

RESEARCH REPORT

A comparison of 'visible' and 'invisible' users of amphetamine, cocaine and heroin: two distinct populations?

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Abstract

Aim. To compare the characteristics of heroin, cocaine and amphetamine users having no history of contact with services with those of a group in contact. **Method.** Multiple agency sampling and field work which included 'snowballing' using 'privileged access interviewers'. Each subject underwent a structured interview which included the Severity of Dependency Scale (SDS), and completed a confidential, self-report questionnaire. **Setting.** Three contrasting provincial urban locations. **Participants.** Five hundred and eighty-one regular users of the target drugs. Of these, 380 (65%) denied any contact with police or helping agencies in connection with drug use. **Findings.** Most zero-contact users (79%) expressed little or no concern about their drug use, and no wish for help or advice. They were much more likely to use stimulants only; less likely ever to inject any drug or, for those that did, to share equipment; less likely to use opioids, amphetamine or cocaine powder on a daily basis; more likely to use Ecstasy; and yielded significantly lower SDS scores for all target drugs save crack. Prevalence of crack use was lower, but the proportion of daily users was the same as in the contact group. Most (69%) contact users remained concerned about their drug use, but 58% expressed little or no confidence that local services could meet their needs. In both groups, SDS scores for cocaine powder were comparable to those for cannabis, LSD and Ecstasy. Of the 495 cannabis smokers identified (85% of the sample), 72% reported daily consumption. **Conclusions.** The findings are consistent with the hypothesis that 'visible' and 'invisible' drug users are distinct populations in terms of behavioural characteristics, vulnerability to compulsive use, and prevalence of drug-related problems or concern. Purchasers and providers with limited resources should concentrate on improving the range and quality of services for users already in contact rather than attempting to uncover invisible populations. On the basis of SDS scores, cocaine HCl seems to have a relatively modest addictive potential.

Introduction

Most surveys of illegal drug use focus upon individuals identified through contact with general practitioners, social services, police, probation or specialist drugs agencies in the

statutory or non-statutory sectors. Arguably, most of these people will have made contact with a helping agency because they are concerned about problems associated with their use of drugs, and have an expectation

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that these services may be able to provide a solution.

Drug users not in contact with services have not been extensively studied. It remains uncertain whether these 'invisible' consumers are simply at an earlier stage in the evolution of their drug use, or if they possess attitudinal or behavioural characteristics which reliably differentiate them from users who are visible because of the medical, social, or legal problems they have encountered. The extent to which profiles of London drug users (e.g. Gossop *et al.*, 1994a; Hunter, Donoghoe & Stimson, 1995; Powis *et al.*, 1996) can be taken as representative of those residing in smaller provincial cities and towns is also unknown.

Most surveys of 'hard' drug use concentrate on heroin and other opioids, but police and customs data suggest that there have been rapid increases in amphetamine and cocaine use since the late 1980s (Home Office Statistical Bulletin, 1992). There is evidence that both drugs are being injected increasingly, and that most users are not seeking help or advice (ISDD Audit Report, 1992). Surveys of school students in Oxfordshire (Robson, 1996) suggest that amphetamine use is second only in prevalence to cannabis, yet only 12% of individuals contacting a range of agencies in the Oxfordshire Health Region at the time of this study were primary amphetamine users (Department of Health Statistical Bulletin, 1995, table 10). For cocaine in all its forms, the figure was only 5%. Sixty-one per cent of those contacting services stated that their main drug was heroin (39%), methadone (18%) or other opioids (4%). This discrepancy suggests either that stimulant users who run into difficulties believe that the local services are inaccessible or ineffective, or that stimulants give rise to fewer or less pressing problems than opioids. Only 25% of people asking for help were female (Department of Health Statistical Bulletin, 1995, table 7), yet surveys (e.g. Balding, 1994) suggest that prevalence of initial experimentation with amphetamine, cocaine or heroin is very similar in boys and girls. Are women less vulnerable to problems because they tend to adopt safer patterns of drug use than men, as is suggested by the finding of Powis *et al.* (1996) that women used smaller amounts of drugs and were less likely to inject, or is it again a perception of the usefulness or otherwise of the available agencies?

