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COCAINE USE IN AMSTERDAM II

Initiation and patterns of use after 1986

Peter Cohen & Arjan Sas

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Amsterdam, 1995

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Explanation of symbols

.	data not available
-	nil
0 (0.0)	less than half of unit employed
a blank	category not applicable

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Contents

Preface

In an area where anecdote, press impressions and data from treatment institutions are still the major sources of knowledge about cocaine, data that run counter to dominant notions have to be presented with great detail. This enables the reader to check our conclusions as much as possible. However, we realize that the level of detail we present in this study goes far beyond the needs of most readers. For them, we have added a special Chapter 1 that covers the main findings in a summary format.

In this report we try to describe 108 persons who on average started their regular cocaine use career in 1985 or later. The report is a sequel to our first cocaine use investigation (Cohen, 1989), hence the title "Cocaine use in Amsterdam II"[1]. Main goal of the second investigation was to find out whether cocaine had remained attractive to the same type of persons as found by us in 1987, or that changed publicity about the drug had modified both type of users and patterns of use. To give the reader of this report an impression of all our efforts to investigate cocaine use in Amsterdam, we reprinted an overview article first published in Addiction Research, 1994, Vol 2. In this article we present a general overview of all our findings, including the results of the follow up study we performed on 64 of the respondents we first interviewed in 1987.

The publication of "Cocaine use in Amsterdam II" marks the end of the cocaine use studies we started in 1987. This relatively large project was made possible by a lot of persons, of whom we would like to mention Eddy Engelsman in the first place. His knowledge of the drug field provided us with the backing we needed in order to acquire funding from the Ministry of Welfare, Public Health and Cultural Affairs.

Further we would like to thank Paul Sandwijk, Harry van Kesteren and Tom Verhoek of the Stichting BRON[2] for their impeccable organization of the field work and interviewer instruction.

Harm 't Hart was as always an encyclopedic source of methodological and statistical advice, any time we needed it.

We thank Lynn Zimmer Ph.D. and John Morgan Ph.D. for the generosity of spending a lot of time to editing the English text and for the valuable remarks he made on the unedited version of this report.

Last, but not least, we have to thank our interviewers. Their zeal and integrity made it possible to process a lot of good data, of which very little was 'missing'.

Between Arjan Sas and Peter Cohen a consistent division of labor emerged that gave the former almost supreme reign over data processing and the countless and sometimes very complicated SPSS runs we needed. The latter however remained fully responsible for the text and the over all product.

Arjan Sas
Peter Cohen

April 1995

1 This report was presented to the Ministry of Welfare, Public Health and Cultural Affairs in July 1994 who funded our series of cocaine use investigations in Amsterdam from 1987 to 1991. The present version is modified, according to the editing comments of Zimmer and Morgan.

2 The "BRON Foundation" is a small research institution attached to the department of Human Geography of the University of Amsterdam.

1 Introduction, conclusion, and eight chapter summaries

Introduction

In 1987 we interviewed a group of 160 experienced "non-deviant" cocaine users living in Amsterdam. The sample was created by a snowball sampling method as described earlier in Cohen, 1989[1]. Cocaine users in our sample appeared to be representative of cocaine users in the population as a whole and similar in many respects to those identified in a general household survey, conducted in Amsterdam the same year (Sandwijk et al, 1988).

In the 1987 cocaine study our data offered no evidence that cocaine users in our sample lost control over their cocaine use. However, many respondents mentioned negative side effects associated with their use of cocaine use. The higher the level of use had been during a respondents' highest use period, the more of such negative effects were mentioned. We assumed this explained why only 2 percent of the respondents consumed cocaine at a high use level (2.5 g. a week or more) at the time of interview. For the sample as a whole about 20 percent had used at a high level during highest use period.
Average length of the cocaine consumption career following the onset of regular use was 6 years for our sample. During this time, users typically experienced a period of escalated use followed by declining use — a pattern we identified as "up-top-down".
Data from this sample of experienced cocaine users led us to suggest adoption of a condoning policy in relation to cocaine, similar to that already in operation for marijuana and hashish. These data legitimize the conclusion that cocaine users sampled from the community (unlike those typically sampled from treatment institutions) know how to control their use of cocaine. Such users are not in need of external legal controls. Indeed law enforcement may be more of a threat to these users' well-being than cocaine itself.

In 1990 the Ministry of Welfare, Public Health and Cultural Affairs provided funding for a follow up study which was conducted in 1991. The main goal of this study was to examine the development of use patterns in the same sample of respondents since 1987. The study should be genuinely longitudinal. The

results of this longitudinal study were reported in Cohen and Sas, 1993. Another study also funded by this Ministry was directed at relatively new users of cocaine — those who had started their cocaine consumption careers in 1986 or later. This sample allowed us to collect data about the development of patterns of use in a separate cohort of users, probably younger than those sampled in 1987.

Most cocaine users in the 1987 study had initiated use prior to 1980 and had begun regular use shortly after 1980. Thus, the original sample had started using cocaine at a time when this drug had a completely different social image than it had in 1986.

By 1986, the use of crack had begun to attract considerable attention and by 1989 cocaine had become defined as such a "dangerous" drug that British Prime Minister Mrs. Thatcher convened a Drug Summit in London to discuss on a global scale how to react to the "cocaine threat".

The main objective of our "new user" study was to find out if more recently initiated users were different from 'old users' in terms of demographic variables, use-patterns, reported effects and consequences of use. Our goal was to identify and interview a minimum of 100 and a maximum of 120 new cocaine users.

Between January and July 1991 we identified 108 cocaine users in Amsterdam using a snowball sampling technique very similar to the one used in the 1987 study. To be included respondents must have started consuming cocaine in 1986 or later and at the time of the interview, to have used cocaine a minimum of ten occasions. However, interviewers were instructed to also *include* respondents who reported having used cocaine one or two times prior to the entry date of 1986. Because of this, 6 respondents who had started using cocaine in 1985 and 2 who had started in 1984 were included.

In our 1987 study entry criterion was at least 25 times of use. However, this threshold turned out to be too high for the new user investigation since users were also required to have had — almost — all their experience after 1986. A criterion of 25 times of use would have excluded users who had just started a use pattern beyond just experimentation. To prevent this exclusion we changed the entry criterion to at least ten occasions of use since 1986.

In the current study, as in 1987, non-deviant cocaine users were defined as those not engaged in full-time prostitution or full-time criminal activities[2]. Interviewers were instructed that starting points for snowballs (zero stages) had to be recruited outside junkie circles. Reasons for excluding junkie, criminal and prostitution zero stages are described elsewhere in Cohen, 1989. Summarized, these reasons are that heavy involvement in deviant behaviors apart from cocaine use makes it difficult to distinguish the consequences of cocaine use from those of a highly deviant life style. To evaluate the effects of cocaine use it is important to study users who are part of main stream society. Ideally one would want to study this prospectively by randomly assigning a group of citizens to start a cocaine-using career and then comparing them to a matched group of citizens who never used cocaine. Obviously such a study is not feasible.

We believe that our design, despite its limitations as a retrospective self report study, is the best possible given the nature of the research question.

Conclusion

With our 'new user' study we wanted to establish if cocaine had become attractive to a different population of Amsterdam based users in 1991 than we had found in our "old user" study in 1987. We also wanted to determine whether use-patterns had changed and whether the consequences of cocaine use were different in 1991 than with those we had identified earlier.
One reasons to suspect that we would find changes was that old users, initiated during the 1970's, had been confronted with a different image of cocaine than the users initiated during the (late) 1980's. We suspected this might have resulted in different user populations being attracted to cocaine use.
In both years we used a sampling technique that largely excluded the possibility of selecting users highly involved in junkie circles, full time or those engaged in full-time criminal activity or prostitution. By repeating our sampling criteria, we could assure that any changes in respondent characteristics were the result of changes in the type of persons attracted to cocaine.
As to the first question, whether user groups have changed, the answer is a firm "no". Except in variables that were influenced by our sampling criterion (such as age, and number of years of cocaine experience), we saw no great differences between users in 1991 and 1987.
As to the second, more complicated question, our data suggest a great deal of similarity in patterns of cocaine use over this period of time. In terms of both initiation and development of use over time, the two samples are remarkably similar. Dosages, frequencies of use and overall levels of use show not significant differences (Figure 4.4a illustrates this best). As in 1987, we found that heavy use patterns (over 2.5 gram a week) occur with about 20 percent of users, but tend to be short-lived lasting on average less than a year. As in 1987, users tend to start with small amounts of cocaine, move towards maximum use periods (which show substantial individual variations) and then go back to lower amounts and frequencies.
Having found no relevant differences in initiation and subsequent development of use patterns in the two samples, we would expect similarities in other variables of use, such as routes of ingestion, settings of use, advantages and disadvantages ascribed to cocaine, and other reported effects.
In both years, users found by our sampling technique were mainly cocaine snorters, although life time experience with free base smoking had increased by 1991. This is not surprising, since experienced drug users are often the first ones to learn about new drugs and ways to use them. In both years perceived advantages and disadvantages of cocaine were similar, as were the settings in which respondents preferred to use cocaine. Even on the effect-scales we constructed there was a great deal of similarity between the two samples.

However, some differences were found as well. For example, some reported effects were no longer level of use related in 1991 compared to 1987, and vice versa for other effects. However, some of these differences maybe explained by shortcomings of our measuring instruments rather than by different user-cultures or different functions of use. We suspect that cocaine use patterns are the result of specific interrelations between the drug, its sociocultural and socioeconomic environment and the type of users it attracts. A key finding was that the functions served by cocaine remained quite similar for similar kinds of people. Because all these factors were similar, use patterns turned out to be similar as well. Thus, the new data reinforce that social and environmental factors may be more important determinants of the effects and consequences of cocaine use than are the drugs' pharmacological properties[3]. It would be highly interesting and relevant to test this hypothesis further in rigorous comparative investigations.

Probably our most important conclusion, as in 1987 in our "old user" study, is that most users seem able to control their cocaine consumption by applying various rule systems. Typically users have pre-established limits regarding the amount of drug they will use, the amount of money they will spend, from whom they will make purchases, the settings in which cocaine will be consumed and with whom they will share the experience. They also tend to take account of "risky use models" to monitor their own use and define particular emotional states as appropriate or inappropriate to cocaine consumption. Our data show that external controls, such as low availability and heavy risk of purchasing, play a much smaller role; indeed, for most of these users they do not apply at all. Price of cocaine remained relatively high, although it dropped from an average of *f*180 a gram in 1987 to *f*140 in 1991.

Users also identified many negative effects and disadvantages of cocaine, which themselves act as restraints on use. Since most of these community-based cocaine users are fully integrated into society, cocaine use is not a central aspect of their lives, despite the fact that about 30 percent of our respondents had some period in which cocaine was "an obsession" for them.

Chapter summaries

2 The sample

In Chapter 2 we compare the 108 respondents of our snowball sample with 61 cocaine users identified in a household survey in 1990/1991 that utilized random sampling procedure. These 61 users were selected from a total of 244 cocaine users on the basis of their year of initiation.

In comparing the 108 respondents of our snowball sample with the 61 from the household survey on the following variables we found:

- age: very small difference, statistically not significant;
- gender: no differences;
- ethnicity: small but insignificant differences;
- income differentiation: small but insignificant differences;
- level of finished education (small but insignificant differences)
- living in a home with children (no differences);
- having a steady life-partner (no differences).

Of course respondents from the household survey are not the best possible reference for assessing the quality of our snowball sample. For one thing we only know whether they have had more or fewer than 25 cocaine experiences and not whether they have at least ten occasions of use (our entry criterion for the snowball sample). The percentage of persons having 25 times or more experience with cocaine is much higher in our snowball sample than in the population cocaine users. Thus, the household sub-sample does not exactly represent the cocaine users from whom we recruited for our snowball sample.
On the other hand, with the exception of Erickson's studies in Toronto (Erickson, 1987, 1992), no other cocaine-user studies have been able to cross validate a snowball sample with a proximate randomly selected reference group. The cross validation of our snowball sample, although not perfect, allows us to generalize from our findings with a reasonable degree of confidence.
We also compared the 1991 snowball sample (N=108) with our 1987 cocaine user snowball sample (N=160) and we observed two differences: age at time of interview and length of time between first regular use and time of interview. In the 1991 sample the average age of our respondents was 27.5 years compared to 30.4 years in 1987.
In contrast to 1987, our entry criterion in 1991 specified a date after which respondents had to have started cocaine use. This means that we could not recruit users who had started much earlier, and who possibly had already stopped using cocaine. This probably explains a lower age of respondents in the 1991 sample. The same reason probably also explains the shorter average length of respondents' cocaine use careers in 1991: 3.2 years from first regular use to the interview, compared to 6 years for the 1987 sample.

3 Initiation into the use of cocaine

Despite our changing the entry criteria for participation in a way that reduced the average total time that respondents were exposed to cocaine, we found that between 1987 and 1991 almost no change has occurred in age, location or dose associated with initiation. In both studies average age of initiation was 22 years and in both 23 percent were 26 or older at initiation.
Main location for initiation remained ones own home or the home of a friend. Friends were the main initiators. Average dose at initiation was 100 mg. (four

lines), which was usually offered to new users without their requesting it. This suggests that the social conditions leading to cocaine initiation and the rituals surrounding its use, have not changed substantially during the last several years.

4 Level of use through time

Chapter 4, the core of this report, describes the main variables of development of use patterns over time. As in the other chapters, the 1987 sample is compared to the 1991 sample. The data show that almost no changes in development of use patterns took place during this time.

Even though most respondents in the 1991 sample had initiated their use of cocaine after 1986 and at the time of the interview were still in the process of developing their cocaine use careers, they closely resemble cocaine users from the 1989 sample (who had initiated use prior to 1980). They relatively quickly increased use towards a "top level" and then began decreasing consumption. We identify this as the "up-top-down" pattern.

For 1991 users top period dosages were higher, on average, than for the 1987 users; however, the frequency of cocaine ingestion during the top period was lower. Together these findings result in a distribution of low, medium and high levels during the highest use-period that is strikingly similar for the two samples. During the highest use period, 21 percent of 1987 sample reached a high level of use (2.5 grams or more per week) compared to 16 percent for the 1991 sample.

Also quite similar are the proportions of users who fell into each of the use levels during the first year of regular use and during the last three months of use prior to the interview. During this latter period we found 28 percent of the 1987 respondents to be abstinent compared to 26 percent in 1991, a differences that is not statistically significant.

On a number of other variables the two samples are also similar. Time intervals between initiation, first year of regular use, and the highest use period are almost identical, despite the careers of respondents in the 1991 sample still being in flux. In both samples for 50 percent of respondents top period of use in both samples lasts about six months , and for 95 percent the top period is finished within 2 years .

Just over 80 percent had periods of abstinence lasting one month or longer. However, respondents in the 1987 sample reported longer "longest periods of abstinence" (an average of 10 months) than did those in the 1991 sample (an average of 7 months).

Most cocaine users in the 1987 sample had initiated use during the late seventies while the average year of initiation for the the 1991 sample was 1987, the year of our original cocaine user survey. In spite of this time gap during which many changes took place in the image of cocaine and the conditions surrounding use,

both the kind of people who were attracted to cocaine and the use patterns they developed remained remarkably similar.
Of course, it is possible that some of our 1987 respondents and 1991 respondents have overlapped their initiation, thereby participating in a particular "school" of learning about how to use the drug. However, this type of cultural education surely can not explain all of the amazing similarities in use-patterns between the "old" and the "new" users.

5 Routes of ingestion, other drug use, price and purity of cocaine

In the 1991 sample snorting still far exceeds other routes of ingestion for cocaine. Experience with injection is still uncommon: 6 percent in 1987 and 5 percent in 1991. Some changes have occurred since 1987. Experience with free base smoking increased from 18 percent to 30 of the sample. Always or mostly freebasing increased from 1 percent to 8. This change is conspicuous and may indicate that free basing cocaine has achieved permanent status. However, the prevalence of last month frequent free basing is unchanged versus 1987 (1 percent).
As in 1987, the 1991 snowball sample has far more illicit drug experience than the 18-42 year age cohort of the Amsterdam household population in 1990. MDMA has become the most popular illicit drug after cocaine and cannabis. In the age cohort 18-42 years of the general Amsterdam population the life time prevalence of MDMA use is 2 percent. In our 1991 snowball sample of cocaine users it was 63 percent.
The purity of cocaine samples increased from an average of 65 percent in 1987 to 74 percent, as measured on the basis of 22 samples in 1991. In a 1991 follow up group of 64 of our 1987 respondents, we found an average cocaine purity of 87 percent in 1991.
Price per gram (in 1987 *f*180) dropped to an average of *f*140 in 1991. The main sources of cocaine are steady dealers and friends in both samples. The main location of purchase is the dealer's house. For 2 percent a 'coffee shop' (place for cannabis distribution) is the main location, compared to none in 1987.

6 Rules applied to the use of cocaine

In order to learn about mechanisms cocaine users apply to control their use, we introduced questions relating to

- physical or social settings of use,
- emotional sets of use,
- financial limits on purchases of cocaine,
- advice to novice users on cocaine use,

- preferred drug policy for cocaine and
- encouraging or discouraging cocaine use with others.

The results are very similar to 1987. Cocaine use is limited to social and recreative situations and excluded as a functional drug for work or achievement. Mental set requisites are that one should feel good already. As in 1987, the presence of non users, family members or strangers militate against cocaine use. Advice to novice users has remained largely unchanged. A small difference is that the advice to not use in combination with other drugs increased from 20 percent of all answers to over 30 percent. A new question for the 1991 sample revealed that only 30 percent of all respondents have ever encouraged others to use cocaine, mainly friends. Discouraging use (37 percent of all respondents) was also directed towards friends.
A perception of increased use is markedly different from the 64 follow up respondents we interviewed in 1987 and again in 1991. With follow up users, 33 percent see cocaine use as rising, versus 58 percent in the 1991 sample of new users. Decreased use is seen by 7 percent of the 1991 new user sample, versus 30 percent by the follow up respondents. These differences may be explained by the different career phases represented in both groups represent.
Preferred cocaine policy is similar in the 1991 sample to the 1987 sample: in both only a small majority opt for a more liberal policy. In 1991 two thirds of all respondents evaluated the present cocaine policy in relation to themselves as neither positive nor negative. Over two thirds of the sample has access to cocaine in less than a few hours of search.

7 Advantages, disadvantages and effects of cocaine

Cocaine's perceived advantages and disadvantages have remained quite stable from 1987 to 1991, and as in 1987, more disadvantages are mentioned than advantages. In both years the three top advantages of cocaine were "makes one more energetic", "makes one high and or relaxed" and "eases communication". The expense of cocaine was the most important disadvantage in 1987, but was fourth in 1991. "Unpleasant physical effects" and "bad for health" kept their places in the disadvantageous top three.
Regarding cocaine effects there was also agreement. Although our instruments for measuring the prevalence of effects apparently permit exact quantitative prevalence data, so many factors bias such measurements that we interpret prevalence comparisons as ordinal rather than as ratios. Doing so demonstrates that effects that were highly prevalent in 1987 remain so in 1991, also true of low prevalence effects.
To know more about the relation between level of use and the probability that a certain cocaine related effect will show, we compared the prevalence of an effect with the level of use in both samples. We wanted to know if the probability

a certain effect would show to be different between the three levels of use we distinguished. Disturbingly, differences appeared in our computations in 1987 and 1991. Many effects that were level of use related in 1987 were no longer so in 1991, and vice versa.

We assume this finding is related to the quality of the instrument we use for measuring effect prevalence. There might also be subtle changes in cocaine's functions, user expectations, combinations of drugs (note the much increased combination of MDMA with cocaine), age, etc. In short, it remains difficult to establish an association between use level and the probability a certain effect of cocaine will occur. Clearly, we have to develop far more skilled measuring methods for drug effects in order to advance on this issue. Such advance lies in controlling for route of ingestion, life style, combinations with other drugs, social and psychological functions of the drug, etc.

Another method to investigate cocaine's effects is the creation of effect scales. In 1987 we found that some effects are often reported together with other effects. They do not come alone, but appear in clusters. Effects can be organized in particular effects scales combining a set of positive and negative effects. In 1987 we did this by constructing 5 Mokken scales. Applying our 1987 scales to the 1991 sample resulted in very similar scores, increasing the reliability of the "effect cluster" notion. Although effects seem to cluster, clusters are not identical for all users. In 1987, we hypothesized that different user types existed and could be recognized by the typical combination of effects they report. This way of constructing user types is, when feasible, different from categorization according to volatile life style characteristics (see e.g. Diaz et al, 1992) or use patterns (see e.g. Waldorf et al, 1991) A future investigation might focus on "effect clusters", and the characteristics of users who display similar effect clusters. We may come to understand such clusters and what factors determine variation in scores on effect scales. In 1987 we found that scores on the effects scales were minimally explained by parameters of use (like level of use, frequency of use, etc.). Are effect clusters and variation in scale scores based on pharmacokinetic characteristics of cocaine, on routes of ingestion, on age, on gender, on expectations, on (cultural, psychological) functions of cocaine or on combinations of these variables? In chapter 7 we offer some hypotheses on differential effect clustering, user types and shifts of a users' type category over time.

Another complication in the study of cocaine's effects was that scores on effects scales were variable over time. In one of our other cocaine studies (a follow up study of 64 users first interviewed in 1987 and later in 1991 (Cohen and Sas, 1993) we re-applied the effects scales for 34 non abstinent follow up respondents. We found large differences in scale scores between the first and second interviews. If time plays such a large role in both single effect prevalence and aggregate effects score, we must be very cautious in using instruments based on structured single effect reporting.

In summary, it remains extremely difficult to investigate the "effects " of cocaine with our present conceptual and measuring tools.

8 Craving cocaine, extra activities to obtain it, cocaine's effects on work and relations

In our two samples, more than three-quarters of all respondents report having had the experience of 'craving' cocaine, and about a third in each sample reports that cocaine has been, at some time, an obsession. Relating these prevalence data to the development of use patterns we conclude that for most users craving does not overpower co-existing regulatory forces.

In 1991, as in 1987 we found in 1991 that selling cocaine is the most common illegal income-generating activity that cocaine users engage in, with 22 percent in 1991 and 23 percent in 1987. About 5 percent of respondents of each sample at sometime in their lives been has engaged in burglary, check forgery, shoplifting, and operating con games.

In both years we found that about half of all respondents did not perceive any influence of cocaine on their work and personal relations. The others report both positive and negative influences, with a higher prevalence of negative influences. In both years 13 percent reported that cocaine was a cause for separation or divorce.

Notes

1 Respondents were found by asking cocaine users to list the initials of a number of other cocaine users known to them. From this list the next respondent was selected randomly (snowballing). The only condition for inclusion of the first cocaine user in a snowball was that he or she not be selected from circles of junkies, full time criminals or full time prostitutes. This is what is meant by "non deviant cocaine users". This criterion had consequences for the selection of so called "zero stages" of snowballs. However, if a first respondent mentioned such persons in the list of initials, snowballing into such circles was accepted as part of the sampling procedure. According to our own pre-established criteria, this sampling procedure resulted in 18 respondents (out of 160) who were 'deviant' in some way. For a number of reasons we kept these respondents in our sample (Cohen, 1989). To our knowledge, we never ran into junkies, full time criminals or full time prostitutes.
Inclusion criterion for all respondents was a minimum experience with cocaine of at least 25 occasions during life time. This is what is meant by "experienced" users.

2 However, if in the course of a snowball deviant users appeared, it was accepted as a natural outcome of our method and as an interesting exercise in finding out how close — or distant — deviant and non deviant circles are in Amsterdam.

3 Obviously, this hypothesis does not apply to almost purely biological processes that play a role in the psychotropic potential of a substance in the brain. Nor does it apply to effects such as increased heart rate or overdoses. However, the probability of serious harmful effects in the physiological sphere is co-determined by complicated user-environment relations that are social rather than physiological.

2 The sample

2.1 Introduction

In our 1991 "new user" study, we examine cocaine users who started regular use in 1986 or later. In this chapter we provide information regarding the selection criteria and sampling strategy used, particularly the identification of so-called "zero stages".
We also compare some characteristics of the current sample with:

1 a sub-sample of cocaine users from the 1990/1991 household survey (residents of Amsterdam of 12 years and older), who reported having had their first cocaine experience during 1986 or later;
2 the 20-40 age cohort of the Amsterdam population;
3 the 1987 snowball sample of experienced cocaine users in Amsterdam.

The purpose of these comparisons is to provide external validation of the current snowball sample, a prerequisite for making generalizations to the larger population of cocaine users. A serious shortcoming of research on the use of cocaine is the lack of external validation of the representativeness of samples, although studies performed by Erickson (1992, 1987) and Cohen (1989) are exceptions.

The snowball sample of 1991

The aim of our study was to find cocaine users who started their first period of regular use during or after 1986. This way, we hoped to avoid overlap between the user cohort interviewed in 1987 and our sample of "new users". The concept of new users is relevant if one draws an imaginary line between the users we investigated in 1987 and the ones we interviewed in 1991. Since the general view of cocaine seems to have changed substantially since the late seventies when many of our 'old users' were initiated, we wanted to determine whether the population of cocaine users and their patterns of use had changed as well.
As in 1987, our goal was to sample non-deviant cocaine users; we used snowball sampling to tap a cohort of Amsterdam cocaine users who were not full-time criminals, full-time prostitutes, heavy users of opiates or part of the so-called junkie subculture.

We wanted cocaine users from the community, and not from specific sub groups like the ones mentioned or from populations like treatment institutions or prisons. We wanted to measure the consequences of cocaine use, and not the consequences of cocaine use contaminated by the consequences of serious social deviance.
By using similar selection criteria similar to that used in 1987 and by applying the same interview schedule, we were able to compare the new users to the old users. *The only important difference in our selection of potential respondents was minimum experience needed to enter our study.*
In the original study, minimum entry criterion was at least 25 occasions of use *during respondents' lifetime* versus an entry criterion in 1991 of at least 10 occasions of use *since 1986*. "First regular use" was defined as repeated use, and not as just one or two experimental trials. Interviewers were instructed that *starting points for snowballs* (zero stages) had to be recruited outside junkie circles. Moreover, zero stages could not be engaged in full-time prostitution or full- time criminal activities[1]. Reasons for excluding these populations are described above and in more detail in Cohen (1989).

