rest had lived at their current location for up to 31 years.

Sixty-three per cent of parents said they were happy in their present home, although 30 per cent said they had been broken into at least once. Forty-three per cent said they had no concerns about walking around their neighbourhood after dark.

Fairly high levels of serious vandalism, litter, disturbance by young people and burglary were reported (all around 30%), but low levels of serious assault (13%). Eighty-five per cent of parents reported that there was nowhere for young people to meet in their area. This corroborates the young people's views (60% said facilities were poor).

Appendix D Comparison of drug use among the Newcastle and Stoke samples

The average age at interview was 16.3 (Standard Deviation = 1.6) in Newcastle and 17.3 (SD =2.0) in Stoke. Figure D1 shows the first drug used by respondents in both areas was similar. Figure D2 shows that a higher proportion of Stoke respondents reported using heroin and crack-cocaine, while in Newcastle a higher proportion reported using cannabis and cocaine. These findings may reflect respondents' age at interview rather than intrinsic differences between the localities (e.g. in terms of drug preference or availability). Figure D3 shows that respondents' preferred drug largely mirrors current use.

Figure D1. First drug used by study area.

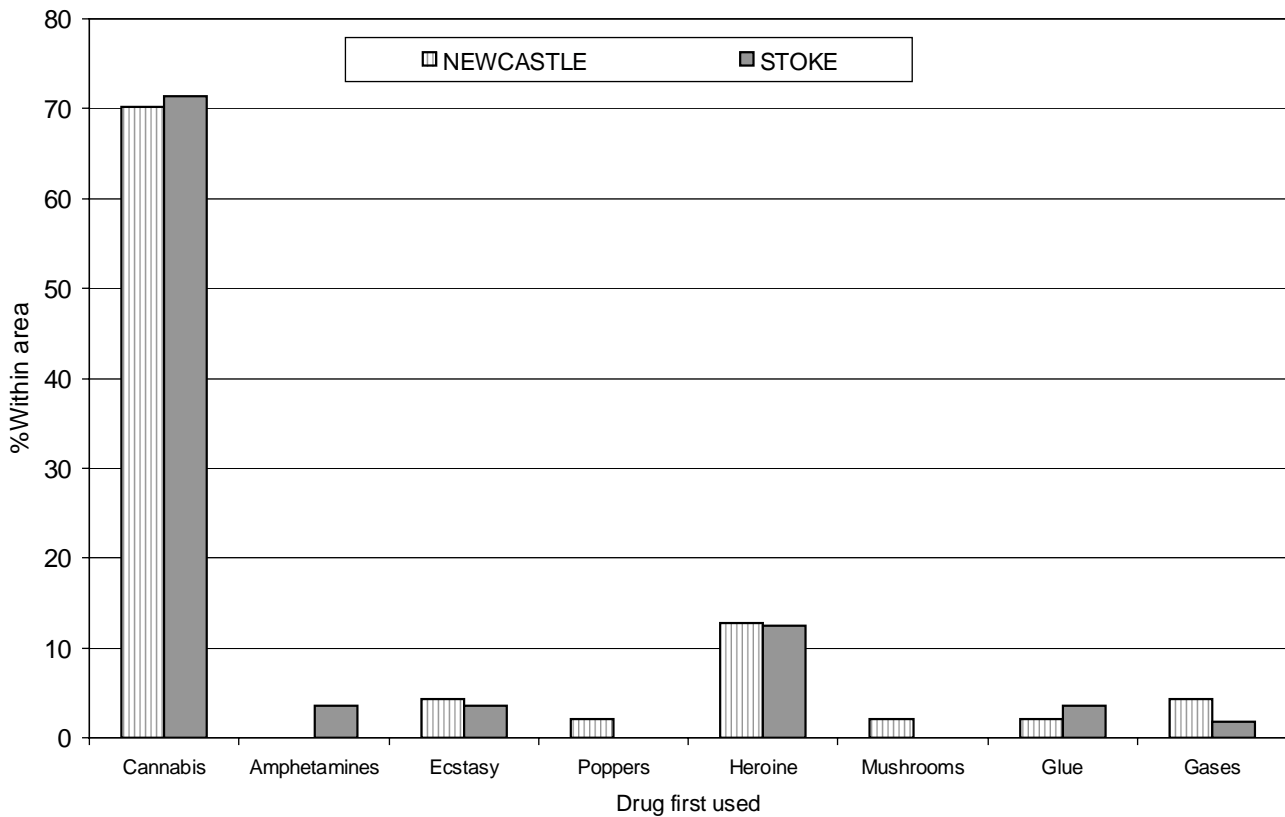


Figure D2. Respondents' drugs use in the last month by study area.

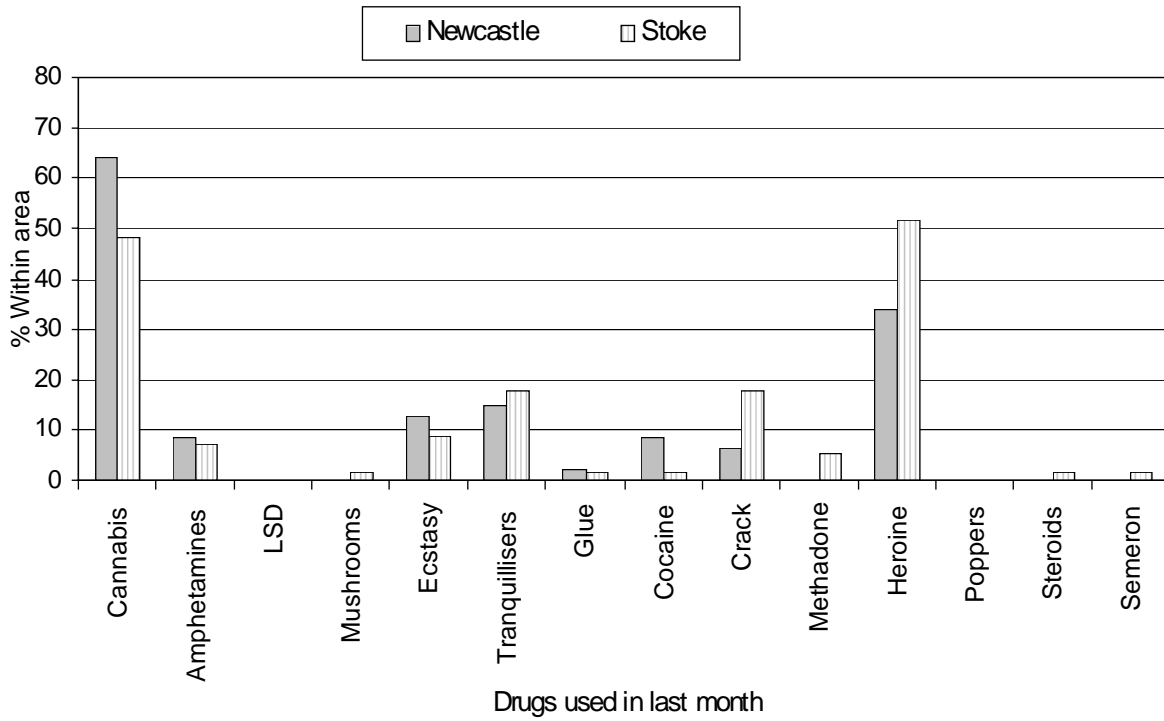
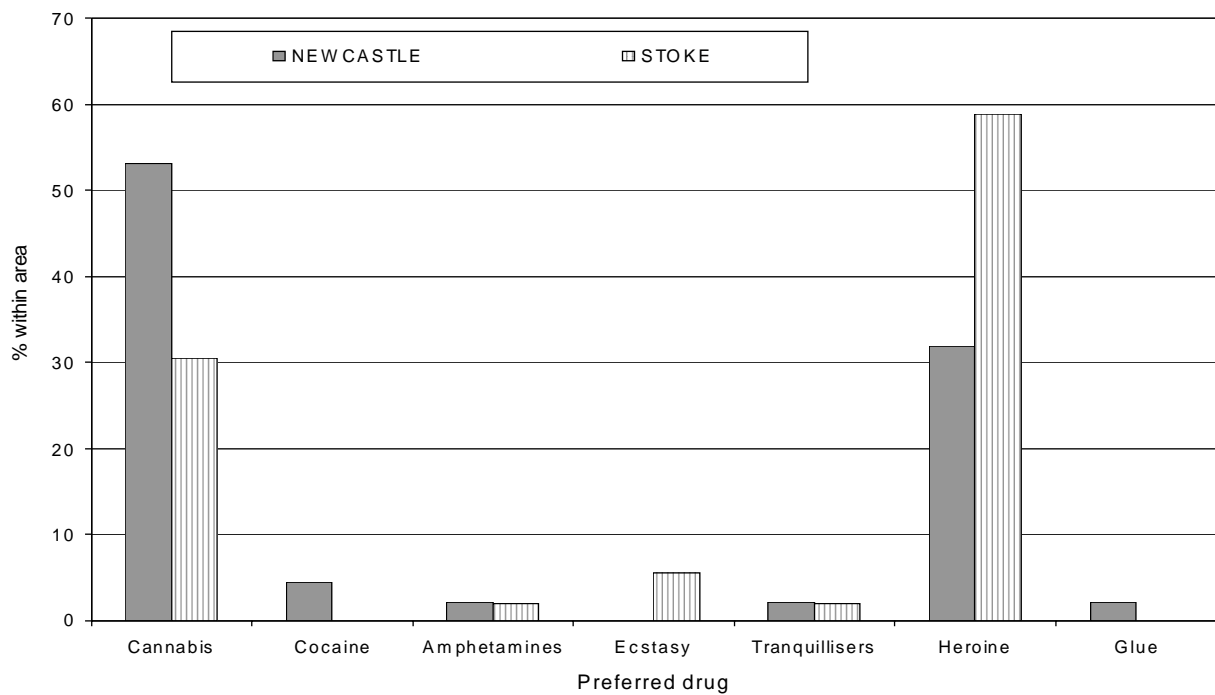