The aim of this study was to examine the characteristics of regular users of heroin, cocaine and amphetamine with no present or previous contact with services compared with those of a similar group known to services in a provincial urban setting.

Methods

Data collection was carried out by fieldworkers in three locations: High Wycombe (Buckinghamshire), Corby (Northamptonshire) and Oxford City. These places were chosen for their easily definable boundaries and contrasting urban characteristics. One of the authors (M.B.) was fieldworker in Oxford. The other two fieldworkers were both 29-year-old males recruited on the basis of their familiarity with the local drug scene, and their organizational and inter-personal skills. One (J.C.) was a graduate with experience as a community youth worker, the other (M.L.) was a carpenter with a past history of heroin addiction.

An initial sample of drug users was obtained through approaches to GPs, social services, probation, statutory and non-statutory agencies and the police, radio and newspaper advertisements, outreach workers (Oxford only), and the local contacts of the fieldworkers. For inclusion in the study subjects had to be using amphetamine, cocaine or heroin at least monthly for three of the last four months and prepared to give informed, written consent to participate. Students with out-of-term homes outside the defined locations were excluded.

Further individuals meeting the above criteria were then identified by 'snowballing' from these initial contacts. Selected drug users were asked to approach their drug-using friends and acquaintances with a view to conducting an interview and asking them to complete questionnaires. The intention was to make contact with 'invisible' drug users who are not known to any of the above agencies. Fieldworkers selected drug users to be 'privileged access interviewers (PAIs)' on the basis of the following criteria suggested by Griffiths *et al.* (1993):

- Ease of access to the study population, either through current drug use or belonging to a similar social group as the target population.
- Non-threatening to drug users.

- Socially and educationally able to conduct interviews, with a stable enough life-style to take on the responsibility of interviewing.
- Unlikely to be put at risk by interviewing drug users.

Interviewers had one training session, followed-up after two completed interviews with a feedback session with the fieldworker. They were then asked to interview up to a further 18 people. To check accuracy and reliability, an independent interviewer arranged to meet one in ten subjects on a random basis. Each contact was paid £5 following completion of the interview. Data were collected over a 7-month period in 1994.

Information was obtained using a structured interview designed to be completed within 30 minutes so as to maximize compliance, and a confidential self-assessment questionnaire exploring injecting habits and aspects of sexual behaviour which was placed by the subject in a sealed envelope so as to be sure it would not be seen by the interviewer. The interview and questionnaire were modified following pilot studies in Oxford City conducted by the primary fieldworker (MB).

Subject matter covered by the interview and included in this report are as follows.

- Main drugs used currently (heroin, other opioids, cocaine, crack, amphetamine, Ecstasy, LSD, cannabis), age first used, pattern of use (daily, weekly, monthly, rarely), level of consumption (using financial expenditure as measure), routes of administration (oral, nasal, smoking, injection).
- History of contacts now and within past year with needle exchange, outreach worker, voluntary sector, private doctor, NHS GP, drug dependency unit.
- Levels of concern about problems arising out of drug or alcohol use, social or legal problems, and physical or psychological health. For each of these dimensions, subjects were asked to rate concern, importance to seek help and degree to which local services were meeting needs on the following scale: not at all; mildly; moderately; severely; very severely.
- Severity of Dependence Scale (Sutherland *et al.*, 1986) completed for each drug
- Knowledge about HIV risk behaviour (sharing injecting equipment, unsafe sexual behaviour, confidence in ability to detect infection in others).

The confidential questionnaire enquired about injecting history (age of first injection, frequency of injecting in the previous 28 days, whether equipment had ever been shared, number of occasions in previous 28 days that used equipment had been received and/or passed on), sexual history in the previous year (number of female and/or male partners for vaginal or anal intercourse), frequency of condom use (always/sometimes/never), and whether tested for HIV at any time.

Subjects were also asked to provide a sample of saliva. These were screened by the Public Health Laboratory Service for HIV 1 + 2 and anti-HBc.

Fifty hundred and eighty-one users of heroin, cocaine, or amphetamine completed interviews and questionnaires, of whom 185 (32%) were female. The average age of the sample was 26 years with a range of 15 to 49 years, and three-quarters were between the ages of 17 and 31. In order to make possible a follow-up study at a later date, subjects were asked if they were prepared to provide a contact address.