Our aim was to find at least one hundred new users. After completion of the interviewing period, January to July 1991, we had interviewed 114 persons. However, of these, 6 respondents appeared to be falsely recruited and their data were excluded from the analysis leaving data from 108 respondents. For eight of these the onset of first regular cocaine use appeared to be prior to 1986 but their data were not deleted because they accounted for a very small part of the total. Of the eight, two respondents had begun regular use in 1984 and six had begun in 1985 (cf Table 2.1a).

Table 2.1a Performance of respondents on entry criteria, onset of cocaine use (not prior to 1986) and frequency of use (not less than ten times)

year of first regular use	n	%
1984	2	2
1985	6	6
1986	23	21
1987	14	13
1988	27	25
1989	16	15
1990	14	13
1991	6	6
total	108	100

frequency of cocaine use	n	%
2 - 10 times	-	-
10 - 25 times	24	22
25 - 100 times	44	41
more than 100 times	40	37
total	108	100

Selecting zero stages

When using snowball sampling, selection of starting points always entails the risk of choosing respondents who will yield a biased picture. To maximize the

diversity of the sample, we maximized the number of physical and social locations used as "hunting grounds" for the respondents who served as starting points.
We employed five different methods to find and diversify starting points:

1 we used media outlets to recruit volunteers from the general public;
2 we sought referrals from cocaine-using respondents in the 1990/1991 household survey;
3 we sought referrals from cocaine users who had participated in the follow-up study we conducted simultaneously;
4 we asked project interviewers to look for starting points in their own environments;
5 we looked for starting points at known locations in town.

Using the media, we made ourselves known to the public by means of:

1 advertisements in all major national newspapers, with requests for participation by cocaine users residing in Amsterdam;
2 advertisements in the student magazines of the two Universities in Amsterdam, as well as other institutions of middle and higher level professional education;
3 local TV advertisement on a commercial cable station, operated by a newspaper in Amsterdam;
4 two guest appearances on local radio stations by the senior investigator, which included a request for cocaine users to volunteer for participation.

Together these media efforts yielded 12 successful starting points.

A second approach was built into the household survey of 1990/1991. We asked those reporting cocaine use if they would be willing to participate in a special research project on cocaine. Of 244 persons who reported life-time use of cocaine, 16 said they were willing to participate. None of these 16 persons conformed to our entry criteria. However, we asked these 16 to bring us into contact with additional potential respondents. This yielded 2 starting points that conformed to the entry criteria.
The third way to find new users was to ask for referrals from respondents being interviewed during the follow-up phase of our earlier community based study. At the same time we were doing our "new user" study in 1991, we were interviewing 1987 respondents for the second time and we asked these respondents for new referrals. This strategy yielded 10 cocaine users who conformed to our entry criteria.
The fourth approach was to ask interviewers to investigate in their own social spheres, inquiring among friends, and people they met in cafes or other informal settings. This yielded another 17 starting points.

A fifth approach, which turned out to be unsuccessful, involved visits by the staff of the project to cafes and discos where cocaine users were believed to frequent. With the assistance of a lady who supervised the toilets we were able to identify a number of potential respondents. However, of the four or five such persons who were asked by a member of the projects staff to participate, none agreed.
From the 41 starting points we were able to expand to a total number of respondents of 114 via snow-ball chains. The sample of 114 ultimately resulted in 108 usable interviews.

For the entire sample, the average time between onset of first regular use and the interview was 3.2 years. As shown in Table 2.1a, our decision to change the entry criterion from 25 to 10 times of minimum experience with cocaine yielded 24 respondents who would not otherwise have been included. Respondents with fewer than ten cocaine-use experiences were excluded. Most of the respondents in the current study (78 percent) have a level of cocaine experience similar to that required for entry into the 1987 study. In addition, the distribution of users into the different experience classes was similar across the two studies.
The 24 respondents who had had between 10 and 25 cocaine-use experiences prior to the interview had been using cocaine for an average of 2.4 years; respondents with more than 25 experiences had used cocaine an average of 3.3 years.

The snow ball chains

Compared to the 1987 study, the chains in our snowball sample are longer. The number of steps between respondents (waves) range from 1 to 16. The average number of waves in the 1991 sample is 3.6 compared to 2.0 in the 1987 sample. Many zero stages were recruited by interviewers (see Table 2.1b).

Table 2.1b Method of recruitment of zero stages

recruitment	n	%
household survey	2	5
interviewer efforts	17	41
follow up respondent	10	24
media efforts	12	29
visits to cafes & discos	-	-
total	41	100
part of chain	67	
total	108	

Twelve respondents contacted us in connection with our media efforts. Ten starting points of snowballs were received from follow-up respondents who were interviewed for the second time since 1987.

Table 2.1c shows the position in a chain of all 108 new cocaine users. An 'only zero stage' refers to a respondent who was not able to bring us into contact with other cocaine users for interviewing.

Table 2.1c Position in chain of respondents (N=108)

place in chain	n	%
only zero stage	25	23
zero stage	16	15
mid stage	28	26
last stage	39	36
total	108	100

The ability of a respondent to introduce the interviewer to other cocaine users may be interpreted from the position the respondents is holding in the chain. One might expect that 'only zero stages' and 'last stages' differ from the other stages because somehow the snowball stopped at these respondents. Maybe these respondents were less integrated in the cocaine scene than the others. Less integrated respondents might show lower or higher levels of cocaine use. Another possibility is that they are no longer using cocaine, whence they lost their contacts among users.
Table 2.1d shows that 'only zero stages' and 'last stages' tend to be current non users more frequently. There is, however, no significant difference between 'only zero stages' and 'zero stages' and between 'mid stages' and 'last stages'. 'Zero stages' and 'last stages' show the greatest difference but still this difference is not significant.

Table 2.1d Level of cocaine use in the past three months related to different positions in chains of snowballs

	place in chain							
	only zero stage		*zero stage*		*mid stage*		*last stage*	
level of use	n	%	n	%	n	%	n	%
none	8	33	2	13	6	21	12	31
low	12	50	11	69	20	71	22	56
medium	3	13	1	6	2	7	4	10
high	1	4	2	13	-	-	1	3
total	24	100	16	100	28	100	39	100

Mann-Whitney U only zero stage - zero stage: U=153.5; Z=–1.1933; n.s.
Mann-Whitney U only zero stage - mid stage: U=325; Z=–0.2336; n.s.
Mann-Whitney U only zero stage - last stage: U=465.5; Z=–0.0393; n.s.
Mann-Whitney U mid stage - last stage: U=524; Z=–0.3265; n.s.
Mann-Whitney U zero stage - last stage: U=246; Z=–1.3967; n.s.

We analyzed all chains of respondents on gender, age and level of cocaine use. Some of the results are shown in Table 2.1e.
There are some differences between interviewers. Respondents of some interviewers tend to be older or tend to be heavier cocaine users than others. Interviewer H differs most from the others, both on age and the level of cocaine use of the respondents during the last three months prior to the interview.

With the exception of interviewer H, all other interviewers show no dramatic difference from the average of the total sample. We feel it is safe to conclude that there is no reason to suspect systematic interviewer bias as far as respondent selection is concerned. In many instances during our data analysis we checked whether anomalies in our data could be attributed to a particular interviewer. Our research never led to the conclusion that interviewer bias in sampling was an important factor in the explanation.

Average age, sex ratio and level of use during the last three month prior to interview, per interviewer

interviewer #	average age	sex interviewer	sex ratio m/f of respondents	level of use last 3 months (mg/week) *mean*	*median*	number of respondents
A	24.8	m	40/60	59	10	10
B	33.0	m	100/0	37	37	2
C	30.0	f	75/25	35	7	4
D	25.0	m	0/100	0	0	1
E	27.7	f	61/39	252	18	18
F	27.0	m	43/57	92	25	30
G	25.0	m	43/57	892	750	7
H	36.3	f	67/43	5,418	2,063	6
I	28.4	f	67/33	86	13	12
J	29.0	m	100/0	550	550	2
K	29.0	m	100/0	0	0	1
L	25.3	f	40/60	126	25	15
total	27.5		53/47	467	25	108

2.2 Comparison of snowball sample with cocaine users from the household survey

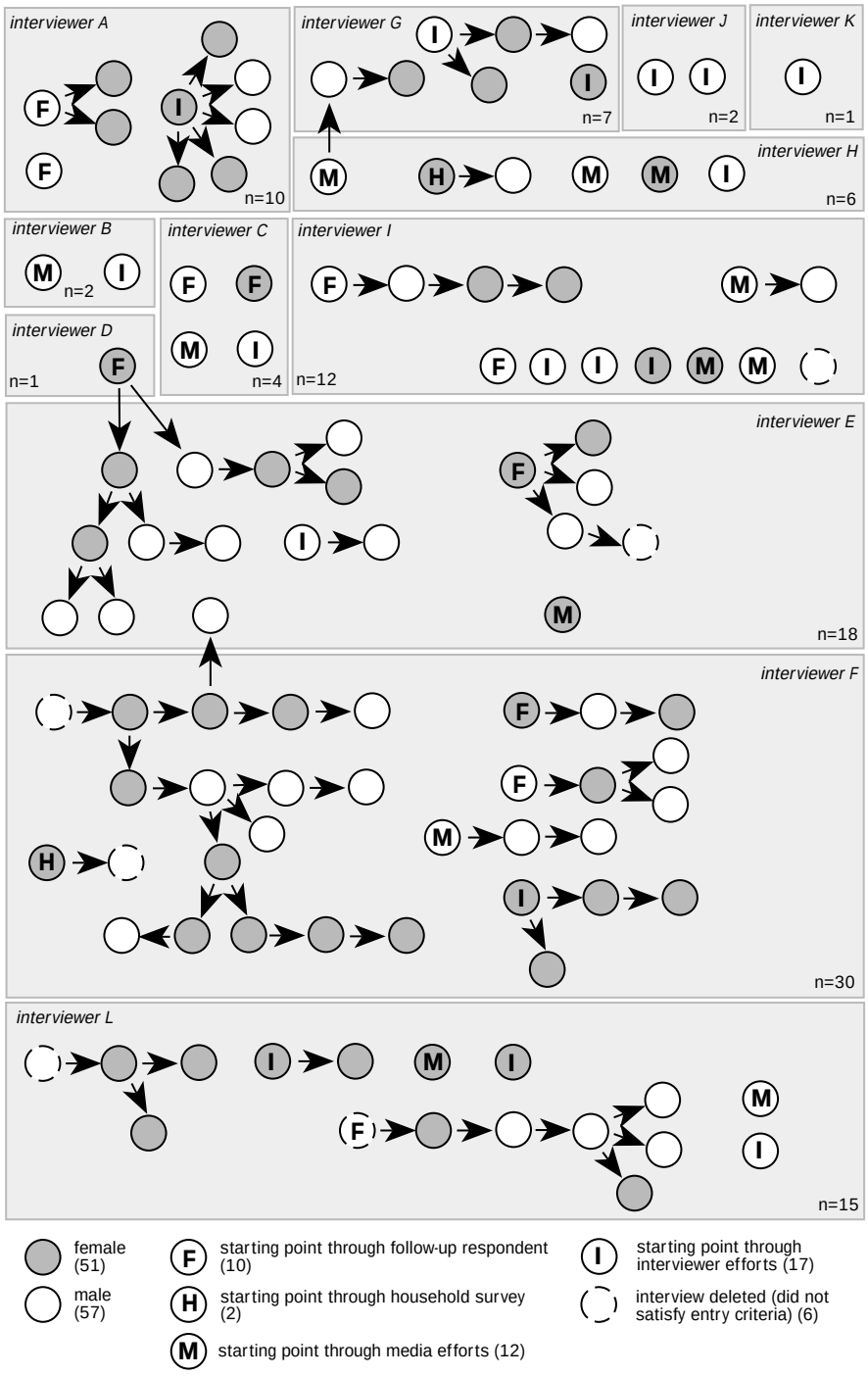
A sub sample of cocaine users from the 1990/1991 household survey

We are in the fortunate position of being able to compare our snowball sample of 108 community based cocaine users with an independently created *probability sample* of cocaine users.

In 1990/1991 we performed a household survey to measure prevalence of drug use in the population of Amsterdam, age 12 and over. The random sampling procedure is described in Sandwijk, Cohen and Musterd (1991)[2]. In the household sample of 4,442 persons, we found 244 respondents (5.5 percent) who reported some experience with cocaine during their life time. From this group we selected all those who reported to have first used cocaine during or after 1985 (61 individuals), in order to compare them on a variety of variables with the respondents of our snowball sample.[3]

We do not know if these 61 cocaine users would satisfy the entry criterion for the snowball sample of *at least ten* occasions of use since 1986[4]. However, we do know that only 7 percent of the household sample (4 of 61) had used cocaine

Figure 2.1a Overview of snowballs per interviewer (N=108)



more than 25 times, compared to 78 percent of the snowball sample having this experience. While this indicates that cocaine users from the household survey have less experience than those in the snowball sample, it is the nearest we could get to a comparable reference group. The more these two samples of cocaine users differ on important variables, the less appropriate will be generalizations made from our snowball sample. If we find few differences between the household and snowball samples, we will be less reluctant to generalize from the snowball sample to the larger population of cocaine users in Amsterdam, but we still remain cautious in doing so.

Age

Age distribution is similar for the snowball sample and the population sample (see Table 2.2a). There are more respondents over 40 years of age in the population sample, but the difference is not statistically significant. The median age for both groups is between 26 and 30 years and in both groups more than two thirds of cocaine users are found in the 20-30 age category (74 percent of the snowball sample versus 69 percent of the population sample).

Table 2.2a Age distribution of cocaine users in snowball sample and cocaine users in population survey

	snowball sample		**population survey**	
age	n	%	n	%
< 20	3	3	1	2
20 - 25	41	38	22	36
26 - 30	39	36	20	33
31 - 35	16	15	9	15
36 - 40	5	5	2	3
> 40	4	4	7	11
total	108	100	61	100

Student's t=–1.48, df=83.26, n.s. (separate variance estimate, computed on unclassed data)

Figure 2.2a shows clearly how similar our snowball sample is in relation to cocaine users in the population and the extent to which both samples over-represent the age cohort 22-28 and under-represent the age cohort 34-40.
Because cocaine users from both the snowball sample and the household survey are not representative of their age cohort, comparisons of each group to the general population should control for age.[5]

Gender

As shown in Table 2.2b, both the snowball and population samples contain a similar gender distribution. Of respondents in the snowball sample 53 percent are male, compared to 57 percent for the population sample.

Figure 2.2b Age distribution in 1991 snowball sample of cocaine users, population sample of cocaine users, and age cohort 20-40 in population of Amsterdam

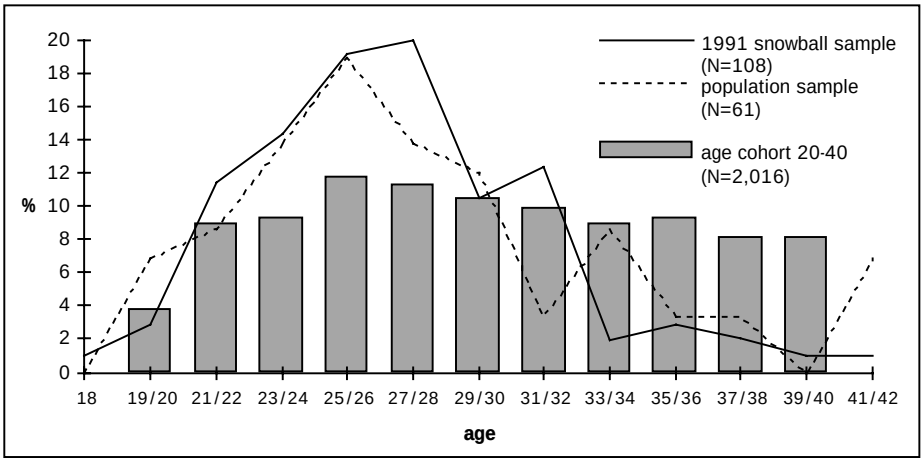


Table 2.2b Sex distribution of snowball sample, cocaine users in 1990 population survey and age-cohort 20-40 years in 1990 population survey

	snowball sample		**population survey**		**population**	
sex	n	%	n	%	n	%
male	57	53	35	57	1.004	50
female	51	47	26	43	1.010	50
total	108	100	61	100	2.014	100

χ^2 snowball sample–population survey: 0.17 (Yates corr., df=1, n.s.)
χ^2 snowball sample–population age cohort: 0.24 (Yates corr., df=1, n.s.)

Nationality

Respondents were asked about their nationality in the household survey, but not in the cocaine-user study. However, respondents in the cocaine-user study were questioned regarding their native country and the native country of each parent. Respondents identifying at least one parent as native to a country other than the Netherlands were classified as that nationality.
As shown in Table 2.2c, there are some differences between the snowball sample and the population sample, but they are not significant[6]. There are no Surinamese or Antillians in the population sample while there are a few in the snowball sample. Also, the snowball sample does not have any Turkish respondents although a few Turkish cocaine users are found in the population sample.
As we already learned from our household surveys in 1987 and 1990/1991, it is difficult to find drug users among ethnic minorities in Amsterdam. Although in

the age cohort 20-40, 21 percent of Amsterdam residents are non Dutch, among identified drug users, non-Dutch are rare. Therefore the statistically significant difference between cocaine users in the population sample and the 20-40 age cohort on this variable is within expectations.

Table 2.2c Nationality of respondents in snowball sample, cocaine users in 1990 population survey and age-cohort 20-40 years in 1990 population survey

	snowball sample		population survey		population	
nationality	n	%	n	%	n	%
Netherlands	93	86	57	93	1.584	79
Surinam / Neth. Ant.	3	3	-	-	171	8
Morocco	-	-	-	-	62	3
Turkey	-	-	1	2	74	4
Europe	4	4	2	3	63	3
North America	1	1	-	-	13	1
other	7	6	1	2	44	2
no answer	-	-	-	-	5	0
total	108	100	61	100	2.016	100

The inclusion of some cocaine users of Surinamese or Antillian ancestry in our snowball sample, but not in the household survey sample may be due to sampling error. Indeed, we tried quite hard to find some Surinamese or Antillian respondents for our snowball sample and even hired a Surinamese student to locate them for us. Of those located, most were reluctant to participate, although few ultimately did. It is likely that reluctance to participate in drug studies causes an under-reporting of drug use by this group in household studies. For other ethnic groups in Amsterdam there may be similar under-reporting.

Income

As shown in Table 2.2d, income distribution is similar in the snowball and population samples. The differences that do exist are small, are mainly found in the income categories ƒ2,500 - ƒ3,000 and over ƒ5,000 per month, and are not statistically significant. The large majority of cocaine users in both the snowball sample (80.6 percent) and the population sample (85.2 percent) earn less than ƒ2,500 per month.

A surprising finding, given the over-representation in the snowball sample and the populations sample of cocaine users in the younger age categories, which typically have lower incomes, is the similarity in income levels between cocaine users and the population of 20-40 year olds generally. In fact, even when controlling for age, our snowball sample does not show a tendency towards lower incomes. However, when controlling for *both age and gender*, cocaine users in our snowball sample differ in the expected direction from the general 20-40 age cohort. This is caused by the relative over-representation of women with

incomes less than *f*1,500 per month in the snowball sample – a phenomenon that becomes visible only after controlling for both age and gender.
Because of differences in the questions regarding education in the household survey and in the cocaine-user study, we are unable to control for education, a potentially important variable. However, it is our hypothesis that the absence of income differences between the unweighed sample and the age cohort are caused by differences in education. As will be shown later in this chapter, our sample of cocaine users is more highly educated than the age cohort 20-40 generally.

Table 2.2d Income of respondents in the snowball sample, cocaine users in the 1990 population survey and the age-cohort 20-40 years in the 1990 population survey

	snowball sample		**population survey**		**population**	
income	n	%	n	%	n	%
< *f*1,500.-	53	49	33	54	834	41
*f*1,500.- to *f*2,000.-	21	19	10	16	372	18
*f*2,000.- to *f*2,500.-	13	12	9	15	344	17
*f*2,500.- to *f*3,000.-	10	9	4	7	169	8
*f*3,000.- to *f*4,000.-	7	6	2	3	99	5
*f*4,000.- to *f*5,000.-	3	3	1	2	36	2
> *f*5,000.-	1	1	1	2	13	1
unknown	-	-	1	2	149	7
total	108	100	61	100	2.016	100

Student's t snowball sample–population survey: *t*=0.69, df=166, n.s.
Student's t snowball sample–population age cohort: *t*=–0.10, df=1973, n.s.

Children living at home

Table 2.2e compares the home situations of cocaine users in the snowball and population samples. As we found in the 1987 and 1990 household studies, presence of children in the home is an important differentiator between "drug users" and non drug users in Amsterdam (Sandwijk et al (1988), Sandwijk et al (1991)).

Table 2.2e Children living at home in the snowball sample, cocaine users in the 1990 population survey and the age-cohort 20-40 years in the 1990 population survey

	snowball sample		**population survey**		**population**	
	n	%	n	%	n	%
no children at home	103	95	55	90	1.400	69
children at home	5	5	6	10	616	31
total	108	100	61	100	2.016	100

$\chi 2$ snowball sample–population survey: 0.98 (Yates corr., df=1, n.s.)
$\chi 2$ snowball sample–population age cohort: 32.05 (Yates corr., df=1, significant p<0.001)

However, cocaine users in our snowball and population samples show a high degree of similarity on this variable. Only 5 percent of respondents in the

snowball sample and 10 percent of the respondents in the population sample live at home with children, compared to 31 percent of 20-40 year olds in the general population. Even when controlling age, these large differences remain. Thus, we conclude that cocaine use in Amsterdam in 1991 occurs mainly among persons who choose not to care for children, at least at the present time.

Partner situation

Table 2.2f shows that 23 percent of respondents in both the snowball and the population samples report having a steady male or female life-partner. In this regard cocaine users are quite different from the 20-40 age cohort in which 49 percent report having a steady partner.

Table 2.2f Relation with partner among respondents in snowball sample, cocaine users in 1990 population survey and age-cohort 20-40 years in 1990 population survey

	snowball sample		**population survey**		**population**	
	n	%	n	%	n	%
no partner	83	77	46	75	1.026	51
partner	25	23	14	23	986	49
no answer	-	-	1	2	4	0
total	108	100	61	100	2.016	100

$\chi 2$ sample–population cocaine users: 0.03 (Yates corr., df=1, n.s.)

$\chi 2$ sample–population age cohort: 26.43 (Yates corr., df=1, significant p<0.001)

Education

As noted above, differences in the two studies in the questions used to measure educational level, made it difficult to make comparisons between cocaine users in the snowball and population samples. In the snowball sample, respondents were asked to report their highest level of educational attainment, and not whether or not their education was finished. In the household survey respondents were asked for highest level of finished education, and for unfinished or ongoing day time education. These small differences in question wording account for a substantial under-representation in the snowball sample of persons currently enrolled in an educational program.

Restricting our comparison to "finished education", the only data for which cell sizes are satisfactory, we find no statistically significant differences between the snowball sample and the population sample (see Table 2.2g). However, cocaine users have a significantly higher level of finished education than the 20-40 age cohort generally. This may be a particular characteristic of present-day cocaine users in Amsterdam, or may reflect the over-representation of younger adults among active cocaine users.

Table 2.2g Educational level of respondents in snowball sample, cocaine users in 1990 population survey and age-cohort 20-40 years in 1990 population survey

	snowball sample*		population survey		population	
educational level	n	%	n	%	n	%
elementary school	2	5	2	3	169	8
low level vocational school	1	2	2	3	265	13
low level high school	3	7	8	13	253	13
medium level vocational school	8	19	3	5	169	8
medium & high level high school	9	21	23	38	477	24
high level vocational school & university	19	45	22	36	605	30
other	-	-	1	2	59	3
no answer	-	-	-	-	19	1
total	42	100	61	100	2.016	100

Mann-Whitney U sample–population cocaine users: U=1255.5, Z=-0.1799, n.s.
Mann-Whitney U sample–population age cohort: U=34625, Z=–1.9843, p<0.05

* Due to differences in questioning the data on only 42 respondents of the snowball sample can be compared to the household survey.

Contacts with drug treatment institutions

In our snowball sample, 11 different persons (10 percent) had contact with drug treatment agencies in the four *years prior to the interview*. Of these, seven respondents (6 percent) reported that their contacts were cocaine related; two respondents mentioned heroin and/or other opiates as reasons for such contacts, eight mentioned alcohol, and one mentioned pharmaceutical drugs (hypnotics or sedatives). By comparison, among cocaine users in the population sample, only three people (5 percent) had ever had experience with drug treatment institutions.[7]

In our 1987 cocaine-user study we asked whether respondents had had contact with drug treatment institutions during the *two years prior to interview*. Seven of the 160 respondents (4 percent) answered affirmatively, but we do not know whether any of these were related specifically to use of cocaine.

The finding that 10 percent of our 1991 snowball sample had contact with drug treatment institutions is interesting. Ordinarily, one would expect a sample of relatively young persons to have had few contacts with drug treatment agencies. Of course, as we have shown in the paragraphs above and will discuss again in Chapter 8, this particular sample of young people has a life-style that is not representative of its age cohort.