Figure D3. Preferred drug by study area.



Appendix E Potential measures of social exclusion

Variable	F value	Sig. Level
currently living with adults	6.57	0.01
run away from home	5.82	0.02
fumes in your area	4.28	0.02
years lived at current address	3.27	0.07
burglary in your area	3.07	0.05
assaults in your area	2.41	0.10
live with same people as last year	2.27	0.14
places for young people to meet in your area	2.03	0.14
been bullied	2.00	0.16
transport in your area	1.76	0.18
arguing with adults (when growing up)	1.55	0.22
material deprivation (Townsend Score)	1.45	0.23
arguing between adults (when growing up)	1.37	0.26
disturbance by young people in your area	1.32	0.27
do your parents ever drink more than 4 units in one session	1.08	0.30
how often do/did you go to school	1.08	0.30
tidyness in your area	1.05	0.35
been expelled	0.21	0.65
ever lived with foster parents	0.17	0.68
ever lived in residential care	0.14	0.71
live alone	0.07	0.41
how many high schools did you go to	0.00	0.96
current home broken into	0.00	0.98
bullied others	0.00	1.00

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Produced by the Research Development and Statistics Directorate, Home Office

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Home Office
Research, Development and Statistics Directorate
Communication Development Unit
Room 264
50 Queen Anne's Gate
London SW1H 9AT

Tel: 020 7273 2084 (answerphone outside of office hours)

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ISBN 1 84473 206 1

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