Interviews were conducted by the following: PAIs = 180 (average / PAI = 4 (Oxford), 4 (Corby), 5 High Wycombe; range 1-12); MB = 43; outreach workers (Oxford) = 87; JC = 106; JC + a PAI = 72; ML = 93. It is not possible to know how many individuals took steps to avoid involvement in the study, but 5% of those who reached the stage of receiving a full explanation declined to take part or were rejected on the basis of the inclusion/exclusion criteria.

Unless otherwise stated in the text, the significance of differences between samples was tested using one-way analysis of variance.

Results

The average age of first use of each drug was as follows: cannabis 15; LSD 17; amphetamine 18; heroin 20; ecstasy 21; other opioids 21; cocaine powder 21; crack cocaine 24 years.

The percentages of subjects in contact with various helping agencies or services at the time of the study or during the previous year are shown in Table 1.

Of the 65 women who had injected at some time, 40% admitted having used someone else's needle or syringe on at least one occasion, while nearly half the 210 men who had injected had

Table 1. Percentages of subjects in contact with various services

| Service | In contact (percentage of whole sample) | |
|-----------------------------|--|----------------------|
| | At time of study | Within previous year |
| Needle-exchange | 19 | 23 |
| Outreach worker | 12 | 13 |
| Voluntary agency | 9 | 12 |
| Private doctor | 1 | 3 |
| General practitioner | 13 | 16 |
| NHS drug treatment unit | 10 | 11 |
| In contact with any service | 32.2 | 31.5 |

done so. Overall, 33% of those using stimulants only and 44% of those using opioids only admitted accepting a used syringe or needle from someone in the past. The figure for users of both heroin and cocaine was 65%. Eleven per cent of the total sample admitted having shared injecting equipment within the previous 4 weeks; this figure is in line with targets specified in the government's *Health of the Nation* document. Twenty-five per cent of the overall sample tested positive for hepatitis B, and 2.5% proved to be HIV-positive.

Three hundred and eighty subjects (65% of the total sample) reported no contact at any time with any of the services listed in Table 1. Within this group, 58% were not worried at all about their drug use, and 21% were only mildly concerned. None of these people felt they had any need of help. However, that left 21% of the zero-contact group who said they were moderately, severely, or very severely worried about their drug use.

Of those who had been in contact with services at some time in the previous year, the majority (69%) remained at least moderately concerned about their drug use. Three-quarters of the contact group thought it was important to get some help, but 42% expressed the view that local drug services would be of no use at all in meeting their needs, and a further 16% felt the help available would be minimal.

The average age of the contact group was 27.57 years (standard deviation (SD) = 6.4) while that of the zero-contact group was 25.79 years (SD = 7.1) ($p = 0.004$). There was no significant difference between groups in the age of first use of any drug other than amphetamine: for this, the mean age of first use in the contact

group was 16.9 years compared to 18.1 years in the zero-contact sample ($p = 0.005$). The gender ratio (F.M) was similar in the two groups: contact = 1:2.5, zero-contact = 1:2 (not significant).

The prevalence of use of individual drugs in the two groups is shown in Table 2. The use of cannabis was very similar between groups, and overall 72% of smokers did so daily. Use of both stimulants and opioids was reported by 52% of the contact group compared with only 18% of the zero-contact sample ($\chi^2 = 70.7$; $p < 0.0001$). Seventy-six per cent of the latter used stimulants only, compared to 18% of contact subjects ($\chi^2 = 180.2$; $p < 0.0001$).

Among the injecting drug users, the zero-contact group were much less likely to have injected within the previous month ($p < 0.0001$) or shared injecting equipment at any time ($p < 0.0001$), but for those who had injected recently the frequency of injecting in the previous month was similar between the two groups.