2.3 Comparison of the 1987 and 1991 snowball samples on some demographic and socio-economic variables

We compared the 1987 and 1991 snowball samples on employment status, profession, income, marital status, sex, age and educational level. As a consequence of our sampling strategy, the 1991 snowball is significantly younger (see Table 2.3e), which probably explains why fewer of the 1991 respondents are

fully or partly employed (see Table 2.3a) and why their educational level (Tables 2.3f and 2.3g) is slightly higher. Gender (Table 2.3d), marital status (2.3d), and income (2.3b) are similar in the two samples indicating that community-sampled cocaine users who started their careers after 1986 are quite similar (at least in terms of some important demographical and socio-economic variables) to those who started prior to 1986.
In addition, when we compared both the 1987 and 1991 snowball samples of cocaine users to those identified by the household surveys conducted the same years we found no important differences. *Thus we concluded that in both years we realized snowball samples that were representative of community-based cocaine users in Amsterdam.*

Table 2.3a Employment status in the 1987 and the 1991 snowball samples

	1987		1991	
employment	n	%	n	%
employed	107	67	57	53
not employed/other	52	33	51	47
no answer	1	1	-	-
total	160	100	108	100

χ^2=5.11; df=1; p<0.05 (Yates' correction)

Table 2.3b Income distribution in 1987 and 1991 snowball samples

	1987		1991	
net income per month	n	%	n	%
less than ƒ1,000	22	14	15	14
ƒ1,000-1,500	54	34	38	35
ƒ1,500-2,000	33	21	21	19
ƒ2,000-2,500	17	11	13	12
ƒ2,500-3,000	17	11	10	9
ƒ3,000-4,000	10	6	7	6
ƒ4,000-5,000	2	1	3	3
ƒ5,000-6,000	1	1	1	1
more than ƒ6,000	4	3	-	-
total	160	100	108	100
mean	ƒ1.902		ƒ1.813	

Student's t=0.68, df=258.61, n.s. (separate variance estimate)

Table 2.3c Marital status of 1987 and 1991 snowball samples

	1987		1991	
marital status	n	%	n	%
married	15	9	3	3
divorced, widowed	11	7	9	8
unmarried	134	84	96	89
total	160	100	108	100

χ^2=4.56 (df=2, n.s.)

Table 2.3d Sex of 1987 and 1991 snowball samples

	1987		1991	
sex	n	%	n	%
male	96	60	57	53
female	64	40	51	47
total	160	100	108	100

χ^2=1.09 (Yates corr., df=1, n.s.)

Table 2.3e Age distribution in 1987 and 1991 snowball samples

	1987		1991	
age	n	%	n	%
younger than 20	-	-	3	3
20 - 25	30	19	41	38
26 - 30	58	36	39	36
31 - 35	42	26	16	15
36 - 40	22	14	5	5
older than 40	8	5	4	4
total	160	100	108	100
mean	30.4		27.5	

Student's t=4.23; df: 266; p<0.001 (computed on unclassed data)

Table 2.3f Educational level of 1987 and 1991 snowball samples

	1987		1991	
educational level	n	%	n	%
elem. and low level vocational school	8	5	5	5
low level high school	23	14	6	6
medium & high level high school	30	19	19	18
medium level vocational school	9	6	11	10
high level vocational school	43	27	32	30
university	47	29	35	32
total	160	100	108	100

Mann-Whitney U=5413.0, Z=–5.2923, p<0.001

Table 2.3g Educational characteristics of 1987 and 1991 snowball samples

	finished				**student**				**unfinished**			
	1987		1991		1987		1991		1987		1991	
educational level	n	%	n	%	n	%	n	%	n	%	n	%
elem. & low level voc. school	5	6	3	7	-	-	-	-	3	7	2	6
low level high school	15	17	3	7	-	-	-	-	8	19	3	9
med. & high level high school	22	25	9	21	1	3	1	3	7	16	9	27
medium level voc. school	7	8	8	19	1	3	-	-	1	2	3	9
high level vocational school	26	30	13	31	7	24	11	33	10	23	8	24
university	13	15	6	14	20	69	21	64	14	33	8	24
total	88	100	42	100	29	100	33	100	43	100	33	100
Mann-Whitney U	U=1439.5, Z=–2.0687 p<0.05				U=133.5, Z=–5.3290 p<0.001				U=554.5, Z=–1.6567 n.s.			

Notes

1 However, if in the course of a snowball deviant users would appear, this was accepted as a natural outflow of our method and as an interesting exercise in finding out how close deviant and non deviant circles are in Amsterdam.

2 Sandwijk, P., Cohen, P. and Musterd, S. (1991), *Licit and illicit drug use in Amsterdam*. Amsterdam, University of Amsterdam.

3 This group is not *exactly* similar to the respondents in the snowball sample, because we might have excluded some respondents who very rarely used before 1985. In the snowball sample we had 2 of such respondents.

4 In the household survey one question was asked about frequency of drug use: "*Did you use more often then 25 times*."

5 Variables like education, income, children living at home, etc., may covary with age.

6 c^2 test of Dutch vs. non-Dutch nationality.

7 The question in the household survey to report *life time experience* with drug treatment institutions is different from the question in the snowball survey, where we asked for experience with drug treatment institutions in the *four years prior to interview*. Therefore, these data are not fully comparable.

3 Initiation into cocaine use

In our 1991 sample, age of initiation into cocaine use (22.4 years) is similar to that found in 1987 (22.0 years). In both years quite a large proportion of users (about 40 percent) were initiated before their 20th birthday (see Table 3.1a). Still, a majority of each sample had their first cocaine experience well after they had finished secondary school.

Table 3.1a Age at initiation of cocaine use in 1987 and 1991 samples

	1987		1991	
age	n	%	n	%
< 16	7	4	8	7
16 - 20	64	40	35	32
21 - 25	53	33	40	37
26 - 30	28	18	16	15
> 30	8	5	9	8
total	160	100	108	100
mean	22,1		22,4	

Student's t=–0.45, df=266, n.s.
(computed over unclassed data)

Average age at time of the interview was 27.4 years for the 1991 sample. Over all this group showed a time interval between initiation and interview of 5 years. In contrast, for the 1987 sample time from first use to interview was 8.4 years. This difference is due largely to the difference in entry criteria for the two studies. What is important is that average *initiation age* remained unchanged in Amsterdam during this period. Also basically unchanged were the types of persons attracted to cocaine, the conditions under which it was introduced to new users, and the places in which it was regularly used. As was true in 1987, cocaine is used by a small proportion of the outgoing young adults in Amsterdam.

Looking at initiation, we see that early experimentation with cocaine generally occurs in the company of a friend or group of friends. In the 1991 sample, 84 percent were initiated this way, compared to 87 percent in 1987. Work colleagues and others accounted for another 11 percent of initiations in 1991, compared to 12 percent in 1987.

However, one notable difference is that 5 respondents in the 1991 sample (5 percent) reported having been alone at first use while this was true of just one person (0.6 percent) in 1987. Although this represents nearly a tenfold increase, the numbers are too low to know if this indicates a systematic change.

Table 3.1b Location of first cocaine use in 1987 and 1991 samples

	1987		1991	
location	n	%	n	%
friend's home	71	44	42	39
at home	36	23	25	23
party	17	11	8	7
bar / cafe	10	6	6	6
disco	8	5	9	8
school	4	3	-	-
at work	3	2	4	4
nightclub	2	1	-	-
coffeeshop	-	-	1	1
other	9	6	13	12
total	160	100	108	100

$\chi 2$ n.a.

As shown in Table 3.1b, the main location of initiation in 1991 (for 62 percent) was one's own home or the home of a friend, as was the case for 69 percent in 1987. However, among the 108 users in our 1991 sample there were 3 respondents who reported "restaurant" as a place for initiation, 3 who reported "car" and 3 who reported "outside on the street", all locations that did not appear in the results from 1987.
A majority of respondents (56 percent) were initiated in Amsterdam. In both samples, snorting was the first route of ingestion for most (94 percent) of the respondents, although in 1991 two respondents reported having been initiated by smoking free base cocaine.

Table 3.1c Dosage at first cocaine use in 1987 and 1991 samples

	1987		1991	
dosage	n	%	n	%
1 - 99 mg	104	65	77	71
100 - 249 mg	39	24	20	19
250 - 499 mg	7	4	7	6
more than 500 mg	6	4	3	3
no answer	4	3	1	1
total	160	100	108	100
mean	104 mg		94 mg	

Student's t=–0.54, df=215.51, n.s.
(computed over unclassed data, separate variance estimate, F=6.58, p<0.001)

Most (81 percent) were offered their first cocaine without requesting it compared to 86 percent in 1987. In both years only 8 percent asked for it directly.

As shown in Table 3.1c, initiation dosage has not changed and in both samples was typically four lines (or roughly 100 mg.).

4 Level of use through time

Introduction

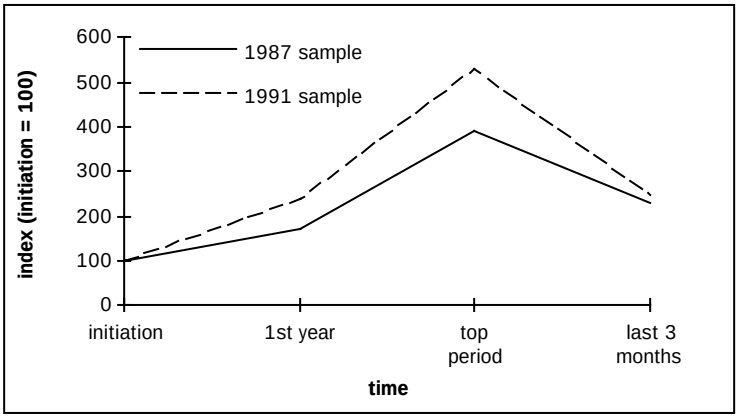
To understand cocaine use and its consequences, it is important to examine levels of use during different phases of users' careers. In this study we computed levels of use by multiplying users' "typical" dose (during a particular phase) by the number of doses typically consumed per week. By doing this we were able to identify patterns of stability and change in levels of use over time.
Before presenting the "level of use" data, we will describe typical doses (§4.1), minimum and maximum doses and their frequencies (§4.2), and the frequency with which "typical" doses are ingested (§4.3). We will use these units to compute the development of "levels of use" (§4.4). Then, in §4.5 we will describe time intervals associated with different periods or stages of use.
Because one of the goals of the 1991 study was to determine if certain phenomena found in 1987 could be confirmed, data from both the 1987 and 1991 samples will be presented.

4.1 "Typical" dosage at "typical" occasions in different phases

In our 1987 study of 160 experienced cocaine users we found that, on average, cocaine users tended to escalate their use until reaching a period of maximum use and then decrease their consumption. Although slightly more than half of the respondents sometimes used more than 0.5 grams a week during their highest use period, the remainder typically consumed less than that amount.[1]
The most common pattern was for use to increase over time and after reaching a certain limit, begin to decrease. This decrease was measured in various ways, the simplest being to calculate average dose per typical occasion of use during different periods of a users' career.
In 1991 as in 1987 we asked respondents how many lines (one line = 25 mg.) or (milli)grams respondents used at initiation and at typical occasions during their first year of regular use, their highest use period, and the three months prior to interview. In the two samples, dose development was similar. By standardizing the dose at initiation at 100, we were able to compare the 1987 and 1991 samples

at each of these periods (see Figure 4.1a). Average dosage levels were consistently higher in 1991: 240 mg. during the first year of regular use (compared to 170 mg. in 1987); 530 mg. during the top period (compared to 390 mg. in 1987) and 250 mg. during the three months prior to the interview (compared to 230 mg. in 1987 (see Table 4.1a). However, in both samples we see a similar "up-top-down" pattern which we will discuss in more detail in § 4.5.

Figure 4.1a Development of average cocaine dosage through time in the 1987 and 1991 samples, with average dosage at initiation standardized at 100



Although less experienced, our 1991 sample used on average 84 mg. more milligrams of cocaine per occasion during the top period than did our 1987 sample. Average dose during last three months was also higher in 1991 than in 1987, as was reported maximum dosage during the last four weeks prior to interview (see §4.2). Although none of these differences are statistically significant, the fact that they are all in the same direction suggests the possibility of systematic change in cocaine use-patterns between 1987 and 1991. On the other hand, we found in our follow-up study of the 1987 sample that the longer the period between respondents' initiation into cocaine and participation in the study, the lower the initiation dose reported.[2] Thus, it may be that the higher doses reported by younger and less experienced 1991 users, are an artifact of our measuring methods.
In §4.4 we will turn to the question if these somewhat higher dose levels result in higher use levels (use level is defined as frequency of use multiplied by dose).

4.2 Minimum and maximum dosage during last four weeks prior to interview

All respondents were asked to report minimum and maximum doses during the last four weeks prior to the interview, including the number of mg. (or lines) of cocaine as well as frequency of these doses.

Table 4.1a Dosage at a typical occasion in four periods of time for the 1987 and 1991 samples

	first cocaine use				**first year of regular use**				**period of heaviest use**			
	1987		1991		1987		1991		1987		1991	
dosage	n	%	n	%	n	%	n	%	n	%	n	%
none	-	-	-	-	-	-	-	-	-	-	-	-
1 - 99 mg	104	65	77	71	68	43	34	31	20	13	16	15
100 - 249 mg	39	24	20	19	49	31	41	38	63	39	28	26
250 - 499 mg	7	4	7	6	25	16	17	16	33	21	36	33
more than 500 mg	6	4	3	3	18	11	16	15	43	27	27	25
no answer	4	3	1	1	-	-	-	-	1	1	1	1
total	160	100	108	100	160	100	108	100	160	100	108	100
mean	104 mg		94 mg		185 mg		222 mg		410 mg		494 mg	
Student's t	t=0.52, df=261, n.s.				t=-1.13, df=266, n.s.				t=-0.88, df=163.22, n.s. (separate variance estimate, F=2.48, p<0.001)			

	last three months prior to interview							
	zere dosage included				**zero dosage excluded**			
	1987		1991		1987		1991	
dosage	n	%	n	%	n	%	n	%
none	31	19	28	26				
1 - 99 mg	42	26	24	22	42	33	24	30
100 - 249 mg	44	28	29	27	44	34	29	36
250 - 499 mg	21	13	16	15	21	16	16	20
more than 500 mg	10	6	11	10	10	8	11	14
no answer	12	8	-	-	12	9	-	-
total	160	100	108	100	129	100	80	100
mean	148 mg		173 mg		188 mg		234 mg	
Student's t	t=-0.65, df=197.87, n.s. (separate variance estimate, F=1.58, p=0.010)				t=-0.95, df=140.93, n.s. (separate variance estimate, F=1.67, p<0.05)			

With regard to very recent use respondents in the 1987 and 1991 samples report using maximum and minimum dosages with similar *frequency* . Of those who had been using cocaine during the four weeks prior to interview a large majority used the maximum dose four or fewer times during this period, on average about once a week (see Table 4.2a).

Table 4.2a Frequency of maximum dosage during the four weeks prior to the interview in the 1987 and 1991 samples

	1987		**1991**	
frequency	n	%	n	%
1 time	51	57	24	40
2 times	12	13	13	22
3 times	9	10	6	10
4 times	6	7	5	8
more than 4 times	12	13	12	20
sub-total	90	100	60	100
no cocaine use last 4 weeks	49		28	
no answer	21		20	
total	160		108	
Student's t	t=-1.37, df=69.32, n.s. (separate variance estimate, F=6.28, p<0.001)			

In both surveys over 30 percent had not used any cocaine during the four weeks prior to the interview. However, in 1987 the average maximum dose in last four

weeks prior to interview was 247 mg., compared to 376 mg. in 1991. This higher maximum dosage may be due to the shorter duration of cocaine use careers in the 1991 sample. Indeed, a high proportion of the 1991 users might have been interviewed during the "climbing phase" of their use-careers while the older, more experienced cocaine users in the 1987 sample were in stable use conditions or in the downward slope of use. For both samples minimum dosages were quite similar: 100 mg. in 1987, compared to 124 mg. in 1991.

Looking at the total amount of cocaine consumed during the four weeks prior to the interview, there is a clear difference between 1987 and 1991. In both years we asked respondents to identify the amount of money (in Dutch florins) they had spent on cocaine *during the last four weeks prior to interview*. Because average price of cocaine is known for both years, this question made it possible to compute average amounts of cocaine used .

In 1987, after excluding non-users, respondents reported buying an average of 1.4 gram. In 1991 the average used was exactly double that of 1987: 2.8 gram. This is another indication that the 1991 sample included more individuals in the upwards trajectory in an up-top (down) pattern. This is not surprising, since over one third of the 1991 sample had been using cocaine for only two years or less.

Table 4.2b Minimum and maximum dosage during the four weeks prior to the interview in the 1987 and 1991 samples

	maximum dosage				**minimum dosage**			
	1987		1991		1987		1991	
dosage	n	%	n	%	n	%	n	%
1 - 99 mg	28	31	15	25	53	69	40	70
100 - 249 mg	25	27	15	25	10	13	8	14
250 - 499 mg	26	29	16	27	12	16	4	7
more than 500 mg	12	13	14	23	2	3	5	9
sub-total	91	100	60	100	77	100	57	100
no answer/abstinent	69		48		83		51	
total	160		108		160		108	
mean	247 mg		376 mg		100 mg		124 mg	
Student's t	t=-1.43, df=80.03, n.s., separate variance estimate, F=3.74, p<0.001 computed over unclassed data, 0-dose excluded)				t=-0.78, df=92.86, n.s., separate variance estimate, F=2.16, p<0.005 computed over unclassed data, 0-dose excluded)			

The proportion of respondents using a maximum dose of more than 250 mg. during the four weeks prior to interview is somewhat larger in 1991 (50 percent) than in 1987 (42 percent). As we already mentioned, respondents in the 1991 sample use a maximum dose with higher frequency during the last four weeks prior to interview than the 1987 respondents. These two differences combined account for most of the overall larger amount of cocaine consumed during the last four weeks prior to interview in 1991.

4.3 Frequency of ingestion during a "typical" month of use

The spacing of use-occasions during the week and month is another important characteristic of a use pattern. In 1987, we found considerable variation in the spacing of use during first year, the highest use period, and the last 3 months (see Table 4.3a).

Table 4.3a Frequency of cocaine use at three periods in time for the 1987 and 1991 samples

	first year of regular use				period of heaviest use				last 3 months			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
daily	2	1	2	2	54	34	22	20	2	1	6	6
more than once a week	27	17	15	14	52	33	34	31	20	13	10	9
once a week	14	9	12	11	18	11	19	18	8	5	9	8
at least once a month	52	33	23	21	23	14	29	27	29	18	24	22
less than once a month	65	41	54	50	13	8	4	4	60	38	31	29
none	-	-	-	-	-	-	-	-	41	26	28	26
no answer	-	-	2	2	-	-	-	-	-	-	-	-
total	160	100	108	100	160	100	108	100	160	100	108	100
Mann-Whitney U	U=7,821.5, Z=-1.1406, n.s.				U=7,237.5, Z=-2.3317, p<0.05				U=6,279.5, Z=-2.4007, p<0.05			

As shown, frequency of use is similar in the two samples for first year of regular use. However, during both the last three months and the highest use periods respondents in 1991 used cocaine less frequently than did those in 1987. As we discuss below in §4.4 the somewhat higher typical doses used by respondents in the 1991 sample, coupled with somewhat lower frequencies of use result in net quantities of cocaine comparable to those used by respondents in the 1987 sample.

4.4 Level of use

In 1987, we computed the level of use for each respondent, per period of use, and categorized them to the following definitions:

- low level: less than 0.5 grams per week
- medium level: between 0.5 and 2.5 grams per week
- high level: over 2.5 grams per week.

Use levels were computed by multiplying each respondents' typical frequency of use by his or her typical dose in milligrams. Of course, both typical dosage and typical frequency were subjective measures based on respondents' own perceptions of their cocaine consumption. We have no way of validating such perceptions. However, with sample sizes of well over one hundred, we can assume that over-reporting and under-reporting will cancel each other out. Even they do not, we can make valid comparisons between the 1987 and 1991 samples since data

were collected both years with the same instrument. Thus any error in using these instruments should be fairly equal for the two samples.[3] Indeed, one of our aims was to find out if measuring use levels at different times with two different samples *using the same instrument*, would yield similar results.

Table 4.4a Level of cocaine use at three periods in time for the 1987 and 1991 samples

level of cocaine use	first year of regular use				period of heaviest use				last 3 months			
	1987		1991		1987		1991		1987		1991	
	n	%	n	%	n	%	n	%	n	%	n	%
none	-	-	-	-	-	-	-	-	44	28	28	26
low	143	89	88	81	77	48	57	53	103	64	65	60
medium	13	8	16	15	49	31	33	31	10	6	10	9
high	4	3	2	2	33	21	17	16	3	2	4	4
unknown	-	-	2	2	1	1	1	1	-	-	1	1
total	160	100	108	100	160	100	108	100	160	100	108	100
Student's t	t=–0.63, df=138.12, n.s. (separate variance estimate, F=4.24, p<0.001)				t=–0.32, df=167.04, n.s. (separate variance estimate, F=2.32, p<0.001)				t=–0.78, df=146.78, n.s. (separate variance estimate, F=3.50, p<0.001)			

Table 4.4a shows a striking similarity in use patterns in the two samples of non deviant users. During the initial year of use, levels tend to be low for the vast majority of respondents. In both samples over 80 percent of users remain at a low level. For half of the respondents in both samples use patterns remain low even during the highest use-period, while half develop medium or high levels of use.

Table 4.4b Characteristics of level of use during period of heaviest cocaine use for the 1987 and 1991 samples

low level of use	**1987 sample**	**1991 sample**
n	77	57
mean	183 mg/week	139 mg/week
median	125 mg/week	125 mg/week
range	10 - 486 mg/week	10 - 450 mg/week
medium level of use		
n	49	33
mean	1,022 mg/week	1,090 mg/week
median	791 mg/week	1,050 mg/week
range	500 - 1,750 mg/week	500 - 2,250 mg/week
high level of use		
n	33	17
mean	8,232 mg/week	12,066 mg/week
median	7,000 mg/week	7,000 mg/week
range	2,625 - 21,000 mg/week	2,625 - 42,000 mg/week
total sample		
N	160	108
mean	2,112 mg/week	2,327 mg/week
median	500 mg/week	300 mg/week
range	10 - 21,000 mg/week	10 - 42,000 mg/week

Furthermore, during the three months prior to the interview, the same proportion of respondents (just over one fourth) were abstinent and a majority (64 percent in 1987 and 60 percent in 1991) had been using at a low level. Thus,

overall, the development of use levels over time is similar across the two samples despite some differences in the doses typically used and the frequencies of use. Table 4.4b presents both average and median amounts of cocaine used per week during the period of heaviest use for each of the three use level groups. Because of its lesser sensitivity to extreme values at the high end of the distribution (for example 42 grams a week for one respondents in the 1991 sample), we utilize median scores for this discussion. As shown, the samples are quite similar. High-level and low-level users are identical in the two samples. During their heaviest use period low level users remain well below 500 mg. per week, with a median of 125 mg. per week. Among medium level users the median was just over one gram in 1991 and nearly one gram in 1987.
Table 4.4b also shows that high-level groups in both samples used cocaine in a way that was dramatically different from both other groups. Median use for high level users was 7 grams per week, an amount between 7 and 10 times greater than for medium level groups. This is cocaine use of a qualitatively different order. Nonetheless, as shown in Figure 4.4b, most high level users eventually diminish consumption. In 1991, 75 percent of high-level users had moved to a lower level of use prior to the interview, as had 85 percent of the 1987 sample.[4]

Figure 4.4a Distribution of use levels during first year of regular use, period of heaviest use and last three months prior to interview in the 1987 and 1991 samples

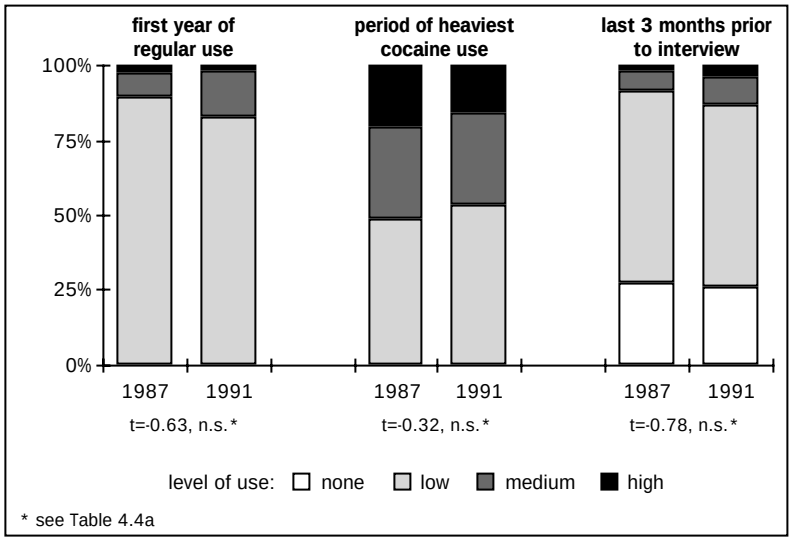
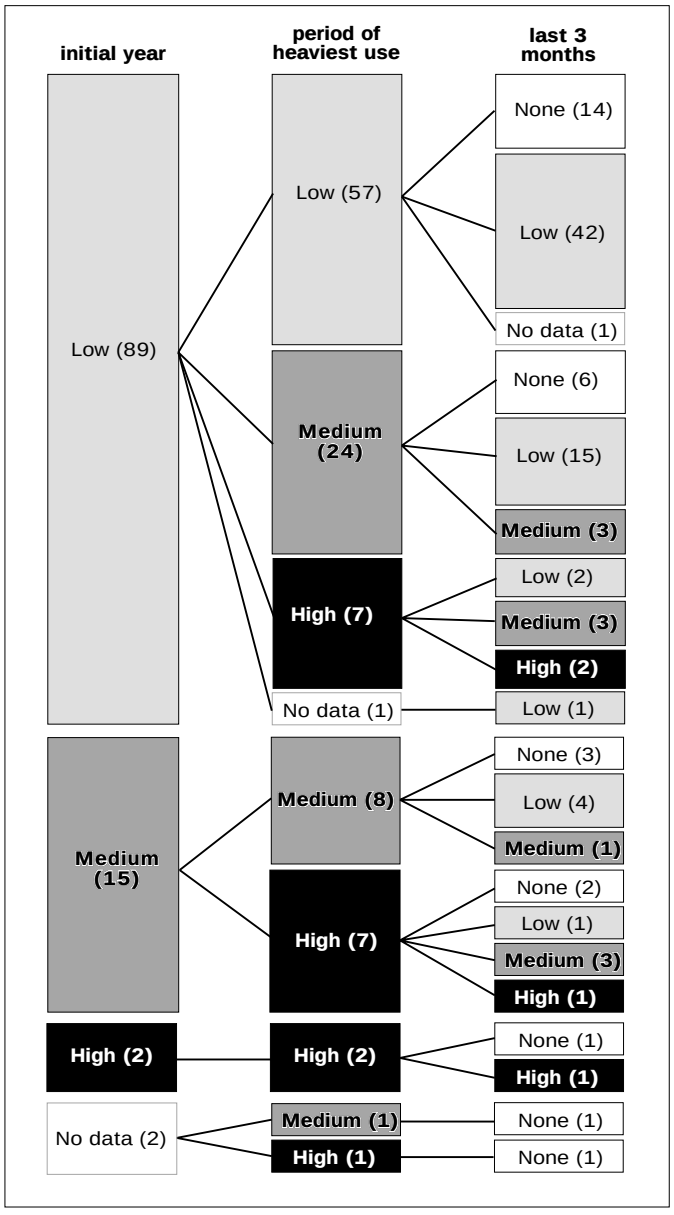


Figure 4.4a shows the overall similarity between the distribution of use-levels of the two samples. Figure 4.4b can also be used to trace how use levels evolved following initial year of use. In the 1991 sample the largest group of persons (39 percent) remained at a low level during all phases of the use-career, compared to 35 percent in the 1987 sample.

Of the 108 respondents in 1991 only 17 ever reached a high level of use during their top period and only four (25 percent) were still using cocaine at this level at time of the interview. An equal proportion of these high level users (25 percent) were abstinent during last 3 months prior to interview, as was true of the 1987 sample.

Figure 4.4b Level of cocaine use over time (number of respondents in brackets) for the 1991 sample



In both the 1991 and 1987 samples use-level during top-period did not predict abstinence during the three months prior to interview.[5] When we aggregate from both samples those who had ever used at a high level during their top period of use we find that 26 percent of them reported abstinence at time of interview.[6] Respondents using at a medium level during their top period yielded 28 percent of the abstainers, while those using at a low level during their top period yielded 27 percent of the abstainers.[7]

Thus, we can be quite certain that the circumstance of having ever used cocaine at a high level does not reduce the probability of finding somebody abstinent, compared to having used at a low level during the top period. This finding is important and confirms the 1987 findings which utilized the same instrument. It indicates that among people who have used cocaine regularly abstinence occurs independent of actual use-levels during the periods of highest use.

Although *abstinence* at time of the interview does not covary with level of use during users' top period, *high level of use* at the time of the interview is related to earlier high levels of use. Among respondents reporting a *low* level of use during the initial year (N = 88) only 7 (8 percent) developed a high level of use during their top period.

Of the 16 respondents who used at a *medium* level during their first year, a much larger proportion (44 percent) eventually used cocaine at a high level. And both of the two respondents who used at a *high* level during first year of regular use remained at this level of use during their highest use-period (100 percent). This means that *use-level during the initial year* is an important determinant of a high level of use during the top period. In addition, a high level of use during either the top period or the initial year of use predicts high level use during the 3 months prior to interview.[8]

To summarize, the occurrence of medium or high level use does not determine whether someone becomes abstinent. However, the phase in a use-career in which medium or high level use occurs is important. Our data direct us to the possibility that *if high level or near high level use occurs during the early stages of a user career*, there is an increased probability that high level use will continue. Although we did not investigate "dependence" on cocaine because of its operational difficulties, we might hypothesize that some *determinants* of high use level following the onset of negative effects are present during the early stages of use. Although high-levels users are the exception in both samples, those using at fairly high levels during the early stages of use (2.5 grams or more per week) might be encouraged to look critically at themselves. However, it should be clear that one cannot equate high level of use with "dependence".

4.5 Time intervals between stages of use, age, duration of top period, and pattern of use over time

In our effort to trace the development of cocaine use-patterns among respondents in the 1991 sample we repeat a set of calculations used in 1987. Of particular interest are the average time intervals between different stages of users' careers as we defined them, and the age range during which these patterns typically develop. In both samples median duration for an initiated cocaine user to have his or her next occasion of use was approximately one month. *This does not mean that every cocaine experimenter will use again within a month.* Since only experienced cocaine users were included in our studies, the results can not be generalized to experimenting cocaine users- most of whom never become regular cocaine users.[9]

Table 4.5a Time interval between initiation and second use of cocaine in the 1987 and 1991 samples

	1987		1991	
interval	n	%	n	%
less than a day	3	2	-	-
1-7 days	34	21	22	20
8-31 days	41	26	34	31
1-3 months	32	20	15	14
3-6 months	16	10	11	10
6-12 months	15	9	12	11
1-2 years	4	3	4	4
2-3 years	5	3	2	2
more than 3 years	4	3	6	6
no answer	6	4	2	2
total	160	100	108	100

Mann-Whitney U=8,006.5, Z=–0.2661, n.s.

Among experienced cocaine users in our samples, use developed relatively quickly. More than 85 percent had their second experience with cocaine within a year of initiation and over 50 percent progressed from initiation to regular use in a year or less. Also for more than half of respondents in both samples progression from regular use to the top period of use occurred again in a year or less. Although the data in Table 4.5b suggests that our 1991 respondents progressed statistically faster than respondents in 1987 from regular use to the top period, the differences are not significant.

However, there is a clear *tendency* toward a faster development of use in the 1991 sample. For instance, 69 percent reported having their top period of use one year or less following onset of first regular use, compared to 56 percent in 1987. Also, while 17 percent of the 1987 sample took 4 years or more to reach the top period of use, this was true of only 6 percent of the 1991 sample.

However, because these figures are influenced by length of respondents' use-careers, they should be interpreted cautiously. Respondents in the 1991 sample are younger (M = 27.4) at the time of the interview than those in the sample of

1987 (M = 30.4). Also, in 1991 we interviewed subjects an average of 5 years after initiation compared to 7.6 years after initiation in 1987. Thus it is possible that respondents in the 1991 sample had less developed patterns of use. They may have continued using cocaine and experienced higher levels of use during later periods. As a result, were we to interview them again they might report longer periods from regular use to top period and might more closely resemble respondents in the 1987 sample. To investigate further this possibility, we recomputed the 1987 data for those respondents who reported first regular use 7 years or less prior to our interview.[10] By doing this way we corrected for the longer use-career of the 1987 sample making them more comparable to the 1991 sample.

Table 4.5b Time interval between initiation and first regular use, and time interval between first regular use and period of heaviest use in the 1987* and 1991 samples

	initiation -> first regular use				**first regular use -> heaviest use**			
	1987		1991		1987		1991	
interval	n	%	n	%	n	%	n	%
less than a year	45	28	44	41	63	39	47	44
1 year	40	25	20	19	27	17	27	25
2 years	24	15	16	15	27	17	17	16
3 years	15	9	10	9	9	6	7	6
4 years	8	5	3	3	9	6	3	3
more than 4 years	21	13	15	14	17	11	3	3
no answer	7	4	-	-	8	5	4	4
total	160	100	108	100	160	100	108	100
mean	2.0 years		1.8 years		1.9 years		1.1 years	
Student's t	t=0.62, df=259, n.s.				(separate variance estimate, F=4.95, p<0.001)			

* The slight differences between 1987-data in Cohen (1989) and in this table are due to small differences in method of computing time intervals.

Table 4.5b presents data for the time interval between first year of regular use and top period, without correcting for length of career. Then, in Table 4.5c, we show the time interval from first regular use to top period with the 1987 sample, corrected for career length.

Comparing these two tables the effect of length of career is clearly visible. With the corrections, average time from regular use to top period for respondents in 1987 decreases from 1.9 to 0.9 years. Also, the proportion of respondents in the 1987 sample who took 4 years or longer to progress to their top levels of use dropped from 17 percent to 3 percent and more closely resembles the 1991 sample (where 6 percent took 4 years or longer). The results of this recomputation confirm similarities in the development of use patterns over time in the two samples. It also shows the importance of always keeping in mind that data on large groups of drug users represent only one moment in a dynamic development of use patterns. The clear effect of career length on variables like the ones discussed here proves this. After ten years, we see use patterns (abstinence included) stabilized, as shown in the follow up of our 1987 study (Cohen and Sas, 1993a).

When we compare the 1987 and 1991 samples for age at first regular use we find again no differences, and the small and statistically insignificant difference in age at period of heaviest use is probably a function of the difference in average career length.

Table 4.5c Time interval between first regular use and period of heaviest use for the 1987 and 1991 samples, among respondents who report seven or fewer years between first regular use and interview

	first regular use -> heaviest use			
	1987		1991	
interval	n	%	n	%
less than a year	52	51	47	44
1 year	21	21	27	25
2 years	18	18	17	16
3 years	7	7	7	6
4 years	2	2	3	3
more than 4 years	1	1	3	3
no answer	1	1	4	4
total	102	100	108	100
mean	0.9 years		1.1 years	
Student's t=–0.99, df=203, n.s.				

Some problems emerge when we compare the samples on *duration of the highest use period*. The first problem is technical: in 1987, because of the way we asked the question, 20 respondents gave answers that were difficult to interpret, and were therefor excluded from the analysis.[11] In 1991 we improved the interview instrument, and ended up with missing data from only 5 respondents.

Table 4.5d Age at two stages of cocaine-using career in the 1987 and 1991 samples

	first regular cocaine use				**period of heaviest cocaine use**			
	1987		1991		1987		1991	
age	n	%	n	%	n	%	n	%
younger than 18	13	8	5	5	5	3	5	5
18 - 22	49	31	37	34	33	21	28	26
23 - 27	57	36	45	42	68	43	42	39
28 or older	34	21	21	19	53	33	29	27
no answer	7	4	-	-	1	1	4	4
total	160	100	108	100	160	100	108	100
mean	24.1 years		24.3 years		26.4 years		25.2 years	
Student's t	t=–0.18, df=259, n.s.				t=1.52, df=261, n.s.			

The second problem relates to total length of cocaine users' careers. Because subjects in our 1991 sample had on average shorter careers we can be less certain of having captured users' highest use period; for some respondents their top period may follow rather than preceed their selection for the study. To compensate for this, we control for length of career for the 1987 sample, as we did for time intervals between stages of users' career (cf. Table 4.5c). Without this control, duration of top period is 5 months longer in the 1987 than in the 1991 sample (Table 4.5e).

Controlled for career length, average duration of top period for the 1987 sample drops from 15 to 10 months. This suggests that a certain proportion of the 1991 sample will prolong or renew its (current) top period. It also implies that the two samples are similar in their length of top period once we account for length of total career: the average duration of the top period for the 1987 sample (after correction) is 10 months, compared to 9 months for the 1991 sample (Table 4.5f).

Table 4.5e Duration of period of heaviest cocaine use for the 1987 and 1991 samples

	1987		**1991**	
duration	n	%	n	%
less than 1 week	5	3	1	1
less than 1 month	2	1	4	4
1 month	4	3	6	6
2 - 6 months	55	38	47	46
7 - 24 months	60	41	40	39
25 - 48 months	15	10	5	5
more than 48 months	4	3	-	-
sub-total	145	100	103	100
no answer	15		5	
total	160		108	
mean	14 months		9 months	

Student's t=2.84; df=226.20; p=0.005
(separate variance estimate; F=3.83; p<0.001)
test on unclassed data

Table 4.5f Duration of period of heaviest cocaine use, corrected for length of carreer, for the 1987 and 1991 samples

	1987		**1991**	
duration	n	%	n	%
less than 1 week	2	2	1	1
less than 1 month	2	2	4	4
1 month	4	4	6	6
2 - 6 months	41	44	47	46
7 - 24 months	40	43	40	39
25 - 48 months	3	3	5	5
more than 48 months	1	1	-	-
sub-total	93	100	103	100
no answer	9		5	
total	102		108	
mean	10 months		9 months	

Student's t=0.50; df=194; n.s.
test on unclassed data

In both samples the median duration of the top period is about six months and for almost all respondents (95 percent) the top period has come to an end within 2 years. This means that in 95 percent of the cases the top period of use, the period most worrisome to bystanders, simply tapers off to lower levels of use or abstinence, even when periods last as long as two years. This inference is based not only on the data from Table 4.5f, but on the development data of cocaine use careers gathered in our follow-up of the 1987 study as well.

As in 1987, we presented respondents a graphical representation of six different use patterns over time adopted from Morningstar and Chitwood (1983). As in 1987, respondents were asked which of the patterns best conformed to the development of their career. Each of the graphical patterns was also described verbally. Responses were similar for the 1987 and 1991 samples, except regarding the "slowly more" pattern (pattern 2). This is not unexpected. As discussed earlier, more respondents in the 1991 sample could be described as still in the process of developing their cocaine use careers. This is reflected in the fact that four times as many respondents in 1991 see themselves as using "slowly more" cocaine than was the case in 1987. In both 1987 and 1991 the up-top-down pattern is the most often chosen self description. This pattern conforms to our other findings, as presented in Figure 4.1a.

Table 4.5g Development patterns in the 1987 and 1991 samples

	1987		1991		χ^2*	
development pattern	n	%	n	%		
1 first much-slowly less	8	5	10	9	1,24	n.s.
2 slowly more	5	3	12	11	5,62	p<0.05
3 stable	21	13	17	16	0,18	n.s.
4 up-top-down	63	39	38	35	0,32	n.s.
5 intermittent	10	6	7	6	0,03	n.s.
6 varying	53	33	24	22	3,22	n.s.
total	160	100	108	100		

* df=1; Yates' correction

Pattern 6, marked by constant variation in amounts and frequencies of use, better describes the subjective experience of 1987 respondents than the still developing 1991 respondents.
Overall, respondents tend to describe their use patterns in dynamic terms. In both samples "stability" is a pattern chosen by only a small minority of respondents.[12]

Distribution of use over a typical week and over a typical occasion of use

We asked respondents to report how their cocaine use was spread over a typical week during the four week period prior to interview. In both samples, because most respondents had not used cocaine during the four weeks prior to interview, the number of observations is quite small.

Table 4.5h Distribution of cocaine use across days of the week during the four weeks prior to the interview, for the 1987 and 1991 samples

	1987		1991	
partitioning of week	n	%	n	%
only/mostly weekends	61	38	39	36
evenly spread/more often week days	30	19	32	30
never (no cocaine used)	63	39	37	34
no answer	6	4	-	-
total	160	100	108	100

χ^2=3.70; df=2; n.s.

In 1987, most respondents reported using cocaine most often on the weekends. In 1991, although not statistically significant, we observe some change away from weekend use and toward use spread more evenly over the entire week.[13] In 1987 we designed a question to determine the proportion of users who could be described as "bingers".[14] From 1987 to the 1991 we see a slight increase in this binge pattern.

Table 4.5i Speed of cocaine use at a typical occasion in the 1987 and 1991 samples

	1987		1991	
speed of use at occasion	n	%	n	%
a little bit - stop - a little bit, etc	105	66	72	67
a little bit - stop	32	20	15	14
everything in one binge	22	14	20	19
no answer	1	1	1	1
total	160	100	108	100

χ^2=2.32; df=2; n.s.

4.6 Periods of abstinence and quitting cocaine use

Occasional periods of cocaine abstinence lasting one month or longer were commonly reported by 1987 respondents. In this section we will compare some of the abstinence data from the 1991 and 1987 samples. In both more than 80 percent of respondents had experienced at least one period of abstinence lasting at least one month or longer and about one third in each sample reported more than ten such abstinence periods (see Table 4.6a). Only a minority of respondents reported having no abstinence periods, a minority that is slightly larger for the 1991 sample, probably because of the difference in career length.

Table 4.6a Frequency of reported cocaine abstinence for one month or longer in the 1987 and 1991 samples

	1987		1991	
frequency	n	%	n	%
never	20	13	18	17
1 or 2 times	29	18	20	19
3 - 5 times	28	18	19	18
6 - 10 times	27	17	15	14
more than 10 times	54	34	34	31
no answer	2	1	2	2
total	160	100	108	100

Mann-Whitney U=7,878.5; Z=-0.8386; n.s.

Looking at duration of the *longest abstinence period* we see a large difference between the samples. As shown in Table 4.6b, of respondents in the 1987 sample 26 percent had periods of abstinence lasting a year or over, compared to only 5 percent in 1991. Average duration of abstinence was 12 months in the 1987 sample compared to 7 months in the 1991 sample. However, after correcting for

user career, as earlier, a different picture emerges. In Table 4.6c, we show that the longest period of abstinence for the 1987 sample is reduced from an average of 12 to 10 months. However, at the extremes there are still major differences: a greater number of one month abstinences in the 1991 group and many more abstinences of one year or more in the 1987 group (16 percent compared to 4 percent). While these differences are smaller than those obtained without correcting for length of users' career, they are sizable and statistically significant.

Table 4.6b Duration of longest period of abstinence among respondents who reported periods of abstinence of one month or longer in the 1987 and 1991 samples

longest period	**1987**		**1991**	
of abstinence	n	%	n	%
1 month	7	5	10	11
2 - 3 months	27	19	25	28
4 - 6 months	34	24	27	30
7 - 12 months	34	24	21	24
13 - 24 months	22	16	4	4
25 - 60 months	12	9	1	1
> 60 months	1	1	-	-
no answer	3	2	1	1
total	140	100	89	100
mean	12 months		7 months	

Student's t=4.20; df=218.96; p<0.001 (separate variance estimate; F=3.25; p<0.001; tested on unclassed data)

Table 4.6c Duration of longest period of abstinence among respondents who reported periods of abstinence of one month or longer in the 1987 sample (corrected for length of career) and the 1991 sample

longest period	**1987**		**1991**	
of abstinence	n	%	n	%
1 month	4	4	10	11
2 - 3 months	23	26	25	28
4 - 6 months	25	28	27	30
7 - 12 months	21	23	21	24
13 - 24 months	11	12	4	4
25 - 60 months	4	4	1	1
> 60 months	-	-	-	-
no answer	2	2	1	1
total	90	100	89	100
mean	10 months		7 months	

Student's t=2.41; df=162.51; p<0.025 (separate variance estimate; F=1.72; p<0.025; tested on unclassed data)

We also asked respondents to explain why they had occasionally abstained from cocaine for periods of one month or more. In Table 4.6d we present the main reasons given by respondents. In 1987, the two most often mentioned reasons were "no desire for cocaine" (13 percent of all reasons given) and "no money" (26 percent of all reasons given). "No money" appears in 1991 as well, but

considerably less (only 8 percent of all reasons).[15] "No desire" increased from 13 percent in 1987 to 25 percent in 1991. Reasons 2 through 6, all describing negative effects of cocaine, made up for 25 percent of all reasons in 1987, compared to no more than 11 percent in 1991. Thus, despite the fact that levels of use were highly similar for these samples, financial reasons and those related to cocaine's negative effects were less important by 1991. As we will show in Chapter 7, respondents in the 1991 sample reported many negative effects related to the use of cocaine, but these negative effects were not necessarily a factor in deciding to abstain. Instead, the absence of desire for cocaine was far more prevalent in 1991 than in 1987.

Table 4.6d Main reasons for abstinence periods of one month or longer in the 1987 sample (N=140) and the 1991 samples (N=89)

	1987		1991	
internal reasons	n	%	n	%
1 to maximize positive effects	3	2	-	-
2 to evade problems	10	7	-	-
3 creates too much drinking	1	1	2	2
4 afraid of dependence	6	4	5	6
5 negative mental effects	7	5	1	1
6 negative physical effects	11	8	2	2
7 no desire for cocaine	18	13	22	25
8 to be away from coke scene	4	3	-	-
9 not enough pleasure	1	1	3	3
10 illness	1	1	-	-
total internal reasons	62	44	35	39
external reasons	n	%	n	%
11 pregnancy	2	1	1	1
12 no environment for coke use	6	4	14	16
13 coke unobtainable	5	4	12	13
14 no money	36	26	7	8
15 friends don't use cocaine	16	11	1	1
16 partner made problems	1	1	-	-
17 work / study	-	-	5	6
18 trip to foreign country	-	-	8	9
total external reasons	66	47	48	54
	n	%	n	%
19 other reasons	12	9	6	7
total nr of reasons	140	100	89	100

Other than reported reasons for abstinence, the main difference between the two samples is related to the length of the longest abstinence periods with an average of 10 month for the 1987 sample (after correcting for length of career) and 6 month for the 1991 sample. To explain this we analyzed the main reasons given specifically for the longest period of abstinence. (See Table 4.6e). In both samples, "no desire", "no environment" and the combination of "no money/ coke unobtainable" were the main reasons given for the longest periods of abstinence. Negative effects — reasons 2 through 6 — played a similar role in 1987 and 1991, accounting for about 15 percent of the reasons for the longest

period of abstinence. However, financial reasons were less important in 1991 than in 1987 (4 percent compared to 13 percent). Trips to foreign countries appear as a main reason only in 1991. In the end, we must conclude that the explanation for a more pronounced longest period of abstinence in 1987 is not to be found in these reported reasons.

Table 4.6e Main reasons for the longest abstinence period in 1987 sample (N=86, corrected for length of career) and in 1991 sample (N=89)

	1987		1991	
internal reasons	n	%	n	%
1 to maximize positive effects	-	-	-	-
2 to evade problems	3	3	1	1
3 creates too much drinking	-	-	-	-
4 afraid of dependence	3	3	6	7
5 negative mental effects	2	2	3	3
6 negative physical effects	4	5	3	3
7 no desire for cocaine	24	28	15	17
8 to be away from coke scene	1	1	-	-
9 not enough pleasure	1	1	3	3
10 illness	-	-	2	2
total internal reasons	38	44	33	37
external reasons	n	%	n	%
11 pregnancy	-	-	1	1
12 no environment for coke use	14	16	13	15
13 coke unobtainable	2	2	9	10
14 no money	11	13	4	4
15 friends don't use cocaine	6	7	1	1
16 partner made problems	2	2	1	1
17 work / study	4	5	3	3
18 trip to foreign country	-	-	15	17
total external reasons	39	45	47	53
	n	%	n	%
19 other reasons	9	10	9	10
total nr of reasons	86	100	89	100

We also asked respondents whether they had ever cut back on their cocaine use, instead of or in addition to engaging in periods of abstinence. In 1987, 70 percent of respondents told us they had at some point cut back on their use compared to 57 percent in 1991. There are both similarities and differences in respondents' reasons for cutting back in the two samples. In 1987 negative effects of cocaine accounted for 20 percent of the reductions in use, compared to 22 percent in 1991. But, 31 percent of all the reasons mentioned by respondents in 1987 were "no money", compared to 8 percent in 1991. The combination of "no desire" and "not enough pleasure" accounted for 30 percent of the reasons for cutting back in 1991, but only 12 percent in 1987.

The meaning of these data about "reasons" is unclear. They may illustrate some differences between the samples and the way they use and integrate cocaine into their lives. However, it may be, instead, that these data are particularly sensitive to qualitative differences related to the interviewers, the nature of the interac-

tions with subjects and subjects' desire to justify their behavior (cf. Davies, 1992) In light of the fact that few other of the findings vary so much in the two samples, the differences found here need to be interpreted cautiously.

Quitting cocaine use

An addition to the 1991 interview schedule was a set of questions regarding respondents' attempts to stop using cocaine all together. The 38 respondents (35 percent) who reported to have tried quitting gave a variety of reasons for doing so. Most often mentioned were "no money" (11 times), "no more fun" (8 times) and "fear of dependence" (5 times). Fifteen of the 38 respondents who said they had tried to quit, had indeed ceased all use of cocaine. We also asked respondents who had never tried to quit why they had not. Two reasons stand out: "cocaine is not a problem" (33 times) and "no reason to do so" (21 times). Less prevalent answers include, "coke is fun" (14 times), and "no dependence" (8 times).

Table 4.6f Cross tabulation of attempts to quit cocaine use, and succes of the attempts of respondents in 1991 sample who indicate they tried to quit (N=38)

	quit cocaine use		
attempts to stop	yes	no	total
1 - 2 times	9	13	22
3 - 5 times	4	6	10
6 - 10 times	-	2	2
more than 10 times	1	2	3
no answer	1	-	1
total	15	23	38

Those respondents who indicated they had ever tried to quit, whether or not they had been successful, were asked how often they had tried. In Table 4.6f we present a cross-tabulation of those who succeeded in quitting and those who did not by the number of times they attempted to quit. As shown, a majority of those who say they tried to quit, had not. In addition, a majority of those who quit, did so after only one or two attempts. There is no correlation between number of attempts and actual quitting. Furthermore, there is no relationship between levels of use and success at quitting. As shown in Table 4.6g quitting is just as probable for those with high levels of use during their highest use period as for those with medium or low levels (see also Figure 4.4b). This means that for cocaine users who want to quit, factors other than the number of attempts or prior levels of use determine the probability of success. Those factors are not discernible using our data.

Table 4.6g Cross tabulation of level of use during period of heaviest cocaine use, and succes of the attempts to quit cocaine use of respondents in the 1991 sample who indicate they tried to quit (N=38)

level of use during the period of heaviest cocaine use	**quitted cocaine use** yes	no	total
low	6	8	14
medium	4	6	10
high	5	9	14
total	15	23	38

Notes

1 In our 1987 sample the highest reported weekly amount of cocaine used during the highest use period was 21 grams.

2 Cohen & Sas (1993), *Ten years of cocaine.* Amsterdam: University of Amsterdam. p. 55.

3 This is not necessarily true for error related to the length of career.

4 In the 1991 sample, of the 17 respondents who used cocaine at a high level during the top period, 3 were using at a low level during the three months prior to interview, 6 were using at a medium level and 4 had moved to abstinence. Out of these 17 respondents, 4 (25 percent) remained using at a high level. In the 1987 sample, of the 20 respondents using at a high level during their heaviest use period, almost half (9 respondents) had moved to abstinence by the time of the interview. Three out of 20 (15 percent) were still using cocaine at a high level.

5 In 1991 of those who used at a low level during their top period (N = 57), 25 percent were abstinent; of those who used at a medium level during their top period (N = 32), 28 percent were abstinent and of the high level users (N = 16) 19 percent were abstinent.

6 "Abstinence" is defined here as no cocaine use during the three months prior to interview.