Comparisons between the frequency of use and prevalence of injecting in the contact and zero-contact groups are shown in Tables 3 and

Table 2. Prevalence of drug use in the contact and zero-contact groups

| Drug | Zero-contact (%) ($n = 380$) | Contact (%) ($n = 201$) |
|----------------|-----------------------------------|------------------------------|
| Cannabis | 329 (87) | 166(83) |
| LSD | 167 (44) | 45 (22) |
| Amphetamine | 308 (81) | 108 (54) |
| Heroin | 77 (20) | 133 (66) |
| Ecstasy | 170 (45) | 41 (20) |
| Other opioids | 40 (11) | 109 (54) |
| Cocaine powder | 102 (27) | 46 (23) |
| Crack cocaine | 42 (11) | 60 (30) |

Table 3. Frequency of drug use in the contact and zero-contact groups

| Drug | Frequency of use (%) | | | | | | | |
|------------------------------------|----------------------|--------------|---------|--------------|---------|--------------|---------|--------------|
| | Rarely | | Monthly | | Weekly | | Daily | |
| | Contact | Zero contact | Contact | Zero contact | Contact | Zero contact | Contact | Zero contact |
| Cannabis c = 166, zc = 329 | 4.2 | 3.0 | 3.0 | 3.0 | 24.1 | 21.0 | 68.7 | 72.9 |
| LSD c = 45, zc = 167 | 71.1 | 53.3 | 15.6 | 34.7 | 8.9 | 9.6 | 4.4 | 2.4 |
| Amphetamine c = 108, zc = 308 | 25.0 | 23.4 | 24.1 | 31.5 | 33.3 | 39.9 | 17.6 | 5.2 |
| Heroin c = 133, zc = 77 | 11.3 | 32.5 | 12.0 | 15.5 | 23.4 | 26.0 | 53.3 | 26.0 |
| Ecstasy c = 41, zc = 170 | 56.1 | 37.1 | 34.1 | 39.4 | 9.8 | 22.9 | 0 | 0.6 |
| Other opioids c = 109, zc = 40 | 9.2 | 42.5 | 9.2 | 20.0 | 22.0 | 30.0 | 59.6 | 7.5 |
| Cocaine powder c = 46, zc = 102 | 58.7 | 70.6 | 15.2 | 19.6 | 19.6 | 7.8 | 6.5 | 2.0 |
| Crack cocaine c = 60, zc = 42 | 48.3 | 40.5 | 28.3 | 19.0 | 11.7 | 28.6 | 11.7 | 11.9 |

c = number of subjects in contact sample who reported use of each drug.

zc = number of subject in zero-contact sample who reported use of each drug.

Table 4. Prevalence of injecting in the contact and zero-contact groups

| Drug | Percentage injecting | | χ^2 | p value |
|----------------|----------------------|------------------|----------|----------|
| | Contact | Zero-contact | | |
| Amphetamine | 60.2 (n = 108) | 5.5 (n = 308) | 150.9 | < 0.0001 |
| Heroin | 81.2 (n = 133) | 31.2 (n = 78) | 53.4 | < 0.0001 |
| Other opioids | 30.3 (n = 109) | 7.5 (n = 40) | 8.35 | < 0.01 |
| Cocaine powder | 43.5 (n = 46) | 5.0 (n = 101) | 33.41 | < 0.0001 |
| Crack cocaine | 13.3 (n = 60) | 4.8 (n = 42) | 2.06 | NS |

No subjects reported injecting cannabis or ecstasy. One individual out of 40 reporting LSD use from the contact sample claimed to have injected it.

In the zero-contact sample, the most frequent routes of consumption were as follows: heroin; smoking (58.4%); other opioids; oral (77.5%); amphetamine; oral (58.4%), snorting (35.1%); cocaine HCl; snorting (74.3%).

4, respectively. Users of heroin, other opiates, or cocaine powder in the zero contact group did so less often ($p < 0.0001$, $p < 0.0001$ and $p = 0.03$, respectively) and were less likely to inject these drugs ($p < 0.0001$, $p = 0.03$, $p < 0.0001$). Frequency of amphetamine and crack use was similar across groups, but the contact group were much more likely to inject these drugs

($p < 0.0001$ and $p = 0.02$, respectively). Individuals in the zero-contact group who used Ecstasy did so significantly more frequently than those in the contact group ($p = 0.01$). In the case of LSD and cannabis, patterns of use were indistinguishable between the two groups.