7 Combining the 1987 and 1991 samples, of 134 respondents who never exceeded a low level during their highest use period 36 (27 percent) reported abstinence during the three months prior to interview. Of the 80 respondents reporting having used at the medium level during their top period, 22 (28 percent) reported abstinence; and of the 50 high level users, 13 reported abstinence at the time of the interview (26 percent).

8 Of course periods of high-level use may come and go, and we are unable to determine if a high level of use at time of interview is simply prolongation of an ongoing high level use period. Also we do not know how many of those using at a high level at time of interview will continue to do so. However, in a follow up study of 64 respondents from the 1987 sample, we found that none were still using at a high level when re-interviewed in 1991 (Cohen & Sas ,*Ten years of cocaine.* Amsterdam, University of Amsterdam, 1993).

9 According to Siegel (1985) nine out of ten experimenters will not continue cocaine use. However this does not mean that only 10 percent of all experimenters will use cocaine a second time.

10 An entry criterion for our 1991 sample was that subjects had started regular use in 1986 or later. Because 8 respondents had had some use in 1985 and 1984, the correct way to control for length of career is to allow for 7 years in the 1987 sample.

11 Some 1987 data were recoded in 1991 to allow more precise comparisons with the 1991 data. This allowed us to reduce instances of missing data of 1987 from 20 to 15. In doing so some outcomes were affected and this explains why average top period was first reported as 22 months, and is now reported as 15 months for the 1987 sample.

12 This is very important. Conventional thinking about drugs suggests that once people start they will escalate use, get 'hooked', and stay 'hooked'. For some users this may be true, but according to our data most cocaine users considerably vary their dosage and frequencies of use over time.

13 χ^2 was computed, both excluding and including those who reported no use during last four weeks.

14 Bingers are users who will consume relatively large amounts of a substance during a particular period (for example a weekend) and then stop. Some will prolong their binge until all available stock of the drug is used.

15 Cocaine had dropped about 20 percent in price since 1987, as we will show in Chapter 8. Because the 1991 sample had a slightly lower average income than the 1987 sample (see Chapter 2), the disappearance of financial reasons for abstinence can hardly be related to better incomes or to cheaper cocaine.

5 Routes of ingestion, combinations with other drugs, and buying, price, and purity of cocaine in Amsterdam

Introduction

In this chapter we will present data on the prevalence of different methods of cocaine ingestion, and the perception of users of cocaine regarding the advantages and disadvantages of each (§5.1). In §5.2 we will investigate other drugs used in combination with or proximity to cocaine. These other drug prevalence data will be compared with data from the 1987 sample and from the *exact age cohort* of the Amsterdam population (18-42 years). The purity of cocaine we bought from our respondents will be examined in §5.3, included with data on price paid, location and source of purchase

5.1 Methods of ingestion

In 1987 the only 100 percent life time prevalence (LTP) of ingestion method was snorting. IV injection had the lowest prevalence (6 percent). This has barely changed in 1991. The 1991 LTP for injecting is 5 percent and LTP for snorting falls to 98 percent.

Tables 5.1a and 5.1b illustrate the only sizable difference between 1987 and 1991 is the life time prevalence of smoking free base cocaine. In 1987, when media publicity of free basing had just begun, only 18 percent had ever smoked cocaine. This percentage has risen to 30 percent in 1991. The prevalence of "always" or "mostly" free basing has risen from 1 percent to 8 percent. As noted, 2 percent of the 1991 respondents had never snorted cocaine.[1]

These differences in life time prevalence essentially disappear when last month prevalence (LMP) is examined (Table 5.1b). In 1987 LMP's of "always" injecting and "always" free basing was 0 percent, in 1991 this has become 1 percent for both. Total LMP of free basing cocaine (the summation of "always" "mostly", "sometimes" and "rarely") has risen only from 3 percent to 4 percent. Similarly total LMP for injecting increases from 1 percent to 2 percent.[2]

The LMP for free-basing and injection thus are very low in this sample of experienced cocaine users. Although free basing of cocaine has markedly increased during life time careers, most of committed smokers of free base have not used during the month prior to interview. This indicates that these smokers

Table 5.1a Life time prevalence and frequency of different routes of ingestion in 1987 sample and in 1991 sample

	intranasal				smoking in cigarette				free base			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
always	117	73	81	75	1	1	2	2	-	-	5	5
mostly	34	21	18	17	2	1	5	5	1	1	3	3
sometimes	4	3	3	3	12	8	5	5	1	1	2	2
rarely	4	3	4	4	96	60	54	50	27	17	22	20
total ever	159	99	106	98	111	69	66	61	29	18	32	30
never	-	-	2	2	47	29	42	39	131	82	76	70
no answer	1	1	-	-	2	1	-	-	-	-	-	-
total	160	100	108	100	160	100	108	100	160	100	108	100

	eating				genital application				intravenous			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
always	3	2	2	2	-	-	-	-	1	1	1	1
mostly	-	-	-	-	-	-	-	-	2	1	1	1
sometimes	2	1	-	-	3	2	-	-	2	1	-	-
rarely	22	14	12	11	19	12	11	10	5	3	3	3
total ever	27	17	14	13	22	14	11	10	10	6	5	5
never	133	83	94	87	137	86	97	90	150	94	102	94
no answer	-	-	-	-	1	1	-	-	-	-	1	1
total	160	100	108	100	160	100	108	100	160	100	108	100

Table 5.1b Last month prevalence and frequency of different routes of ingestion in 1987 sample and in 1991 sample

	intranasal				smoking in cigarette				free base			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
always	65	41	52	48	1	1	2	2	-	-	1	1
mostly	8	5	5	5	1	1	2	2	2	1	-	-
sometimes	2	1	-	-	6	4	2	2	-	-	1	1
rarely	5	3	-	-	15	9	9	8	2	1	2	2
total ever	80	50	57	53	23	14	15	14	4	3	4	4
never	67	42	47	44	119	74	90	83	139	87	101	94
no answer	13	8	4	4	18	11	3	3	17	11	3	3
total	160	100	108	100	160	100	108	100	160	100	108	100

	eating				genital application				intravenous			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
always	2	1	1	1	-	-	-	-	-	-	1	1
mostly	-	-	-	-	-	-	-	-	-	-	-	-
sometimes	-	-	-	-	-	-	-	-	1	1	-	-
rarely	1	1	2	2	1	1	-	-	1	1	1	1
total ever	3	2	3	3	1	1	-	-	2	1	2	2
never	140	88	104	96	143	89	107	99	142	89	104	96
no answer	17	11	1	1	16	10	1	1	16	10	2	2
total	160	100	108	100	160	100	108	100	160	100	108	100

of free base cocaine are not compulsive users with a heavy daily use pattern. However, this increase of free basing among users deserves attention. Is this new method of ingestion temporary, or will it persist?

Table 5.1c Advantages and disadvantages of snorting, injecting and free basing in 1987 sample (N=160) and in 1991 sample (N=108)

	1987		1991			1987		1991	
advantages of snorting	n	%	n	%	**disadvantages of snorting**	n	%	n	%
easy to use	59	37	67	62	problems with nose	110	69	91	84
efficient, better effect	51	32	56	52	problems with throat	10	6	21	19
less bad for health	25	16	22	20	dry mouth	5	3	2	2
dosage easy to measure	9	6	10	9	effect not optimal	1	1	8	7
allows regulation of use	4	3	-	-	adulterated	-	-	4	4
like my friends	4	3	9	8	other	34	21	31	29
clean	4	3	5	5					
nice ritual	-	-	8	7					
other	-	-	3	3					
don't know	36	23	-	-	don't know	13	8	3	3
	1987		**1991**			**1987**		**1991**	
advantages of injecting	n	%	n	%	**disadvantages of injecting**	n	%	n	%
effect better, faster	54	34	81	75	unhealthy	65	41	67	62
economical	4	3	9	8	scary	41	26	35	32
pure	1	1	3	3	addicting	27	17	26	24
other	9	6	2	2	like junkie behaviour	20	13	27	25
					impractical	16	10	15	14
					asocial	7	4	10	9
					difficult to measure dosage	4	3	8	7
					painful	1	1	7	6
					other	-	-	9	8
don't know	67	42	27	25	don't know	24	15	1	1
	1987		**1991**			**1987**		**1991**	
advantages of free basing	n	%	n	%	**disadvantages of free basing**	n	%	n	%
more intense	46	29	44	41	unhealthy, junkie-like, danger	40	25	27	25
less adulterated	15	9	25	23	addicting	24	15	28	26
better effect, more pleasure	6	4	28	26	uneconomical	16	10	20	19
nice ritual	-	-	9	8	complicated	11	7	27	25
other	15	9	6	6	difficult to measure dosage	9	6	1	1
					makes you crazy	8	5	8	7
					effect too strong	5	3	4	4
					other	6	4	13	12
don't know	61	38	33	31	don't know	34	21	27	25

The data of reported advantages and disadvantages of snorting cocaine, free basing or injecting are largely unchanged between 1987 and 1991 (Table 5.1c). Although more 1991 respondents acknowledge some advantages of injecting (decreasing the number of 'don't know' answers[3]) the negative image of injecting is still strong. The same holds for free basing. More respondents acknowledge the "better effects" of free basing than in 1987, but the perception of disadvantages remains high.

It is unlikely that manifest increases of the prevalence of injection will occur in this population anytime soon. The future of free basing is less sure. In view of the increased prevalence of "always" or "mostly" free basing, this method of use may have earned itself a (small) place among users.

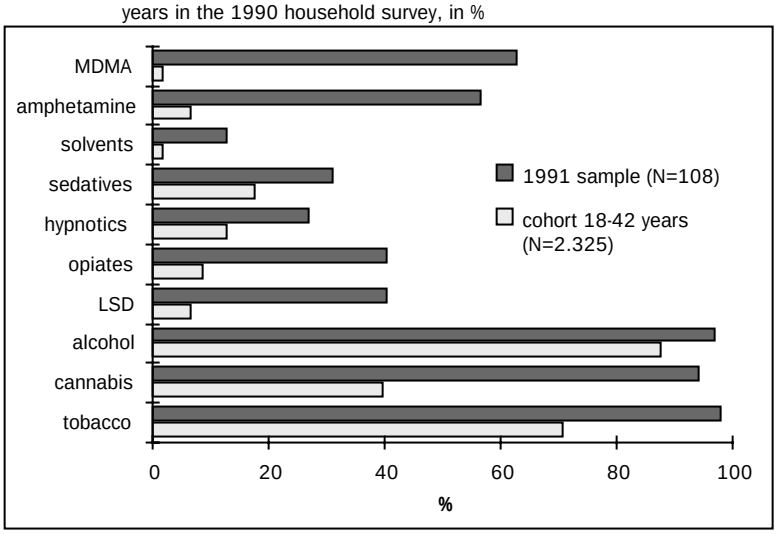
5.2 Cocaine, other drugs, and their combined use

As in 1987, our 1991 cocaine users have drug experience beyond cocaine. In Table 5.2a and Figure 5.2a, data illustrate that our cocaine users have used other illicit drugs with a far higher life time prevalence than their age cohort (18-42) in Amsterdam.

Table 5.2a Life time prevalence and last two weeks prevalence of drugs in 1987 sample, in 1991 sample and in age cohort 18-42 years in the 1990 household survey, in %

last two weeks prevalence of	**1987 sample** (N=160)	**1991 sample** (N=108)	**life time prevalence of**	**1987 sample** (N=160)	**1991 sample** (N=108)	**cohort 18-42 yrs** (N=2.325)
tobacco	80	90	tobacco	96	98	71
cannabis	54	54	cannabis	91	94	40
alcohol	84	90	alcohol	99	97	88
LSD	1	6	LSD	37	41	7
opiates	2	5	opiates	36	41	9
hypnotics	3	6	hypnotics	26	27	13
sedatives	1	8	sedatives	25	31	18
solvents	-	2	solvents	6	13	2
MDMA	.	19	MDMA	.	63	2
amphetamine	.	10	amphetamine	.	57	7
cocaine	100	100	cocaine	100	100	10

Figure 5.2a Life time prevalence of drugs in the 1991 sample and in cohort 18-42 years in the 1990 household survey, in %



We compare cocaine users with the age cohort as carefully as possible, because of the importance of age in prevalence data. Therefore the data of the 1991 household survey were used to compute prevalence information on licit and illicit drugs of the household sample that exactly matches the age range of the 1991 snowball sample.

In comparison to the 1987 snowball sample, the 1991 cocaine users are more experienced. On all drugs, they have higher life time prevalences than the 1989 sample, except alcohol. We have no data for the 1987 respondents on amphetamine or MDMA. In the 1991 sample these drugs have been used by approximately 60 percent. MDMA is widely used. Lifetime prevalence of this drug is *thirty times* higher (63 percent) than life time prevalence in the age cohort 18-42 of the Amsterdam household population of 12 years and older (2 percent).

Table 5.2b Life time prevalence of cocaine use in combination with other drugs in 1991 sample

cocaine	**ever**								**never**		**total**	
in combination	often		regularly		rarely		total ever					
with...	n	%	n	%	n	%	n	%	n	%	N	%
alcohol	82	76	8	7	5	5	95	88	13	12	108	100
tobacco	95	88	2	2	2	2	99	92	9	8	108	100
sedatives	2	2	1	1	9	8	12	11	96	89	108	100
hypnotics	1	1	2	2	8	7	11	10	97	90	108	100
cannabis	24	22	17	16	25	23	66	61	42	39	108	100
LSD	-	-	-	-	7	6	7	6	101	94	108	100
solvents	-	-	-	-	2	2	2	2	106	98	108	100
opiates	3	3	-	-	10	9	13	12	95	88	108	100
MDMA	2	2	7	6	23	21	32	30	76	70	108	100

One might expect that in a sample of experienced drug users combinations of drugs are used by many. As in 1987, cocaine is combined with alcohol (88 percent), cannabis (61 percent), and tobacco (92 percent). Sedatives, hypnotics, opiates and LSD score lower in combined action with cocaine, all approximating 10 percent. (Tables 5.2b, 5.2c). MDMA is important in the 1991 sample. Of all respondents, 8 percent use it often or regularly in combination with cocaine, and 21 percent rarely. In total prevalence of *combined use* it is now fourth after cannabis, at 30 percent.

Table 5.2c Often and regularly used drugs in combination with cocaine in 1987 sample (N=160) and in 1991 sample (N=108)

cocaine	**1987**		**1991**	
in combination	**sample**		**sample**	
with...	n	%	n	%
alcohol	136	86	90	83
tobacco	136	86	95	88
sedatives	2	1	3	3
hypnotics	5	3	3	3
cannabis	64	40	41	38
LSD	1	1	-	-
solvents	1	1	-	-
opiates	5	3	3	3
MDMA	.	.	9	8

5.3 Cocaine purity and price, cocaine buying in 1991

In 1987 we bought samples from respondents if they had any cocaine. Purity was relatively high, with an average of 65 percent. We repeated this practice in 1991 and tested the samples in the laboratory of the Narcotics Police in Amsterdam. In 1987 we purchased samples from 24 percent of the respondents, in 1991 we obtained only 22 samples (from 20 percent).[4] The average purity in 1991 was about 10 percent higher (65 percent vs. 74 percent). Purity less than 46 percent was not found in 1991 (see Table 5.3a).[5]

Table 5.3a Purity in percentage of cocaine hydrochloride in the 1987 and 1991 samples

	1987	**1991**
purity	%	%
1 - 19%	8	-
20 - 39%	5	-
40 - 59%	20	26
60 - 79%	36	35
≥ 80%	31	39
total	100	100
number of cocaine samples	39	23
average purity	65%	74%

Source: drs R. Jellema, Narcotics Police Laboratory Amsterdam.

Samples bought in a follow up investigation (64 respondents from the 1987 project were re-interviewed) resulted in a very high average purity of 87 percent (8 samples). Cocaine sold in this segment of the Amsterdam market is therefore of reasonably high purity. Although the purity level in 1991 was somewhat higher than in our earlier investigation, price was lower. As shown in table 5.3b the average price of a gram of cocaine dropped from *f*180 to *f*140 in the four years since 1987.

We did not test 1991 cocaine for the presence of adulterants. In 1987 only a few were found. The same applies to a different investigation in which cocaine was tested for adulterants during a full year (Korf, Biemond and Jellema, unpublished manuscript. University of Amsterdam, 1994). Amphetamine, the most often mentioned adulterant (25 percent), was not found once in 1987. Amphetamine remains the most often mentioned adulterant in 1991 (31 percent). In 1991 74 percent of the respondents think their cocaine is always or very often cut, versus 67 percent in 1987.

In Table 5.3c amounts of money paid for cocaine are compared for cocaine used in the last four weeks prior to interviews in 1987 and in 1991. Of course, data are available only for those respondents who had consumed any cocaine in the four weeks prior to interview. The average amount of money paid for cocaine increased about 40 percent in the years between the two studies.

If we compute these measures to grams, by using the average prices in each year, the average total amount used in the *four weeks prior to interview* rose from 1.4

gram to 2.7 gram. This means that those respondents using in the four weeks prior to interview (50 percent of sample in 1987 and 58 percent in 1991) consumed on average 0.4 gram a week in 1987, and 0.7 gram in 1991. This is a considerable rise. But, when we examine median amounts of money spent, not much has changed. *In both years the median price of consumed cocaine is around ƒ100 during the four weeks prior to interview, and the median value of paid for cocaine was under ƒ100.*

Table 5.3b Price of one gram of cocaine in the 1987 and 1991 samples

	1987		1991	
price	n	%	n	%
≤ ƒ100	2	2	14	15
ƒ101-ƒ110	1	1	-	-
ƒ111-ƒ120	1	1	3	3
ƒ121-ƒ130	3	3	15	16
ƒ131-ƒ140	4	4	14	15
ƒ141-ƒ150	9	9	24	25
ƒ151-ƒ160	12	12	8	8
ƒ161-ƒ170	2	2	-	-
ƒ171-ƒ180	15	15	14	15
ƒ181-ƒ190	2	2	1	1
ƒ191-ƒ200	49	48	3	3
ƒ201-ƒ210	-	-	-	-
ƒ211-ƒ220	1	1	-	-
≥ ƒ221	1	1	-	-
sub-total	102	100	96	100
unknown	58		12	
total	160		108	
mean	ƒ180		ƒ140	
median	ƒ190		ƒ145	

There was a sharp increase of those using more than ƒ1,500 of cocaine during the four weeks prior to interview: from 3 percent in 1987 to 7 percent in 1991. The rise in average monthly amount used, from 1.4 gram to 2.7 gram, is mainly explained by this increase in high volume users of ƒ1,500 and over and the lower average gram price used for these computations.[6] It is clear that the few high volume users distort the average values considerably. And, as observed before, in the 1991 sample we find more respondents who have not yet reached their top levels than in 1987. This also increases the computed amount used during the four weeks prior to interview. Once users have reached their top levels they tend to return to lower levels. Because in 1991 many users had not reached their top level or had just arrived there, their use levels are still likely on the increase or on relatively high temporary plateau levels. This results in higher reported use levels just prior to interview than with older users with a longer period of experience. In short, these data do not permit the inference that cocaine users in Amsterdam have increased their use level.

In Table 5.3d sources and purchase locations of cocaine are reported. The sources have remained stable, with friends and steady dealers being the main agents of supply. The question about location of purchase was inserted in both

years to learn if coffee shops where cannabis selling is tolerated, make up a proportion of cocaine purchase locations. In 1987 coffee shops were not mentioned at all; in 1991, 2 percent of respondents report buying cocaine there. This means that one of the conditions under which the cannabis system is tolerated, no cocaine or heroin sales on the premises, is still consistently enforced by coffee shop owners.

Table 5.3c Prices of cocaine used, and paid for during last four weeks prior to the interview in the 1987 and 1991 samples

	prices of cocaine used				**prices paid for cocaine**			
	1987		1991		1987		1991	
price	n	%	n	%	n	%	n	%
< ƒ100	41	52	28	44	37	56	38	60
ƒ100-ƒ199	-	-	16	25	-	-	11	17
ƒ200-ƒ299	15	19	3	5	10	15	2	3
ƒ300-ƒ399	9	11	4	6	7	11	3	5
ƒ400-ƒ499	4	5	4	6	3	5	2	3
ƒ500-ƒ599	2	3	1	2	2	3	1	2
ƒ600-ƒ699	2	3	-	-	2	3	-	-
ƒ700-ƒ999	1	1	-	-	-	-	-	-
ƒ1,000-ƒ1,499	3	4	3	5	3	5	3	5
ƒ1,500-ƒ1,999	2	3	1	2	2	3	-	-
> ƒ2,000	-	-	3	5	-	-	3	5
sub-total	79	100	63	100	66	100	63	100
	81		45		94		45	
total	160		108		160		108	
mean	ƒ244		ƒ372		ƒ246		ƒ334	
median	ƒ50		ƒ100		ƒ50		ƒ50	

Disco's appear less frequently than 1987 as purchase locations. This is consistent with a successful disco owners policy not to tolerate cocaine dealing on the premises. Bars and cafe's still account for a small proportion of all purchase locations (from 9 percent of all purchase locations in 1987 to 14 percent in 1991).[7]

Table 5.3d Source of cocaine and location of purchase in the 1987 and 1991 samples

	source					**location of purchase**			
purchase of cocaine	1987		1991		**purchase of cocaine**	1987		1991	
from	n	%	n	%	**at**	n	%	n	%
friends	69	43	46	43	bar/cafe	13	8	13	12
steady dealer	47	29	33	31	disco	19	12	4	4
different dealers	27	17	11	10	coffeeshop	.	.	2	2
no buying	-	-	14	13	dealer's home	72	45	40	37
other	9	6	2	2	other	46	29	35	32
no answer	8	5	2	2	*no answer*	10	6	14	13
total	160	100	108	100	total	160	100	108	100

Notes

1 One is a man, the other a woman. Both are free base smokers who occasionally also inject.

2 Because these samples of cocaine users are quite representative of cocaine users in Amsterdam, we may infer that of the roughly 9,000 inhabitants of Amsterdam who have used cocaine more than 25 times during life time according to the 1990 household survey (Sandwijk et al, 1991),

about 90 are frequent free base smokers and 90 are frequent injectors. These figures exclude typical "junkies" who are underrepresented in household surveys and who did not make part of our snowball sample.

3 This change may also be due to fewer interviewer errors compared to 1987.

4 That only 20 percent of our respondents had cocaine is in itself an interesting datum. The majority of these users have no cocaine available on a stand-by basis. This might reflect one of the conditions of the Amsterdam cocaine market: a high level of certainty that good cocaine is available whenever it is wanted. The relatively rare availability of cocaine in a respondents' house may also reflect that most respondents are low level occasional users.

5 These data have to be interpreted with some caution. In 1991 a new IR spectrograph was used and it is quite possible that a different standard of purity testing affects the comparability of these findings. IR spectrography was performed by Drs. R. Jellema, staff pharmacologist at the Police Narcotics Laboratory of the Municipal Police in Amsterdam.

6 The amount of cocaine used is computed by dividing the total value of cocaine used/paid for in the last for weeks prior to interview by the average gram price. This observation does *not* imply that the drop in gram price of cocaine is a "cause" of the increased use during last four weeks prior to interview. We have no data for such an assertion.

7 In pilot interviews done for the WHO global cocaine research project one cocaine dealer who is active in small scale direct sales was interviewed in March 1993. This dealer believed that cocaine selling was slowly increasing again in disco's, as a kind of inconspicuous 'house dealer' system.

6 Informal rules applied to the use of cocaine

Introduction

In this chapter we will try to learn if cocaine users think about structuring their use. By "structuring of use" we mean the application of guidelines or rules to the amount, route of ingestion, set and settings of use, financial limits, etc. Our interpretation that specific information from our respondents can be taken as structuring principles depends on how we conceptualize "structure".
In 1987 we found that almost one third of the respondents did not answer the blunt question if they applied any rules to cocaine use. This large negative answer category was then seen as interviewer failure, *but on later reflection it might really indicate that respondents often do not recognize implicit structuring principles.* We tried then to organize some answers as structuring principles or rules.
We will attempt to investigate different items that may be taken as structuring principles. We will deal with settings of use (§6.1), sets of use (§6.2), financial limits on purchases of cocaine (§6.3), advice to novice users on different aspects of cocaine use and encouraging or discouraging cocaine use with others (§6.4), and preferred drug policy for cocaine (§6.5). We will end with the respondents own identification of rules (§6.6).

6.1 Situations (settings) in which cocaine use occurs

In 1987 the community based cocaine users we sampled used cocaine chiefly in social settings. We believed that *"cocaine use is strongly related to life-styles in which outgoing and socializing behavior is dominant"* (Cohen 1989, 118). We repeated in 1991 the (fully open)[1] question about most suitable settings for cocaine use. Table 6.1a conveys that going out, partying and gatherings with friends are in 1991, as in 1987, the three most mentioned suitable settings for cocaine consumption.
The solitary consumption of cocaine decreased from 15 percent in 1987 to 7 percent in 1991. The "going out" settings are able themselves to trigger appetite for cocaine. Apparently many users have experienced the functions of cocaine as relevant to these settings and have learned some reaction of 'appetite' for the

drug when they are in these settings or about to go into them. Work settings, mentioned in 1987 by 18 percent of respondents as suitable for cocaine use, are mentioned by only 9 percent in 1991. In spite of cocaine's fame as an aphrodisiac, sexual situations are mentioned rarely: by 6 percent in 1987 and by 4 percent in 1991.

Table 6.1a Situations in which cocaine use occurs and frequency of occurrence in the 1987 sample (N=143) and in the 1991 sample (N=107)

	frequency of occurrence											
	often				sometimes				rarely			
	1987		1991		1987		1991		1987		1991	
situation	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*
going out	43	30	35	33	22	15	26	24	11	8	17	16
party	29	20	23	21	30	21	19	18	15	10	12	11
with friends	25	17	17	16	20	14	16	15	5	3	13	12
continue work	7	5	3	3	15	10	4	4	4	3	3	3
alone at home	14	10	3	3	6	4	2	2	2	1	2	2
dinner	4	3	-	-	3	2	-	-	2	1	-	-
sex	2	1	-	-	5	3	1	1	2	1	3	3
theatre	2	1	1	1	4	3	-	-	1	1	1	1
self gratification	-	-	4	4	3	2	2	2	2	1	3	3
other	13	9	12	11	17	12	3	3	7	5	7	7

	total responses				causes appetite for cocaine			
	1987		1991		1987		1991	
situation	n	%*	n	%*	n	%*	n	%*
going out	76	53	78	73	53	37	53	50
party	74	52	55	51	52	36	35	33
with friends	48	34	48	45	30	21	17	16
continue work	26	18	10	9	15	10	7	7
alone at home	22	15	8	7	10	7	2	2
dinner	9	6	-	-	4	3	-	-
sex	9	6	4	4	4	3	1	1
theatre	7	5	2	2	3	2	1	1
self gratification	5	3	9	8	5	3	3	3
other	40	28	23	21	21	15	12	11

* Percentages of total number of respondents who reported situations (more than one answer was possible).

In Table 6.1b settings are reported that are *not* suitable for cocaine. As in 1987, cocaine use is negatively associated with work, study and other achievement situations. Any setting with non users is even more negative for cocaine use in 1991 than in 1987.

To assess the social integration of cocaine use we asked with which *persons* respondents would definitely not use cocaine. In table 6.1c we illustrate that some differences exist between 1987 and 1991 responses. In 1987 respondents named 0.8 persons but in 1991 1.8. This increase makes comparison between the two years difficult. Despite the lower number of answers in 1987, the partner of a respondent was frequently mentioned as the person with whom not to use (25 percent). By 1991 the partner is mentioned by only 6 percent. In 1991 family members are the most prominent category of persons with whom not to use.

Cautiously we might conclude that cocaine in the 1991 sample is slightly more integrated because it seems to be more accepted by the partner. Cocaine use is

still kept concealed from strangers, non users and family members indicating that such use is still far from socially accepted in Amsterdam.

Table 6.1b Situations in which cocaine use is avoided in the 1987 sample (N=160) and the 1991 sample (N=108)

	1987		1991	
situation	n	%*	n	%*
work/study	66	41	47	44
before achievement	57	36	25	23
daily life	37	23	13	12
with non users	32	20	40	37
just before dinner/bedtime	9	6	5	5
at home	6	4	7	6
car driving	5	3	6	6
certain hours of day/night	4	3	2	2
sex	3	2	4	4
important business next morning	-	-	8	7
other	-	-	20	19

* Percentages of total number of respondents (more than one answer was possible).

Table 6.1c Persons with whom respondents would not use cocaine in the 1987 sample (N=113*) and the 1991 sample (N=94*)

	1987		1991	
no cocaine use with...	n	%	n	%
partner	36	32	6	6
family members	26	23	53	56
strangers	20	18	25	27
non users	24	21	39	41
collegues	13	12	10	11
heavy users	8	7	5	5
junkies	8	7	2	2
children	3	3	-	-
people who react unpleasantly	-	-	7	7
other	-	-	13	14

* Number of respondents who report persons (more than one answer was possible).

6.2 Emotional states (sets) for cocaine use

One of the main findings for the "set" of cocaine use in 1987 was the requirement for a positive emotional state. Negative emotional states were explicitly mentioned as not suitable for cocaine. Although this remains true for the 1991 sample, there are changes.

"A depressive state" was mentioned in 1987 by only 12 percent as good for use and by 48 percent as bad for such use (Tables 6.2a and 6.2b). In 1991 25 percent thinks a depressive state is a good state for use and 57 percent as bad. So, although depression increased its rating as a bad state, this also occurred for its rating as a good state for cocaine use. Depression, however, remains the major set that is unfit for cocaine use. "Being energetic", mentioned as a suitable state

for cocaine use in 1987 (10 percent) almost disappears in 1991 (just 2 percent). It is more often mentioned as a bad state in 1991 (from 7 percent in 1987 to 17 percent in 1991).

Table 6.2a Emotional states that are suitable for cocaine use and frequency of mentioning in the 1987 sample (N=104) and the 1991 sample (N=87)

	frequency of occurrence											
	often				**sometimes**				**rarely**			
	1987		1991		1987		1991		1987		1991	
emotion	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*
joyful	24	23	8	9	17	16	14	16	5	5	9	10
tired	7	7	7	8	11	11	11	13	5	5	4	5
loving	7	7	5	6	10	10	5	6	2	2	2	2
explosive	5	5	3	3	7	7	4	5	1	1	2	2
depressive	3	3	8	9	3	3	7	8	5	5	7	8
shy	5	5	4	5	3	3	2	2	-	-	3	3
excited	3	3	4	5	4	4	1	1	1	1	2	2
energetic	3	3	-	-	3	3	-	-	2	2	2	2
bored	1	1	1	1	3	3	-	-	1	1	2	2
frustrated	-	-	-	-	3	3	4	5	1	1	-	-
feeling good	-	-	7	8	-	-	9	10	-	-	2	2
other	14	13	6	7	18	17	5	6	7	7	2	2

	total responses			
	1987		1991	
emotion	n	%*	n	%*
joyful	48	46	31	36
tired	23	22	22	25
loving	20	19	12	14
explosive	14	13	10	11
depressive	12	12	22	25
shy	8	8	9	10
excited	8	8	7	8
energetic	10	10	2	2
bored	5	5	3	3
frustrated	4	4	4	5
feeling good	-	-	18	21
other	42	40	13	15

* Percentages of total number of respondents who reported emotional states (more than one answer was possible).

Table 6.2b Emotional states that are unsuitable for cocaine use in the 1987 sample (N=98) and the 1991 sample (N=74)

	1987		**1991**	
situation	n	%	n	%
depressive	47	48	43	58
not well	13	13	11	15
frustrated	9	9	9	12
energetic	7	7	13	18
erotic	8	8	1	1
loving	3	3	1	1
angry	3	3	-	-
anxious	2	2	-	-
bored	1	1	-	-
shy	-	-	6	8
other	21	21	13	18

* Percentages of number of respondents who report emotional states (more than one answer was possible).

Such changes are very hard to interpret. They may mean little because they are artifacts generated by the interviewer, interviewer situation or other bias. They may indicate a subtle shift in the functional characteristics of cocaine. The latter interpretation seems unlikely because most interpretations of good and bad sets remain stable in rank.

6.3 Financial limits on cocaine purchases per month

In 1987 we found that 50 percent of the respondents set financial limits. The presence of self defined financial limits was not different between the three use levels defined during the period of top consumption. This meant that the probability of setting a financial limit to purchases of cocaine did not increase with level of use. Although the proportion of respondents who report financial limits has not increased in 1991, the relation of such limits to the level of use is now clear.

Table 6.3a Presence of financial limits on cocaine purchases for total sample in 1987 and 1991 and for different levels of use during period of heaviest use

	level of use period of heaviest cocaine use															
	low				medium				high				total			
presence of	1987		1991		1987		1991		1987		1991		1987		1991	
financial limit	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
yes	43	56	34	60	23	47	20	61	14	42	4	24	80	50	58	54
no	22	29	22	39	18	37	13	39	17	52	12	71	58	36	48	44
no answer	12	16	1	2	8	16	-	-	2	6	1	6	22	14	2	2
total	77	100	57	100	49	100	33	100	33	100	17	100	160	100	108	100

In Table 6.3a we show that in 1991 those who used at a high level during their top period report significantly less often than medium or low top level users that they apply some financial limits.[2] The meaning of this is unclear. It might be spurious but it might also indicate that there is after all some relation between financial limits and top level of use. Do people loosen financial limits when they use at higher levels or are many high level users in this sample persons who do not care about such limits?

6.4 Advice to novice users

Responses to questions about advice to novice users may provide indirect access to structuring rules. Such "advice" may be "rule-guided". In Tables 6.4a to 6.4f the responses to these questions are reported for 1987 and 1991. In 1987, the summarized outcome of advice was:

"… restrict yourself to snorting; use it when you feel already well, with nice company and do not use much of it. Cocaine can be combined with other drugs, but with care if with alcohol or cannabis; buy cocaine from trusted people, and preferably not in public places."
(Cohen 1989, 115)

The results for 1991 are strikingly similar. A small difference can be seen in advice about combinations with other drugs (Table 6.4d). In 1987, 20 percent would suggest not using cocaine with another drug, and this percentage has risen to 31 percent in 1991. However, in 1987, 24 percent of the respondents did not answer this question, against only 2 percent in 1991. Thus, the change we see here may be only related to the smaller 'no answer' category. Still, in both years the advice not to use cocaine in combination with another drug was frequently given.

Table 6.4a Advice for novice users of cocaine relating to mode of ingestion in the 1987 sample (N=160) and 1991 sample (N=108)*

advice for mode of ingestion	**1987**		**1991**	
	n	%	n	%
snort it	116	73	98	91
don't shoot	16	10	4	4
don't base	9	6	3	3
smoke it	7	4	9	8
eat it	5	3	-	-
don't use at all	5	3	1	1
grind well	3	2	1	1
be careful	3	2	-	-
get advice first	2	1	-	-
slowly	2	1	1	1
base it	-	-	2	2
shoot it	-	-	1	1
other	4	3	3	3
don't know/no answer	14	9	2	2

* More than one answer was possible

Table 6.4b Advice for novice users of cocaine relating to quantity in the 1987 sample (N=160) and the 1991 sample (N=108)*

advice relating to quantity	**1987**		**1991**	
	n	%	n	%
little	101	63	30	28
as you like	22	14	2	2
not more than 'effective' dose	20	13	71	66
don't use at all	4	3	1	1
careful	3	2	3	3
not (too) often	3	2	1	1
not (too) little	2	1	3	3
other	2	1	-	-
don't know/no answer	13	8	3	3

* More than one answer was possible

Some variation was found in responses to queries on the 'quantity of use'. In 1987, 59 percent would answer "minimal" versus 26 percent in 1991. However, the answer "not more than "effective" dose" increases from 12 percent in 1987 to 62 percent in 1991. Advice to use, still formulated in terms of limitation, moved away from simply 'minimal' to a more functional answer. An emphasis on limitation is also found in answers on preventing ill effects. *In both years the most often reported answer is phrased in terms of limitation of use.*[3] This result is a logical extension of our finding that the most often found use pattern is up-top-down.

Table 6.4c Advice for novice users of cocaine relating to circumstances of use in the 1987 sample (N=160) and 1991 sample (N=108)*

advice relating	**1987**		**1991**	
to circumstances	n	%	n	%
in company	68	43	60	56
feeling well	46	29	22	20
going out	26	16	19	18
anywhere	4	3	1	1
kick needed	4	3	1	1
only special occasions	3	2	4	4
hygienic	2	1	-	-
only weekends	2	1	-	-
at home	2	1	13	12
don't use at all	2	1	-	-
good health	2	1	-	-
other	4	3	7	6
don't know/no answer	19	12	4	4

* More than one answer was possible

In 1991 we added a few questions in this section on advice. We asked if respondents had ever encouraged or discouraged cocaine use, and if so, who was advised. We found that the largest category of respondents (41 percent) did not encourage nor discourage. Only 7 percent have both encouraged and discouraged. Of all respondents 23 percent have only encouraged; while 30 percent has only discouraged. Only 30 percent of these experienced users have ever encouraged cocaine use to others, a surprisingly small percentage. The same holds for discouraging: only 37 percent have ever discouraged cocaine use. Encouraging incurs for sociability (13 respondents) or some particular characteristic of the persons encouraged (10 respondents). When asked whom they encouraged, most responded "friends".

Reasons for discouraging cocaine use are varied. Ten respondents report that cocaine is dangerous; eighteen respondents discouraged a particular person and his or her specific situation, age or character. Eight respondents cited bad experiences with cocaine. When asked whom they discouraged, out of the 39 most responded "friends". According to these self reports, roughly one third of cocaine users in Amsterdam have encouraged and one third have discouraged. Such advice is given to friends for many reasons.

Of our respondents 58 percent perceive the number of cocaine users as increasing, 7 percent as decreasing and 19 percent as stable. Among the 64 follow up respondents[4], perceptions of increased or decreased use are different. Of these 33 percent report cocaine use as increased, 30 percent as decreased and 23 percent as stable (see Table 6.4g). There is a large difference between these two groups in their perception of the use of cocaine around them. This may be explained by the different career phases of these two groups.

Table 6.4d Advice for novice users of cocaine relating to combinations with other drugs in the 1987 sample (N=160) and the 1991 sample (N=108)*

advice relating to combinations with other drugs	**1987** n	%	**1991** n	%
careful with alcohol	42	26	18	17
with no other drug	42	26	44	41
with alcohol	38	24	33	31
with cannabis	24	15	11	10
careful with other drug	14	9	11	10
careful with cannabis	6	4	8	7
different per user	4	3	-	-
with tobacco	4	3	10	9
no problems with other drugs	2	1	1	1
not with downers or speed	2	1	-	-
other	3	2	6	6
don't know/no answer	24	15	2	2

* More than one answer was possible

Table 6.4e Advice for novice users of cocaine relating to buying cocaine in the 1987 sample (N=160) and the 1991 sample (N=108)*

advice relating to buying cocaine	**1987** n	%	**1991** n	%
reliable persons	90	56	73	68
always same dealer	30	19	17	16
not in public spaces	23	14	26	24
get info first	13	8	1	1
don't buy at all	15	9	2	2
test quality	2	1	1	1
other	2	1	3	3
don't know/no answer	21	13	8	7

* More than one answer was possible

The follow up respondents had initiated their cocaine use on average 12 years before the follow-up interview. They all know former users who had ended a particular life style. Most new users who began use on average only five years before the interview belong to an active outgoing scene in which cocaine use seems still highly prevalent or increasing. This points up the need to carefully interpret perceptions reported by users, ex-users, and observers.

Table 6.4f Advice for novice users of cocaine relating to countering ill effects in the 1987 sample (N=160) and the 1991 sample (N=108)*

advice relating to countering ill effects	1987		1991	
	n	%	n	%
use little, not often	38	24	25	23
go to reliable place	15	9	-	-
stop when bad effects occur	14	9	3	3
first time not alone	13	8	-	-
live healthy	13	8	4	4
rinse nose afte use	9	6	3	3
take valium, vitamin C	8	5	-	-
watch expenses	7	4	1	1
don't use at all	6	4	1	1
go to drug treatment	3	2	3	3
no advice possible	3	2	1	1
use with reliable people	2	1	6	6
don't overestimate cocaine	2	1	-	-
take cannabis with insomnia	-	-	2	2
on good occasions	-	-	5	5
take time to recover	-	-	8	7
be careful for addiction	-	-	11	10
there are no ill effects	-	-	4	4
ill effects can't be avoided	-	-	14	13
not too much alcohol	-	-	4	4
other	15	9	25	23
don't know/no answer	28	18	10	9

* More than one answer was possible

Table 6.4g Perception of cocaine use in Amsterdam

cocaine use has...	1991 follow up sample		1991 new users sample	
	n	%	n	%
increased	21	33	63	58
decreased	19	30	8	7
stabilized	15	23	20	19
don't know/no answer	9	14	17	16
total	64	100	108	100

χ^2: 18.62; df: 3; p<0.001

6.5 Preferred cocaine policy

Preference for various controls on cocaine use can also be interpreted as "structuring rules". In 1987 a small majority opted for a more liberal and tolerant cocaine policy than the one they perceived. In 1991 this belief is unchanged (Table 6.5a). The majority for a more tolerant cocaine policy (resembling cannabis or alcohol) is very small. Nearly half of these users opt for a cocaine policy that is more repressive than the one for cannabis.
We asked respondents in 1991 to evaluate the present cocaine policy situation (in 1987 we did not ask this question). Respondents were offered a choice of three

answers: positive, negative or neutral. Two thirds (62 percent) answered 'neutral', 24 percent saw the present situation as 'negative', and 11 percent as 'positive'.

Table 6.5a Preferred cocaine policy in the 1987 and 1991 samples

	1987		1991	
policy preference	n	%	n	%
like alcohol	37	23	20	19
between alcohol and cannabis	5	3	1	1
like cannabis	39	24	34	31
between cannabis and heroin	7	4	22	20
like heroin	64	40	25	23
more respressive than heroin	-	-	3	3
don't know/no answer	8	5	3	3
total	160	100	108	100

We also asked only in 1991 the amount of time required to purchase cocaine. For 68 percent the time of search would take a few hours or less. For 22 percent 1 or 2 days would be spent and for 10 percent, it would take even longer. In 1987, we found that currently abstinent cocaine users significantly favored a less liberal policy for cocaine than respondents who were using at the moment of interview. We speculated that most (ex-) users of drugs perceive themselves as better able to control use than others (Cohen 1989, 119). To test this idea we asked each respondent in 1991 whether the own ability to control cocaine was greater than others. 75 percent said yes![5]

Apparently, a large majority views present drug policy as neutral or positive for themselves, are able to buy cocaine on short notice, and believe themselves better to control cocaine use than others. A majority have never used more than 0.5 gram of cocaine per week, and most of those who have been using at higher levels became lower level users or stopped. Still, almost half desired a policy for cocaine that is more repressive than the one for cannabis.

We also asked respondents if they knew persons with a 'risky' relationship to cocaine. This question reflects the notion that cocaine can be used in ways that are riskier than other ways. These "ways" of risky versus less- or non-risky use constitute broad structuring concepts around cocaine use. When respondents distinguish such patterns, we assume that such recognition guides the respondents own use.

In 1991 62 percent of our respondents knew 'risky users' of cocaine (64 percent in 1987). Of the follow up respondents 60 percent knew such users. Why two thirds of all experienced cocaine users identify "risky" patterns of use yet one third do not is unclear.

Of our 1991 respondents, 33 percent report that cocaine has been "an obsession" at some point during their career. In 1987, 36 percent reported this and 34 percent of our non abstinent follow up respondents had also felt obsessed with cocaine.

6.6 Self reported rules

In the preceding sections we interpreted some answers as 'rules' or 'rule-related'. But when one asks cocaine users which governing rules they apply to their use, both in 1987 and in 1991 about one third of all respondents do not answer this question. Perhaps, for these users rule related behavior is not recognized as such. For those who answer this question the main rule is the same in both years: do not consume earlier than a certain time of day. Other important rules also use 'time' as a structuring principle often linked to non-use during an important activity. This means that cocaine use *should not interfere with other activities that take priority*. This supports a notion elaborated by Waldorf et al, 1991. They found that heavy cocaine users controlled cocaine consumption by focusing on a 'stake in conventional daily life' (p. 232). When other priorities are threatened, drug use is adjusted to relieve the threat or eliminate it all together.

Table 6.6a Rules applied to control cocaine use in the 1987 and 1991 samples

	1987 (N=160)		**1991** (N=108)	
rule to control cocaine use	n	%	n	%
not earlier than certain time of day	33	21	26	24
only when there's nothing important to do next day	29	18	16	15
not during work or study	28	18	9	8
not more than a certain amount	8	5	7	6
not before dinner	10	6	4	4
not with certain persons	7	4	4	4
be careful with alcohol when using cocaine	5	3	6	6
not when feeling depressed	5	3	2	2
certain frequency of use, certain intervals between use	4	3	5	5
take into account how situation relates to cocaine use	4	3	5	5
not alone	3	2	1	1
not during week or rarely during week	3	2	6	6
stop if feeling certain effects	1	1	2	2
not before sleeping	1	1	1	1
avoid regular cocaine use, do not use when offered	1	1	6	6
only use own cocaine	1	1	-	-
never buy cocaine	1	1	2	2
never accept cocaine from strangers	1	1	-	-
only high quality cocaine	1	1	-	-
financial limits on purchase of cocaine	1	1	1	1
not with sex	1	1	-	-
only when going out	-	-	3	3
only at special ocasions	-	-	5	5
only use for fun	-	-	4	4
other	3	2	13	12
no answer/no rules	51	32	32	30

Table 6.6b Given rules for cocaine use against level of use at time of interview for combined 1987 and 1991 sample (N=267)

	rules for cocaine use					
	yes		no		total	
level of use	n	%	n	%	n	%
none	48	26	24	28	72	27
low	119	65	49	58	168	63
medium	13	7	7	8	20	7
high	2	1	5	6	7	3
total	182	100	85	100	267	100

Mann-Whitney U = 7,507.0; Z = -0.4537; n.s.

Notes

1 It is important to note that all our questions about set and setting were 'open' questions, i.e. no pre-formulated answers or categories were given to respondents. They could answer whatever they wished in their own words.

2 χ^2=6.98; df=2; p<0.05.

3 This advice is quite reasonable, because in both years of investigation the probability of a respondent reporting many negative effects significantly related to the level of use. This means that decreasing use is a secure way to decrease the number and intensity of negative cocaine effects.

4 We interviewed these for the first time in 1987 for the second time in 1991, in the same period as the 108 new users.

5 The same question was asked to the still using respondents in our follow up study. This group (N=30) generated 71 percent affirmatives.

7 Advantages, disadvantages, and effects of cocaine

Introduction

In this chapter we will examine the reported advantages of cocaine, its perceived disadvantages and its effects. We will also compare the 1987 data with the 1991 responses. Cocaine's perceived advantages are discussed in §7.1, its disadvantages in § 7.2. The long section 7.3 is dedicated to the effects of cocaine, the difficulties of measuring them, and some ideas directed to obtaining more reliable information and interpretations about the effects of cocaine. "Effects" are defined as self reported subjective perceptions of mood, or physical phenomena. None of the effects relate to objective measurements, like blood tests, ECG or EEG, or to observations by those other than respondent's.

7.1 Cocaine's advantages

Respondents answered open questions about cocaine's advantages, asked as in 1987.[1] In Table 7.1a the total number of mentions an advantage received is shown, with its ranking.

Table 7.1a Advantages of cocaine, rank order and frequency in 1991 sample (N=108)

	rank order					rank order
advantage of cocaine	1	2	3	4	total	**total**
makes me more energetic	28	24	23	5	80	1
makes me high, relaxed	13	11	10	3	37	3
makes me more communicative	18	28	17	3	66	2
makes me more creative	12	9	6	4	31	4
makes me selfconfident	11	7	3	1	22	5
makes me excited	-	-	4	2	6	9
lets me drink longer	6	4	5	4	19	6
makes partying better	8	5	1	4	18	7
makes me have better sex	1	2	5	-	8	8
other					45	

Table 7.1b illustrates that the first five advantages are essentially identical in rank order between 1987 and 1991. This is not unexpected because the settings and functions of cocaine (Chapter 6) are also highly similar between these years.

The only real difference between 1987 and 1991 is that the advantage 'gives excitement', dropped from rank number 6 in 1987 to 9 in 1991. Receiving only six mentionings (out of 332), this advantage almost disappears. Such a change may reflect some sort of 'normalization' of cocaine. Using cocaine in the seventies was a new and strange activity but it no longer gives excitement. 'Better sex' plays no prominent role in either year. Per respondent we elicited an average of 3.1 advantages, versus 2.9 in 1987.

Table 7.1b Rank order of advantages of cocaine in the 1987 sample (N=160) and the 1991 sample (N=108)

advantage of cocaine	1987 rank order	1991 rank order
makes me more energetic	1	1
makes me high, relaxed	2	3
makes me more communicative	3	2
makes me more creative	4	4
makes me selfconfident	5	5
makes me excited	6	9
lets me drink longer	7	6
makes partying better	8	7
makes me have better sex	9	8

7.2 Cocaine's disadvantages

As in 1987 respondents reported many disadvantages, exceeding greatly the listed advantages of cocaine. In 1991 we found 2.7 disadvantages per respondent, versus 2.5 in 1987. The relative importance of the disadvantages has changed somewhat. The most important disadvantage of 1987 was cocaine's expense, mentioned by 16 percent of respondents. In 1991 only 8 percent mention expense as the most important disadvantage, dropping to fourth in the rank order. However, the first five disadvantages of 1987 remain the first five in 1991.

Other disadvantages are the provocation of depression, paranoia, aggression and dependence. However, the number of times these are mentioned is low. Depression constitutes 5 percent (3 percent in 1987), paranoia 1 percent (1.5 percent in 1987) and aggression 3 percent (3.5 percent in 1987) of total number of mentions. Dependence was categorized in two different ways, as physical and psychological dependence. The first (physical) was mentioned by 1 percent (2 percent in 1987) and psychological dependence was mentioned by 7 percent (6 percent in 1987, see Table 7.2a).

These outcomes do not refer to the *prevalence* of these phenomena themselves, *but only to their perception as being disadvantageous.* As will be shown later the raw prevalence of these phenomena is higher. For instance, for depressions life time prevalence is 40 percent (Table 7.3b), suggesting some kind of importance[3]. Combining answers about advantages and disadvantages with prevalence data

Table 7.2a Disadvantages of cocaine, rank order and frequency in the 1991 sample (N=108)

	rank order					rank order
disadvantage of cocaine	1	2	3	4	total	**total**
it has unpleasant physical effects	14	16	12	6	48	1
it is bad for health	11	9	6	3	29	2
it makes one egocentric, introverted	12	5	6	1	24	3
it is expensive	9	7	6	2	24	4
it creates psych. dependence	6	8	5	1	20	5
it takes much time to recuperate	9	7	-	-	16	6
it causes depression	8	3	3	2	16	7
it creates bad physical condition	6	5	2	2	15	8
it makes one superficial	5	3	2	-	10	9
it causes negative feelings	6	3	-	-	9	10
it makes one agressive, irritated	2	3	2	2	9	11
it causes insomnia	5	1	1	-	7	12
it makes one speedy, exaggerated	1	3	1	-	5	13
it causes paranoic feelings	-	-	3	1	4	14
it takes away appetite for food	2	-	1	-	3	15
it causes megalomanic feelings	1	1	1	-	3	16
unpleasant/criminal environm.	-	1	1	-	2	17
it induces too much drinking	-	-	2	-	2	18
it creates physical dependence	-	1	1	-	2	19
it makes one insensitive, cold	-	1	-	-	1	20
it induces too much smoking	-	-	-	-	-	21
it has been adulterated, low quality	-	-	-	-	-	22
other					40	

Table 7.2b Rank order of disadvantages of cocaine in the 1987 sample (N=160) and the 1991 sample (N=108)

disadvantage of cocaine	**1987 rank order**	**1991 rank order**
it is expensive	1	4
it has unpleasant physical effects	2	1
it is bad for health	3	2
it creates psych. dependence	4	5
it makes one egocentric, introverted	5	3
it creates bad physical condition	6	8
it takes much time to recuperate	7	6
it makes one agressive, irritated	8	11
it causes depression	9	7
it induces too much drinking	10	18
it causes insomnia	11	12
it causes negative feelings	12	10
unpleasant/criminal environm.	13	17
it induces too much smoking	14	21
it has been adulterated, low quality	15	22
it creates physical dependence	16	19
it makes one superficial	17	9
it causes megalomanic feelings	18	16
it makes one speedy, exaggerated	19	13
it makes one insensitive, cold	20	20
it takes away appetite for food	21	15
it causes paranoic feelings	22	14

permits a better indication of the importance of cocaine effects. Although 40 percent of the 1991 respondents experienced depression as effect of cocaine (15% 1-5 times and 25 percent more often than 5 times; see Table 7.3b) only 15 percent (16 persons) mention this as one of the four most important disadvantages of cocaine. As a proportion of all mentioned disadvantages it is only 5 percent. In the rankings of disadvantages, depressions is number 7 (1991) or 9 (1987) in a list of 22 disadvantages, most of which gather only very few mentionings. *The mere prevalence of an effect does not give a useful insight in the value of this effect for a particular aggregate of respondents.*
Multiple 'effect' questions that permit relative importance assignments may give such insights.