SDS scores for the contact and zero-contact groups are shown in Table 5. The contact group

Table 5. Severity of dependence (SDS) scores in the contact and zero-contact groups

| Drug | Contact mean SDS (SD) | Zero-contact mean SDS (SD) | <i>t</i> -test (2 - tail) |
|----------------|--------------------------|-------------------------------|------------------------------|
| Cannabis | 2.6 (4.2) | 3.4 (4.4) | NS |
| LSD | 3.1 (5.0) | 1.1 (2.4) | <i>p</i> = 0.05 |
| Amphetamine | 6.1 (6.5) | 2.3 (4.2) | <i>p</i> < 0.0001 |
| Heroin | 12.9 (6.5) | 5.6 (6.4) | <i>p</i> < 0.0001 |
| Ecstasy | 1.3 (2.2) | 1.5 (3.2) | NS |
| Other opioids | 9.6 (6.4) | 2.2 (4.3) | <i>p</i> < 0.0001 |
| Cocaine powder | 3.8 (5.8) | 1.2 (3.1) | <i>p</i> = 0.028 |
| Crack cocaine | 5.5 (6.1) | 5.7 (6.6) | NS |

SD = Standard deviation; NS = not significant.

yielded significantly higher SDS scores for all drugs save cannabis, Ecstasy, and crack cocaine.

SDS scores correlated significantly with frequency of use for all drugs (Spearman correlation analysis; *p* values all < 0.0001 except for Ecstasy (*p* = 0.01), and LSD (*p* = 0.005)). To permit correlational analysis with route of administration, numerical values were ascribed as follows: oral = 1; nasal = 2; smoking = 3; injection = 4. A significant correlation between SDS score and route of administration was found in the case of amphetamine (*p* = 0.001), heroin (*p* < 0.0001) and other opioids (*p* = 0.02) only.

Discussion

This study involved one of the largest groups of 'invisible' drug users reported to date, but several limitations should be kept in mind when considering the results. Interviewers reported that approximately 5% of potential subjects declined to participate because of concerns about confidentiality. These were much more likely to fall into the zero-contact category. There were probably others who heard of the study on the grapevine and took steps to avoid friends or acquaintances who were acting as PAIs on the assumption that there was much to lose and little to gain in admitting to an illegal activity, even to a friend. This element of self-selection, the sourcing of the samples from three particular urban areas, and the fact that identification of subjects depended upon such arbitrary factors as the skill and contacts of the individual fieldworkers and the ability of various agencies to attract clients, mean that caution should be exercised in generalizing the findings.

The relatively late age of first crack use may simply reflect a lack of availability until relatively recently. Hunter *et al.* (1995) report an increasing prevalence of crack use in London, and a growing tendency to inject cocaine in this form. Injection of crack cocaine occurred more frequently in the contact group (Table 4).

Concomitant use of stimulants and opioids was three times more common in the contact sample. Chitwood & Cornerford (1990) have suggested that use of both heroin and cocaine is more likely to be linked to unsafe injecting behaviour than either drug alone, and the figures relating to a history of sharing injection equipment in the current study support this.

The contact group was much more likely to use amphetamine, cocaine powder, heroin or other opioids on a daily basis than the zero-contact sample, but this was not true of crack cocaine (Table 3). Three-quarters of the zero-contact group used only stimulants compared with less than a fifth of the contact sample and this suggests either that most stimulant users do not run into problems, or that despite having problems they are unlikely to present because they do not perceive services as useful, an impression shared by some drug workers (Pates, 1994). The fact that less than a quarter of the zero-contact group were significantly concerned about their drug use supports the first hypothesis.

Although it is possible that the zero-contact group is simply at an earlier stage in the 'drug career' than the contact group, the similarities in duration of drug history and gender ratio across groups argue against this explanation. Although the difference in average age of the two samples is statistically significant, the magnitude of the

difference (1.78 years) seems small in practical terms. With this uncertainty in mind, it is at least interesting to note that there were some highly significant variations between the contact and zero-contact groups in this study. Although the age of initiation into drug use was similar for the two groups, the latter were less likely ever to have injected. Zero-contact heroin and cocaine users were much more likely to chase (smoke) the former and snort the latter than inject, whereas for the contact group the opposite was the case. For amphetamine users, the contrast was particularly dramatic: 60% of the contact group injected the drug, compared with only 5.5% in the zero-contact cohort (Table 4). Zero-contact injectors of heroin, cocaine or amphetamine were much less likely ever to have shared injecting equipment, suggesting more self-concern and ability to control impulsive behaviour. The contact group contained three times the proportion of heroin users, and in contrast amphetamine, LSD, and Ecstasy were much more prevalent in the zero-contact group (Table 2). This could mean either that heroin is much more likely to give rise to problems than the other drugs, or that heroin users find it more useful to make contact with services. Crack use was much more prevalent in the contact group (Table 2), although the proportion of daily users was identical between groups (Table 3).