7.3 Effects of cocaine

We concluded in 1987 that measuring the subjective effects of cocaine is very difficult. Speaking about "*'the' effects of cocaine was considered too much of a reduction of the complexities of cocaine's effects.*" (Cohen 1989, 105). Three main reasons were given :

1 When assessing any relation between apparent level of cocaine use and prevalence of cocaine effects there is relatively little agreement among studies of cocaine users (Amsterdam, Miami and Toronto);
2 One particular cocaine user may report a different *grouping of effects* than another;
3 When cocaine effects are organized into scales, only a small portion of the variance in scores can be explained by level of use or other parameters of use. Apparently other factors than the amount of cocaine consumed effect subjective effect reporting.

After our 1987 study of 160 experienced cocaine users, which generated the three ideas above, we re-examined 64 of the original 160 respondents in 1991 (Cohen and Sas, 1993). Only 34 had used cocaine more than ten times since we saw them last. We asked these 34 the same effect-questions as we did in 1987 and calculated their new scores on each of the effects scales we had constructed. On scales 1 and 4 we found the same scores for just over 50 percent of the respondents. On the other scales results varied even more, with only 12 percent scoring the same on scale 5. Reporting fewer effects than in 1987 varied between 18 percent (scale 1) to 44 percent on scale 2. The meaning of such measurement at any point in time is uncertain.
It may be that our method (giving the respondent long lists of effects and then asking if they had experienced them as a consequence of cocaine use), is sensitive to bias. Both unreliability and invalidity might be questionnaire related. Experienced effects may not have been well described by the text, interpretations of

Table 7.3a Life time and last year prevalence of 30 symptoms (list 1), and prevalence of their being reported to cocaine use in the 1987 sample (N=160) and 1991 sample (N=108), in percentages

(adverse) effects of cocaine use (list 1)	ever suffered	experienced last year	as consequence of cocaine use 1987	1991
runny nose	80	69	57	62
insomnia	76	62	53	57
lack of appetite	72	65	54	58
restlesness	83	74	39	41
reduces orgasms	44	35	25	22
physical unfit>1 month	56	44	22	26
anxiety	41	27	21	22
lack of sexual interest	49	43	16	18
rhinitis	15	7	16	9
bronchial problems	44	32	14	14
impotence*	16	11	11	7
nose problems (septum)	7	6	11	5
infections	42	27	9	9
depression > 1 month	36	18	9	14
delirium tremens	19	9	6	10
high blood pressure	19	14	4	10
skin infections	26	17	6	8
haemorrhages	8	6	4	6
streetfight wounds	18	10	3	5
ulcer	6	1	2	2
gynaecol. problems**	31	18	2	-
veneral diseases	21	6	1	-
minor operations	19	2	1	1
overdose of some drug	19	7	6	6
liver disease	6	1	1	1
pneumonia	16	-	-	1
serious accident/wounds	19	7	-	2
kidney diseases	5	-	-	1
heart diseases	2	1	-	-
diabetes	1	1	-	-

* Only applicable for men (1991: N=56, 1987: N=96)
** Only applicable for women (1991: N=51, 1987: N=64)

the description by the respondents varied, interviewers would give different explanations when asked for information about the effects, etc.
Reasons may also be respondent related: does a cocaine user really know if the depression he had during such and such period was due to cocaine? Could the attribution of causality between phenomena be inaccurate?

In repeating the 1987 technique we hoped to be able to find out a little more about the reliability of the used technology. And using the same instrument would at least not introduce new bias. We increased the time invested in interviewer training in an effort to standardize effects interpretations by the interviewers.
In the preceding chapters we have seen a great commonality between the 1987 and 1991 cocaine users. This is of course another necessary condition for checking the reliability of an instrument. Besides checking the instrument, we were also curious to find out if we would be able to find shifts and changes in effect-prevalence .

Table 7.3b Effects of cocaine, never experienced, one to five times and more than five times experienced (list 2) in the 1987 sample (N=160) and 1991 sample (N=108), in percentages

(adverse) effects of cocaine use (list 2)	never		1-5 times	more than 5 times	
	1987	1991	1991	1987	1991
energetic feeling	2	3	4	93	94
self confidence	8	9	8	81	82
cotton mouth	11	19	19	73	62
fast thought	13	12	16	72	72
clear thinking	13	11	17	63	71
lack of appetite	15	19	16	63	65
forget worries	19	13	22	50	64
restless/nervous	21	24	35	45	40
insomnia	22	23	26	45	51
increased heartbeat	26	18	24	41	58
sweating	46	43	19	32	39
mind wanders	46	38	31	31	30
focus on meaningless tasks	45	45	20	31	33
nosebleeding	35	38	32	30	29
tooth grinding	49	43	19	29	38
megalomania	44	44	22	28	33
feeling impersonal	46	46	22	26	31
depressions	49	60	15	26	25
reduced orgasms	47	62	19	24	17
tremor	63	64	17	20	19
feeling detached	61	50	25	19	25
headaches	53	64	19	18	18
anxiety	59	71	13	18	15
overly suspicious	61	62	21	15	16
dizziness	73	76	18	15	6
nausea	56	70	18	14	11
visual distortions	69	72	13	13	14
change in breathing	67	68	18	11	14
mystic experiences	73	77	14	9	8
unconsciousness	92	94	4	1	1
convulsions	83	75	15	6	9
hallucinations	85	84	8	6	6
skin bugs	89	90	6	6	4
menstr. cycle changes*	78	82	8	5	10

* Only applicable for women (1991: N=51, 1987: N=64)

Prevalence of cocaine effects

The following paragraphs describe the prevalence of each individually reported effect of cocaine.

In Tables 7.3a to 7.3c the raw prevalence figures are given for all effects. The effects are organized into three lists originated in the research of Spots and Shontz (1980), – list 3 – and Morningstar and Chitwood (1983) – lists 1 and 2. In each table four columns of prevalence information are listed. The first two reflect raw prevalence from the 1991 sample, whether a consequence of cocaine or not. In the last two columns effect prevalence in 1987 and 1991 are compared as reports of cocaine effects.[4]

The prevalence scales often show variation when comparing 1991 to 1987. Some comparisons are difficult to interpret. For example, although use levels between

Table 7.3c Effects of cocaine, never experienced, one to five times and more than five times experienced (list 3) in the 1987 sample (N=160) and 1991 sample (N=108), in percentages

(adverse) effects of	never		1-5 times	more than 5 times	
cocaine use (list 3)	1987	1991	1991	1987	1991
talkative	6	6	10	79	84
euphoria	13	13	21	66	66
prolonged sex	21	33	23	51	44
sense of perfection	21	27	25	51	48
sexual stimulation	24	35	25	47	39
feeling cold, impersonal	28	20	19	44	61
feeling indifferent	29	25	28	48	47
dilation of pupils	32	25	18	47	56
diarrhea	44	49	25	34	23
urinate more often	46	53	14	33	33
better orgasms	47	67	15	22	19
lack of ambition	55	55	17	21	28
weight loss	60	53	20	18	26
yawning	60	66	18	16	16
tightness in chest	60	66	20	11	14
indifference to pain	62	51	18	14	31
ringing in the ear	75	78	12	7	10
panic, scared	76	81	7	9	11
allergies	82	83	7	8	8
visual flashes	86	79	15	6	6
imagined enemy	89	90	6	4	5
violence	91	88	8	2	4
urge to carry weapon	93	93	4	3	4
spontaneous orgasm	93	96	3	1	1
epileptic convulsions	99	99	-	-	-

the two samples are similar, 'cocaine depressions' have *never* been experienced by 49 percent in the 1987 sample and 60 percent in the 1991 sample. However when we examine at the "more than five times" prevalence of cocaine related depression, the data for the two years are remarkably similar: 26 percent and 25 percent.

It is not very helpful to discuss all minor and major differences between the years. Most offered reasons would be speculative even if large amounts of time were invested into data analysis. We see however that most of the ordinal ranking of prevalence has remained stable. Effects that were highly prevalent in 1987 are still so, and low level prevalence in 1987 is very likely to be seen again in 1991. This might indicate some sort of reliability check of the reported effects of cocaine in users as sampled by us.

The relationship between levels of use and the prevalence of the different effects is problematic (Tables 7.3d, 7.3e and 7.3f). Some effects that were related to level of use during peak periods in 1987 were not so in 1991, and vice versa.

These results indicate again that the instruments we used for measuring cocaine effects are still far from perfect[6]. This may be due to bias in sampling (or more precise: recruitment), interviewer effects, wording of the cocaine effect questions, changes in fashions about route of ingestion, differences in functional

Table 7.3d Occurence of effects of cocaine (list 1) for level of use in period of heaviest use in 1991 sample *in percentages* and $\chi 2$ significance level for relation between level of use and occurence of effects for 1991 and 1987 sample

	level of use in period of heaviest use for the 1991 sample				χ^2	
(adverse) effects of	**low**	**medium**	**high**	**total**	**significance**	
cocaine use (list 1)	N=57	N=33	N=17	N=107	1991	1987
runny nose	56	67	71	62	ns	***
lack of appetite	39	88	71	59	~	ns
insomnia	37	82	82	58	*****	ns
restlesness	28	52	65	41	*	**
no orgasms	11	33	41	22	*	*
phys. unfit>1 month	12	27	71	26	******	**
anxiety	11	27	53	22	*	****
lack of sexual interest	12	21	29	18	ns	*****
rhinitis	4	12	24	9	~	~
bronchesproblems	5	18	35	14	~	ns
impotence°	4	-	38	7	~	~
nose problems (sceptum)	2	3	18	5	~	~
infections	2	9	35	9	~	~
depression > 1 month	9	15	29	14	~	*
delirium tremens	7	9	24	10	~	~
skin infections	4	6	29	8	~	~
overdose of some drug	5	-	24	7	~	~
high blood pressure	5	15	18	10	~	~
haemorrhages	2	6	18	6	~	~
liver disease	-	-	6	1	~	~
streetfight wounds	2	3	18	5	~	~
ulcer	2	-	6	2	~	~
gynaecol. problems°°	-	-	-	-	~	~
veneral diseases	-	-	-	-	~	~
small operations	-	-	6	1	~	~
pneumonia	-	-	6	1	~	~
serious accident/wounds	2	-	6	2	~	~
kidney diseases	-	-	6	1	~	~
heart diseases	-	-	-	-	~	~
diabetes	-	-	-	-	~	~

° Only applicable for men (N=28;21;8;57)
°° Only applicable for women (N=29;12;9;50)
Differences between the 1987 significance levels of some effects and the same effects in Cohen (1989) are caused by different methods of computing.

* p<0.10 ***** p<0.005
** p<0.05 ****** p<0.001
*** p<0.025 ns not significant
**** p<0.01 ~ not applicable

perceptions of cocaine, imperfections in the way level of use is computed and or differentiated, etc (see also Cohen and Sas, 1985).
Another unknown source of bias can be caused by the use of combinations of drugs. As we have shown in chapter 5, the combination of MDMA and cocaine occurs often or regularly with 8 percent of all 1991 respondents. Of all respondents 30 percent have experience with this combination. This may influence the prevalence of attributed cocaine effects enough to distort comparison.

Does the route of ingestion contribute bias? Bias that relates to route of ingestion is illustrated by an item like convulsions. In 1987 even in the high level group the life time prevalence of this phenomenon was not higher than 33 percent and not

Table 7.3e Occurence of effects of cocaine (list 2) for level of use in period of heaviest use in 1991 sample *in percentages* and $\chi 2$ significance level for relation between level of use and occurence of effects for 1991 and 1987 sample

	level of use in period of heaviest use for the 1991 sample				χ^2 significance	
effects of cocaine use (list 2)	**low** N=57	**medium** N=33	**high** N=17	**total** N=107	1991	1987
energetic feeling	98	97	94	97	~	~
self confidence	95	91	76	91	~	~
cotton mouth	68	94	100	81	*****	ns
think faster	89	85	88	88	~	ns
clear thinking	88	85	94	88	~	ns
lack of appetite	72	94	82	80	**	***
forget worries	82	88	94	86	~	ns
restless/nervous	65	85	94	76	****	*
insomnia	68	88	82	77	*	ns
increased heartbeat	77	82	100	82	*	ns
nose bleeding	58	61	71	61	ns	****
sweating	46	70	76	58	***	******
megalomania	54	64	47	56	ns	ns
meaningless tasks	49	58	59	53	ns	ns
feeling impersonal	46	64	65	54	ns	****
difficulty orgasms	30	42	47	36	ns	*****
depressions	30	45	65	40	*****	******
tooth grinding	49	64	71	57	ns	ns
headaches	32	30	65	36	**	ns
mind wanders	60	58	76	62	ns	ns
nausea	21	33	47	29	*	***
anxiety	21	27	53	28	**	**
overly suspicious	30	36	65	37	**	******
feeling detached	40	61	59	50	ns	ns
tremor	32	27	65	36	***	**
change in breathing	19	39	59	32	*****	****
visual distortions	18	24	65	27	******	******
dizziness	21	24	35	24	ns	****
mystic experiences	14	21	53	22	*****	ns
menstr. cycle change°	3	25	56	18	~	ns
convulsions	14	21	65	24	******	ns
hallucinations	4	12	59	15	~	*****
skin bugs	4	6	35	9	~	ns
unconsciousness	2	-	24	5	~	~

° Only applicable for women (N=29;12;9;50)
Differences between the 1987 significance levels of some effects and the same effects in Cohen (1989) are caused by different methods of computing.

* p<0.10 ***** p<0.005
** p<0.05 ****** p<0.001
*** p<0.025 ns not significant
**** p<0.01 ~ not applicable

significantly related to level of use. In 1991 the high level group reports a LTP of this phenomenon of 65 percent and the relationship to level of use is now highly significant. In the 1991 sample some frequent cocaine free base smokers are included and that 30 percent of the total sample has experience with free basing — almost twice the proportion of free base experience in 1987. This may influence both the prevalence of convulsions and its relation to level of use. Obviously, "effects" relate to route of ingestion and level of use. Data should focus on 'snorted cocaine' and the probability of certain effects, of 'injected cocaine' and the probability of certain effects, etc. Measuring effects should

Table 7.3f Occurence of effects of cocaine (list 3) for level of use in period of heaviest use in 1991 sample *in percentages* and $\chi 2$ significance level for relation between level of use and occurence of effects for 1991 and 1987 sample

	level of use in period of heaviest use for the 1991 sample				χ^2 significance	
effects of cocaine use (list 3)	**low** N=57	**medium** N=33	**high** N=17	**total** N=107	1991	1987
talkative	98	94	82	94	~	~
euphoria	88	88	82	87	~	ns
prolonged sex	63	73	71	67	ns	ns
sense of perfection	70	82	65	73	ns	ns
sexual stimulation	58	79	59	64	ns	ns
feeling cold, impersonal	74	85	88	79	ns	ns
feeling indifferent	67	88	82	76	*	ns
dilation of pupils	65	82	88	74	*	ns
diarrhea	53	33	65	49	ns	***
urinate more often	44	45	65	48	ns	******
lack of ambition	33	55	65	45	***	ns
better orgasms	33	36	29	34	ns	ns
weight loss	30	64	71	47	******	******
tightness in chest	26	27	76	35	******	***
yawning	32	33	41	63	ns	*
indifference to pain	37	61	59	48	*	**
ringing in the ear	19	21	35	22	ns	ns
panic, scared	9	12	65	19	******	******
allergies	14	18	18	16	ns	***
visual flashes	18	15	47	21	***	*
imagined enemy	4	9	35	10	~	~
violence	7	18	18	12	~	~
urge to carry weapon	-	6	35	7	~	~
spontaneous orgasm	2	6	6	4	~	~
convulsions	-	-	-	-	~	~

Differences between the 1987 significance levels of some effects and the same effects in Cohen (1989) are caused by different methods of computing.

* p<0.10 ***** p<0.005
** p<0.05 ****** p<0.001
*** p<0.025 ns not significant
**** p<0.01 ~ not applicable

always include the relationship to the route of ingestion. Effect measurements that come from respondents who have multiple routes of ingestion may cause confusion when such measurements are used for prevalence estimations of particular effects.

In the following paragraph we shall control for route of ingestion as a variable in the relationship between the prevalence of effect and its level of use-relatedness.
Lists 2 and 3 contain unpleasant and damaging effects that drug users would wish to prevent. We have selected 10 such effects: nose bleeding, depressions, anxiety, paranoia, convulsions, unconsciousness, panic, tightness in chest, committing violent acts and the urge to carry weapons.[7] In Table 7.3g we list results for these ten selected effects for all respondents combined from 1987 and 1991 who only snorted cocaine.
Surprisingly, this control for route of ingestion does not apparently matter. Some significance values change, most notably for convulsions, but there is little

Table 7.3g Occurrence of cocaine effects and level of use in top period for respondents who exclusively snorted cocaine and for all respondents for combined 1987 and 1991 sample

respondents who exclusively snorted cocaine

	level of use during period of heaviest use						total		χ^2
	low		medium		high				significance
effect of cocaine (list...)	n	%	n	%	n	%	n	%	
haemorrhages (1)	2	2	4	8	2	6	8	4	~
depressions > month (1)	7	6	4	8	8	24	19	10	***
anxiety (2)	28	25	20	38	17	52	65	33	**
overly suspicious (2)	31	28	23	43	20	61	74	37	****
convulsions (2)	23	21	12	23	13	39	48	24	*
unconsciousness (2)	4	4	1	2	6	18	11	6	****
panic (3)	17	15	8	15	18	55	43	22	*****
tightness in chest (3)	32	29	17	32	20	61	69	35	****
violence (3)	8	7	4	8	5	15	17	9	ns
urge to carry weapons (3)	1	1	1	2	10	30	12	6	~
	N=111		N=53		N=33		N=198		

all respondents

	level of use during period of heaviest use						total		χ^2
	low		medium		high				significance
effect of cocaine (list...)	n	%	n	%	n	%	n	%	
haemorrhages (1)	3	2	4	6	6	13	13	5	~
depressions > month (1)	11	7	8	12	10	21	29	11	**
anxiety (2)	43	28	26	38	25	53	94	35	***
overly suspicious (2)	43	28	29	43	30	64	102	38	*****
convulsions (2)	29	19	14	21	20	43	63	24	****
unconsciousness (2)	5	3	2	3	11	23	18	7	*****
panic (3)	21	14	12	18	25	53	58	22	*****
tightness in chest (3)	45	30	25	37	31	66	101	38	*****
violence (3)	12	8	8	12	8	17	28	10	ns
urge to carry weapons (3)	1	1	2	3	16	34	19	7	*****
	N=152		N=68		N=47		N=268		

* p<0.10; ** p<0.025; *** p<0.01; **** p<0.005; ***** p<0.001; ns not significant; ~ not applicable

information gained from this examination of the relationship between route of ingestion and the prevalence of effects.

Scales of (adverse) effects and clustering effects

As in 1987 we compiled scores of our respondents using five scales of cocaine effects. In 1987 certain items (effects) related to each other (Cohen 1989, 100), enabling the computation of Mokken scales.[8] Using the same scales we found *that score distributions are very similar in 1991*. The average scores on scale 1 shows the largest difference between the two samples (7.9 in 1991 against 6.8 in 1987)[9] but this difference is far from significant. Average scores and standard deviations on all scales are similar. This means that if one examines cocaine effects as clusters combining positive and negative effects, respondents' scores in both samples are remarkably similar.

Table 7.3h Scores of respondents on the effect scales in 1987 sample (N=160) and 1991 sample (N=108)

score on scale 1	1987 n	1987 %	1991 n	1991 %
0	9	6	4	4
1 to 5	71	44	36	33
6 to 10	43	27	40	37
11 to 15	20	13	19	18
16 to 20	14	9	6	6
21 to 25	3	2	3	3
total	160	100	108	100
mean	6,79		7,89	
median	5,50		7,50	
std dev	5,68		5,33	

Student's t: 1.60; df: 266; ns

score on scale 2	1987 n	1987 %	1991 n	1991 %
0	62	39	53	49
1	33	21	17	16
2	37	23	22	20
3	28	18	16	15
total	160	100	108	100
mean	1,19		1,01	
median	1,00		1,00	
std dev	1,14		1,14	

Student's t: 1.30; df: 266; ns

score on scale 3	1987 n	1987 %	1991 n	1991 %
0	16	10	7	6
1	25	16	15	14
2	25	16	20	19
3	53	33	27	25
4	28	18	32	30
5	13	8	7	6
total	160	100	108	100
mean	2,57		2,77	
median	3,00		3,00	
std dev	1,42		1,36	

Student's t: 1.15; df: 266; ns

score on scale 4	1987 n	1987 %	1991 n	1991 %
0	59	37	37	34
1	65	41	51	47
2	19	12	15	14
3	11	7	4	4
4	6	4	1	1
total	160	100	108	100
mean	1,00		0,90	
median	1,00		1,00	
std dev	1,05		0,84	

Student's t: 0.84; df: 266; ns

score on scale 5	1987 n	1987 %	1991 n	1991 %
0	36	23	28	26
1	25	16	13	12
2	29	18	17	16
3	21	13	18	17
4	25	16	12	11
5	11	7	12	11
6	8	5	1	1
7	5	3	7	6
total	160	100	108	100
mean	2,40		2,44	
median	2,00		2,00	
std dev	1,97		2,09	

Student's t: 0.18; df: 266; ns

Clustering the effects ascribed to cocaine makes sense, but we have not clarified what factors determine the prevalence of the effects, or the variation of scores on the effects scales. White and Bates (1993) also found, when investigating self-attributed effects of cocaine, that

> *"other factors than the pharmacological properties of drugs and parameters of consummatory behavior are importantly related to the psycho social outcomes of use".*

They found evidence in their data that cognitive and motivational determinants for the use of cocaine predict the prevalence of a range of consequences of cocaine use. Their findings give usable suggestions for further research into cocaine effects.

Differential effect clustering, user types and shifts of user type over time

Our data justify the hypothesis that we can distinguish between cocaine users that differ in *conglomerate or cluster of cocaine effects* reported. This is not unlike our knowledge about alcohol. Not every consumer of this substance will report the same cluster of effects.
The acceptance of differential effect clustering can effect the way we organize effect data. Although users report different clusters of effects, we may locate different main *types* of clusters that could be used to define a certain type of user. Within limits users who belong to a certain type will be recognized as such because they all report the same effect cluster.
However, certain users may shift their "type" depending on shifts in the main functions a drug serves for a user. As illustration assume there is a hypothetical cocaine user C who likes cocaine mainly in social settings. C uses primarily to decrease timidity and increase self assurance but also identifies a range of other cocaine effects taking place in these social settings where talking and socializing are important expectations.
All effects together might be defined as cluster Y. This means that user C is like all other users who report the cluster Y, and "belongs" to type Y. Once user C moves away from the life style where he experienced effect cluster Y he may cease cocaine use altogether.
Another possibility is that user C finds that cocaine helps him under certain stressful circumstances to be more relaxed and more creative. In these circumstances other effects may be experienced because of the different situation in which the drug is taken, different expectations and demands on the drug, different amounts of use in order to experience the intended effects (influencing the prevalence of non-intended effects) and maybe even a different physiological background. The effect cluster Y, experienced by user C, may change to a radically different effect cluster D and thereby change his categorization of cocaine user type.
This hypothetical example illustrates that changing circumstances of use can influence our measurements of effects considerably. *This could explain our finding of very different scale scores with the same respondents a few years later.* In terms of our example, user C, taken during his years of very outgoing behavior will report different effects, a different effect cluster and different advantages than the same user interviewed during the later period when he used cocaine as a relaxant and creativity booster.
In a secondary analysis of all our effect data, taken from 268 experienced users, we shall attempt to cluster certain user types. "Effect clustering" produces scales

when applied to an aggregate of respondents. It may produce user types when applied to an individual respondent.

Notes

1 The only difference was that in 1987 respondents were allowed to mention 5 advantages and 5 disadvantages. Because the average number of mentioned advantages was only 2.9 (disadvantages 2.5) we reduced the allowed number of advantages and disadvantages to 4 in 1991.

2 Open questions on advantages and disadvantages of cocaine may be not suitable for gathering knowledge about the role of cocaine on matters of sexuality.

3 Depression lasting *longer than one month* is reported (as an effect of cocaine) by 11 percent of all interviewed users, 1987 and 1991 combined. See Table 7.3b.

4 We asked if an effect was "ever" experienced, and if it was experienced "last year" and if the effect had occurred (last year) as a consequence of cocaine use. By distinguishing between a phenomenon as an effect of cocaine and as an effect of something else (e.g. illness) we hoped to increase the reliability of effect-reports.