Four out of five members of the zero-contact group had little or no concerns about their use of drugs. It is disturbing that the high levels of concern and desire for help in the contact group were not accompanied by a strong conviction that local services would be able to provide the help required.

The Severity of Dependence scale is established as a reliable and valid measure of dependence (Gossop *et al.*, 1995). Scores correlate in other samples with objective indicators of dependence, and it has been noted that they tend to be higher in subjects who have sought help with drug-related problems than in those who have not (Gossop *et al.*, 1995). It is interesting to compare the SDS scores for the different drugs with those published from other samples. For example, mean heroin SDS score for a group of 200 drug users, half of whom had had no contact with services, was 8.3 (Gossop *et al.*, 1992), an almost identical figure to this overall sample (8.1). Gossop *et al.*'s figures for cocaine and amphetamine were 2.5 and 1.5, respectively.

Our results, in common with the findings of Gossop and his colleagues in their various studies (Gossop *et al.*, 1992, 1994a, 1994b, 1995) suggest that cocaine HCl has a relatively low addictive potential in comparison with heroin. SDS scores relating to cocaine powder seem remarkably low in both groups, but particularly so in the zero-contact group where the mean score is a third of that associated with cannabis (Table 5). The studies give support to the conclusion of Murphy, Reinarman & Waldorf (1989; summary, p. 427) that '... addiction is *not* a uniform outcome of sustained use and that long-term controlled use [of cocaine] is possible'. In contrast, SDS scores for crack cocaine were much higher in our total sample (5.7), which probably represents a different dimension of risk. This is consistent with the findings of Gossop *et al.* (1994a). Unlike the scores for amphetamine, heroin and other opioids, crack SDS scores were very similar in the two groups (Table 5).

There is increasing evidence that smoking cannabis on a daily basis may be a significant factor in the development of a variety of diseases of the airways (Hall, Solowij & Lemon, 1994). Other adverse effects may be enhanced by such regular use (Hall *et al.*, 1994), and daily intoxication may have an important but unrecognized role in the causation of accidents on the roads and elsewhere since dose-related deficits in driving performance have been demonstrated (Klonoff, 1974). The fact that cannabis is hardly regarded as a drug by many of our subjects, and the finding that the large numbers who smoke it habitually do so on a daily basis, is a cause for concern.

Conclusions

- (1) The samples of contact and zero-contact users of amphetamine, cocaine or heroin identified in this study seem to represent distinct populations in terms of their choice of drugs, frequency and route of consumption, and vulnerability to compulsive or dependent use. It is possible that a proportion of the invisible, relatively problem-free users in the zero-contact sample are simply at an earlier stage in the evolution of their 'drug career', but the similarity in age, gender ratio and duration of drug history in the two groups argues against this. In most cases, the zero-contact subjects were untroubled by

their use of drugs and had no desire for help or advice, whereas the contact group expressed considerable concern, wanted help, but had little confidence that local services would be able to meet their needs.

While accepting the limitations inherent in this cross-sectional study, our findings suggest that it would be more logical for purchasers and providers operating in an era of diminishing resources to concentrate on improving the scope and quality of services available to people who make contact with one agency or another, rather than attempting to uncover and engage invisible populations largely composed of 'precontemplaters' (Prochaska & DiClemente, 1983) who are not amenable to such approaches.

- (2) On the basis of SDS scores, cocaine HCl seems to have only a modest addictive potential.
- (3) Daily cannabis smoking was the norm for most people in both groups. If this is a general trend in a broader population of cannabis users, the enhanced impact on personal health and risk to road users are matters of concern.

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