5 The number of contrasted outcomes includes results where significance levels could not be computed due to missing values or extremely low cell values.

6 And of course, the theory behind them.

7 The effect 'urge to carry weapons' occurs rarely, and as we showed in 1987 is strongly associated to another characteristic of respondents, the prevalence of criminal activities (Cohen, 1989, 93). This effect is included here because of its obvious unpleasantness, but we do recognize that this and other effects may reflect false attributions (Davies, 1992).

8 Mokken scale analysis is based on Guttman scale analysis. The latter however is deterministic, which means that a respondent who answers an item in a positive way *must* answer less difficult items also in a positive way. Mokken analysis is probabilistic, meaning that a respondent answering an item positively has a significantly greater probability than null to answer a less difficult item in a positive way as well (Mokken et al, 1982, Sijtsma et al, 1992). Construction of the cocaine effect-scales and information about which items each scale consists of can be found in Cohen, 1989.

9 25 items, mostly negative effects: maximum score 25.

8 Craving cocaine and activities to obtain it; cocaine's effects on work and relations

Introduction

In this chapter, we present data on the prevalence of users reporting that they "crave" or are "obsessed" by the drug (§8.1), income-generating activities engaged in specifically to buy cocaine (§8.2); and reported effects of cocaine on work and personal relations (§8.3).

8.1 Craving and obsession

In questions designed to measure "craving" we used the Dutch word "verlangen", a word that is close in meaning to "longing" in English. The results of our 1987 investigation of cocaine use in Amsterdam had indicated that we needed to reconceptualize the concept of craving, its relevance, and its consequences. In that survey, despite the frequency with which respondents self-reported craving for cocaine, these reports were not associated with an inability to quit, engage in periods of abstinence, or reduce cocaine consumption. Our conclusion was that the experience of "craving", as defined by cocaine users themselves, does not lead necessarily to compulsive or unbroken patterns of use (Cohen 1989, 1990).
In Cohen and Sas (1992) we computed a crude "loss of control" score for all cocaine users investigated in 1987 and 1991. Median scores were almost negligible, average scores were quite low. However, scores were higher for those who had used cocaine at a high level sometime during their use-career. As reported earlier (Chapter 4), such high level patterns are not sustained by most users. We assume that high levels of use are driven by more "craving" than are low levels.

> *"For all 268 respondents we computed, that average top period length is about 12 months (median 8 months). If we look only at those who during top level period used at a high level we see their top period averages 19 months (median 12 months), and those who used at medium level averages 18 months (median 12 months)."*
> (Cohen and Sas, 1992)

Since 213 of the 268 cocaine users we interviewed reported having experienced craving, we conclude that this variable is a poor predictor of "loss of control" or the maintenance of reported high levels of use over time. There was little difference in the prevalence of reported craving between our 1987 and 1991 samples: 76 percent in 1987 and 83 percent in 1991. In both years, cocaine ever being an obsession was reported about by a third (36 percent in 1987 and 33 percent in 1991).

Table 8.1a Length of cocaine use at first craving

length of career	n	%
< 1 week	15	16
1 - 4 weeks	14	15
1 - 6 months	24	26
6 - 24 months	20	22
> 24 months	17	19
unknown/no answer	1	1
total	91	100

We conclude that cocaine created "craving" in two-thirds of our respondents and "obsession" in one-third. However, in spite of these relatively strong experiences, most users are not "seduced" into engaging in (let alone maintaining) self-destructive use patterns. In short, craving and obsession when applied to cocaine seem to be weaker than existing self-regulatory forces (see Chapter 6).

Table 8.1b Prevalence of cocaine ever being an obsession, for 1987 and 1991 samples

	total				**men**				**women**			
	1987		1991		1987		1991		1987		1991	
obsession	n	%	n	%	n	%	n	%	n	%	n	%
yes	58	40	36	40	38	44	18	36	20	34	18	44
no	87	60	55	60	48	56	32	64	39	66	23	56
total	145	100	91	100	86	100	50	100	59	100	41	100
χ^2 (Yates' corr.)	0.00 (n.s.)				0.57 (n.s.)				0.64 (n.s.)			

8.2 Extra sources of income in order to buy cocaine

The activities that users will engage in to obtain cocaine reveal something about the strength of their attachment to the drug. In both 1987 and 1991 we used a set of questions designed by Morningstar and Chitwood (1983) to determine cocaine users' willingness to engage in activities that are unpleasant, illegal or socially deviant. The results are shown in Table 8.2a.

In both years, most of the listed activities have a low prevalence. In 1987, only two activities had a zero prevalence (face to face theft and car breaking) and in 1991, one (stealing from friends). All the other show some prevalence. In both years selling cocaine was the most prevalent, reported by about one-fourth of all

respondents. Borrowing money to buy cocaine increased from a lifetime prevalence of 9 percent in 1987 to 18 percent in 1991.

Table 8.2a Activitiesn engaged in to (obtain money to) buy cocaine, in 1987 sample (N=160) and 1991 sample (N=108)

	1987		1991	
activity ever engaged in	n	%	n	%
theft (face-to-face situation)	-	-	1	1
car theft	1	1	1	1
car breaking	-	-	3	3
stealing from friends	5	3	-	-
stealing cocaine	5	3	7	6
engaging in prostitution	4	3	5	5
shoplifting	6	4	4	4
burglary	9	6	3	3
trading sexual favors	8	5	2	2
taking extra job	11	7	9	8
forging checks	10	6	6	6
run con games	9	6	4	4
sold personal possessions	13	8	9	8
borrowing money	14	9	19	18
selling cocaine	37	23	24	22
tolerating presence of unattractive persons	52	33	48	44

We cannot tell from the data whether the prevalence of criminal behavior among cocaine users (for example, forging checks, engaged in by approximately 7 percent, or shoplifting, engaged in by approximately 4 percent) are typical of the age and social class cohorts of which our respondents are members. The only way to determine this would be to ask similar questions about criminal behavior in household surveys, and then compare the responses. Table 8.2.b shows that these activities rarely occur more than 10 times during a lifetime.
Using total lifetime prevalence of illegal activities (irrespective of their frequency during the cocaine use career) we observe that about 5 percent of respondents in both samples used illegal means, other than selling cocaine, to obtain income to buy cocaine. The illegal activities reported include burglary, check forgery, shoplifting, and operating con games.

8.3 Effects of cocaine use on work and personal relations

We asked respondents who were employed during the three months prior to interview if, during this period, they had been under the influence of alcohol, cannabis or cocaine while at work. We found small and insignificant differences between the 1987 and 1991 samples. In both years, alcohol was most often mentioned. Cannabis was second and cocaine third. However, the differences between cannabis and cocaine were quite small (Table 8.3a).
We also asked respondents to give an opinion regarding cocaine's impact on their job performance and personal relations. In both years we found that about

Table 8.2b Number of respondents engaging in each special activity to obtain (money to buy) cocaine (N=108)

activity	never	rarely	3 to 10 times	more than 10 times	no answer
theft (face-to-face situation)	107	-	-	1	-
car theft	107	1	-	-	-
car breaking	105	1	1	1	-
stealing from friends	108	-	-	-	-
stealing cocaine	101	6	1	-	-
engage in prostitution	103	2	1	2	-
shoplifting	104	-	1	3	-
burglary	105	2	-	1	-
trading sexual favors	106	2	-	-	-
taking extra job	99	5	3	1	-
forging checks	102	5	1	-	-
run con games	104	1	1	2	-
sold personal possessions	98	3	4	2	1
borrowing money	89	13	4	2	-
selling cocaine	83	10	4	10	1
tolerating presence of unattractive persons	60	24	11	13	-

half of all respondents perceived no impact in either of these areas. Of those reporting some impact, both positive and negative impacts were mentioned but with a higher prevalence of negative ones. In 1987, the two main areas in which positive influences were reported were quantity of work done and sexual relationships. However, in 1991, cocaine's negative impact on sexual relationships was reported as often as its positive impact. Also by 1991, "quantity of work done" under the influence of cocaine changed from being mainly positive to mainly negative.

Table 8.3a Of respondents employed during the last three months, those reporting having worked "under the influence" (in 1987 sample, N=107; in 1991 sample, N=86)

	alcohol				cannabis				cocaine			
	1987		1991		1987		1991		1987		1991	
frequency	n	%	n	%	n	%	n	%	n	%	n	%
never	56	52	47	55	70	65	61	71	70	65	59	69
rarely	32	30	15	17	20	19	12	14	23	21	14	16
3 to 10 times	12	11	13	15	8	7	7	8	6	6	5	6
more than 10 times	7	7	11	13	8	7	6	7	7	7	8	9
no answer	-	-	-	-	1	1	-	-	1	1	-	-
total	107	100	86	100	107	100	86	100	107	100	86	100
Mann-Whitney U	U=4,445.5 (n.s.)				U=4,471.0 (n.s.)				U=4,400.0 (n.s.)			

In both years, the same percentage of respondents (13 percent) viewed cocaine as the cause of a separation or divorce. We might speculate from this that while the outgoing cocaine life-style is functional for single persons, it may not be to the liking of partners, may be a source of conflict and may contribute to a

relationship's demise. As we saw in our follow up study, partners sometimes complained about the amount of money spent on cocaine, as well as about the amount of drinking that often develops as part of this outgoing life-style. In one case in the follow up study, a partner forced a cocaine user into treatment because of heavy drinking.

Table 8.3b Influence of cocaine on various items in 1991 sample

item	improved	deteriorated	both	neither	N*
quality of work	20	38	12	54	102
working relations	10	15	4	78	99
quantity of work done	24	39	11	48	102
relationship partner	16	28	4	60	105
sexual relationships	19	19	5	67	106
financial budget	.	49	.	.	106

* N is not always 108 due to missing data or because items were not always applicable to respondents' personal situation.

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Cocaine Use in Amsterdam in Non Deviant Subcultures*

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Abstract

Cocaine use was studied in Amsterdam among experienced users not drawn from biased populations of treatment clients, prison inmates, or prostitutes, but from the much larger pool of community based cocaine users. Cocaine use was studied in two samples, 160 in 1987 and 108 in 1991, recruited using snowball sampling techniques. Sixty-four of the 1987 respondents were also reinterviewed in 1991. Data gathered in these three investigations primarily focus on the effects and consequences of cocaine use, circumstances of use, development of level of use, and rules applied to cocaine use in general. The largest single group of users (50%) never exceed a low use level (less than .5 grams a week). About one in five progress to a high use level of 2.5 grams a week or more during their top period of use. Sustained high level use is rare. There are clear indications that experienced cocaine users tend to diminish their use over time, lace it with periods of abstention, and adjust it primarily to social functions. Negative effects are prevented by a series of rules surrounding use, although no user escapes the occurrence of negative effects altogether.

In Amsterdam we studied cocaine use in three different projects between 1987 and 1991. Our first study in 1987 consisted of 160 in depth interviews with experienced users (Cohen 1989). In the second study we interviewed 64 of these four years later in 1991 (Cohen and Sas 1993). Also in 1991 we interviewed 108 'new users' with the same interview instrument as in 1987. New users were those who started regular use after 1986 (Cohen and Sas 1994, forthcoming). In the following contribution we will first explain the methodological design of these studies, and then some of the major outcomes.

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Methodology

Since much is known about cocaine use in convenience samples from prison inmates, treatments clients or hot line callers, we decided to look for community based users. We wanted to recruit cocaine users via a 'snowball' methodology, outside institutions in the field of drug control and treatment. We wanted to know which effects and consequences of cocaine use would become visible with persons who are mainstream citizens or as close to that social stratum as possible.[1] Parallel to our line of not wanting cocaine users from classic convenience populations, we also did not want to recruit first snowball contacts among highly deviant and easy to find sub groups like prostitutes, so called junkies[2] and full time criminals/prisoners. We feared such deviant lifestyles would contaminate and complicate our findings about the impact of cocaine on life events.

In 1987, entry criterion for experienced cocaine users into the study was a minimum lifetime experience of 25 occasions of use. Our first contacts were cocaine users known to the research staff and to the interviewers of the Bureau that executed the field work. These first contacts, not being junkies, full time criminals or prostitutes, were asked to list initials, gender and age of not more than 20 cocaine users known to them. From this list two potential respondents were randomly selected by the interviewer.[3] The nominating respondent was asked to contact the first nominee, establish their willingness to participate, and ask for permission to give full name and address to the interviewer. After (rare) refusal or people not honoring their appointments (less rare) we would turn to the second nominee. Initial instructions were to abandon a list of nominees after two unsuccessful referrals. Later this was expanded to four. By means of this snowballing method we interviewed 160 experienced cocaine users.

In 1991, our goal was to find 120 'new users' of a later generation, who initiated cocaine use when the substance had a more negative association. Our 1991 study required at least 10 occasions of use after 1986. (Still, 78% had used more often than 25 times). Our first contacts were established mainly by requests in the press (written, radio and TV), by asking our follow-up respondents, and by independent search by our interviewers. Our new user study yielded 108 interviews of respondents that started first regular cocaine use after 1986.

Table 1a. Income differentiation in 1987 and 1991 sample

net income per month	**1987**		**1991**	
	n	%	n	%
less than ƒ1,000	22	14	15	14
ƒ1,000-1,500	54	34	38	35
ƒ1,500-2,000	33	21	21	19
ƒ2,000-2,500	17	11	13	12
ƒ2,500-3,000	17	11	10	9
ƒ3,000-4,000	10	6	7	6
ƒ4,000-5,000	2	1	3	3
ƒ5,000-6,000	1	1	1	1
more than ƒ6,000	4	3	-	-
total	160	100	108	100
mean	ƒ1,902		ƒ1,813	

t=0.68, df=258.61, n.s. (separate variance estimate)

In both years we were able to check the snowball samples against cocaine users found in completely different probability samples resulting from household studies in Amsterdam in the same years. In 1987 we compared the snowball sample of 160 with 68 cocaine users from

the 1987 household survey who reported cocaine use in the 12 months prior to interview.[4] In 1991 we compared our snowball sample with 61 users found in the 1990 household survey who reported starting cocaine use after 1985. Comparing our snowball samples on a range of variables, like age, gender, education, nationality (ethnicity), profession and income with the reference samples from the household surveys, we found no significant differences. This means that our findings in the snowball samples can be regarded as representative of community based cocaine users in Amsterdam.

Table 1b. Level of cocaine use at three periods in time in 1987 sample and in 1991 sample

	first year of regular use				period of heaviest use				last 3 months			
level of	1987		1991		1987		1991		1987		1991	
cocaine use	n	%	n	%	n	%	n	%	n	%	n	%
none	-	-	-	-	-	-	-	-	44	28	28	26
low	143	89	88	81	77	48	57	53	103	64	65	60
medium	13	8	16	15	49	31	33	31	10	6	10	9
high	4	3	2	2	33	21	17	16	3	2	4	4
unknown	-	-	2	2	1	1	1	1	-	-	1	1
total	160	100	108	100	160	100	108	100	160	100	108	100
Student's t	t=-0.63, df=138.12, n.s. (separate variance estimate, F=4.24, p<0.001)				t=-0.32, df=167.04, n.s. (separate variance estimate, F=2.32, p<0.001)				t=-0.78, df=146.78, n.s. (separate variance estimate, F=3.50, p<0.001)			

The two snowball samples were taken four years apart to see if the respondents attracted to cocaine differed in the two periods. On average, the 1987 users initiated around 1980 (when cocaine had an elite and classy image). By restricting entrance into our 1991 study to first regular use since 1986, we hoped to be able to trace possible changes in respondent demographics associated with the newer image of cocaine as a dangerous drug. We also hoped to find out if, independent of user type, use patterns changed.

We found respondents in both groups to be amazingly similar. This conclusion is based on core data on demographic and (cocaine) drug use patterns. Users in both samples are better educated than their age cohort, over 80% are between 20 and 35 years of age, unmarried, much more experienced with all illicit drugs than their age cohort and more social and outgoing. Half of all users in both samples never progressed to levels higher than 0.5 grams a week, even during periods of heaviest use. High use levels (of more than 2.5 grams a week) occur with about 20% of all users during periods of heaviest use. Such levels are rarely maintained (about 4%) from the period of heaviest use to the time of interview. Because the original purpose of contrasting the two samples from 1987 and 1991 is not relevant for the present publication, and because of the similarity of the two snowball samples in relation to demographics and major use characteristics, we merged the findings of each snowball sample into one data set reflecting 268 cocaine users.

In this overview article we will first present the most relevant data on the 268 experienced cocaine users. To demographic and lifestyle data we will add details about cocaine use careers from initiation on and about effects and consequences of cocaine use. We will further present similar data on 64 cocaine users from the 1987 sample we followed up in 1991. We will conclude with some general remarks about cocaine use in Amsterdam, in particular about the control mechanisms that seem to play a role in how cocaine users prevent or overcome negative effects of cocaine.

Characteristics of community based cocaine users in Amsterdam

General Characteristics

Table 2 presents data on the age of cocaine users in Amsterdam. The age of current users recruited through the snowballs do not differ from cocaine users sampled in the Amsterdam household surveys in 1987 and 1990. Cocaine use is highly age related, and rare under 20 and over 40. More than half of all current users are between 26 and 35 years. Of these experienced users, 87% are born in the Netherlands and 57% are male.

age	n	%
under 20 years	3	1.1
20 - 25 years	71	26.5
26 - 30 years	97	36.2
31 - 35 years	58	21.6
36 - 40 years	27	10.1
over 40 years	12	4.5
total	268	100.0

mean = 29.2; median = 28.0

Table 3 shows educational attainment for this sample, which is rather high. This is similar to findings for cocaine users in the household studies. Occupational activities of experienced users are varied. Large subgroups are: students at some educational institution (15%), artists and art related occupations (24%),[5] higher occupational strata like doctors, managers, high level administrators, higher education personnel, computer services (15%) medium and low level occupational strata employees like nurses, handymen, hairdressers (20%) and people working in hotel/bar/restaurant business (10%). For 9% we have no data or no occupational background was reported. Full time or part time employment at the time of interview is reported by 60%. The rest derive income from unemployment insurance benefits, scholarships, occasional work as a builder or handymen and savings or social security.

education	n	%
elementary school	7	2.6
low level vocational school	6	2.2
low level high school	29	10.8
medium level vocational school	20	7.5
medium & high level high school	49	18.3
high level vocational school	75	28.0
university	82	30.6
total	268	100.0

	n	%
living alone	175	65.3
living with partner	69	25.7
living with children, without partner	6	2.2
commune	9	3.4
with parents	2	0.7
other	7	2.6
total	268	100.0

Most respondents live alone and very few have children at home. Just over 25% live with a partner in the same house, although 60% report having a partner. Experienced cocaine users are predominantly unmarried. Only 14% were ever married.

Respondent's average net income is fl 1,866 per month,[6] and 20% make more than fl 2,500 a month. The high income group, earning over fl 4,000 per month, comprises 4% of the sample in comparison to the 14% in the low income group who earn less than fl 1,000 per month.

Income distribution does not differ from the age cohort in the household population. These income figures show cocaine use is by no means limited to high or low income strata, but quite evenly divided.

Other Drug Use

The experienced cocaine users we sampled in 1987 and 1991 are also experienced users of other drugs if we compare them to the household age cohort aged 18-53 (the full age range in our cocaine user samples). As shown in Table 5, almost all cocaine users have used cannabis, and just under 40% have experience with opiates and LSD.

life time	cocaine users		age cohort	
prevalence of	n	%	n	%
tobacco	260	97.0	2,094	71.7
cannabis	248	92.5	1,043	35.7
alcohol	263	98.1	2,584	88.4
LSD	103	38.4	177	6.1
opiates (incl. licit)	102	38.1	239	8.2
hypnotics	73	27.2	590	20.2
sedatives	70	26.1	476	16.3
ether	24	9.0	40	1.4
MDMA*	68	63.0	55	1.9
amphetamines*	62	57.4	178	6.1
cocaine	268	100.0	241	8.2

* Data on LTP of MDMA and amphetamines in the sample of cocaine users are only available for the "new users" (N=108)

Cocaine Use

Initiation and Level of Use through Time

The average age of initiation into cocaine use is 22.2 years, although a sizable proportion (33.2%) initiate prior to 20 years. Almost one quarter of the sample (23.7%) first used cocaine when they were over 25 years of age, but an initiation age of over 35 is rare (2.6 %). On average, our respondents have a career of 7 years since initiation (range 0.5 - 21 years) and of 5 years since first regular use of cocaine (range 0.5 - 20 years).

To show how the level of cocaine use develops during the period between the first year of regular use and the interview we adopted a technique first used by Chitwood (1985). Level of use is defined in grams per week. We computed level of use by multiplying reported frequency of use with the normal number of lines used (assuming 25 mg. per line) in a particular period. Low level is defined as 0.5 gram per week or less, medium level between 0.5 and 2.5 grams per week and high level as use over 2.5 grams per week.

Table 6 shows the proportion of users at each level of use, at three different moments in their career. Half never exceed 0.5 grams per week, the other half does during their period of heaviest use. As shown in both Table 6 and Figure 1, medium and high level use do not last. At the time of the interview many are abstinent, irrespective of their use level at the period of heaviest use.[7] This means that the level of use, even at its heaviest period, does not predict the probability of abstinence.

	first year of regular use		period of heaviest use		last 3 months	
level of use	n	%	n	%	n	%
none	-	-	-	-	71	26.5
low	232	86.6	134	50.0	168	62.7
medium	29	10.8	82	30.6	20	7.5
high	5	1.9	50	18.7	7	2.6
unknown	2	0.7	2	0.7	2	0.7
total	268	100.0	268	100.0	268	100.0

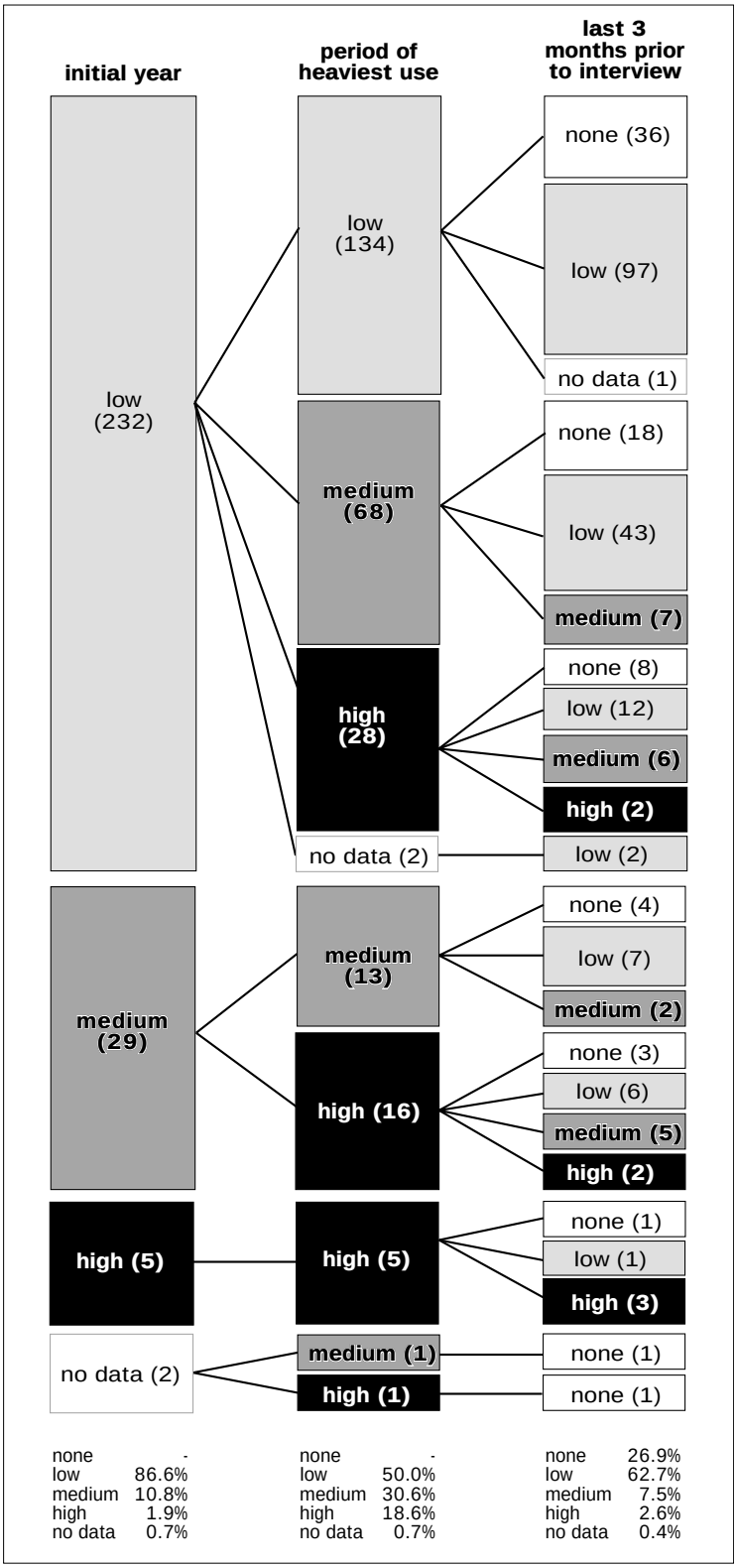
low level: less than 0.5 gram per week
medium level: between 0.5 and 2.5 gram per week
high level: over 2.5 gram per week

Figure 1 gives insight into the dynamics of use: it shows cocaine use shifting from one level to another through time, both in upward and downward directions. It also shows which respondents remain static in terms of our defined use levels.
In Table 7, the large differences between use level categories can be seen. The group that consumes most during their top period has a median consumption of 1000 mg. a day, versus 20 mg. a day in the low level group. The range between low level users and high level users during their top period is enormous, from 10 mg. to 42000 mg. a week.
The average duration of the top period of low level users (16 months) is almost a year less than the average top period of high level users (26 months). Still, even at high level of use, 50% report that their top period is 18 months or less. A very clear correlation exists between the

Table 7. Characteristics of level of use during period of heaviest cocaine use

low level of use	
n	134
mean	164 mg/week
median	125 mg/week
range	10 - 486 mg/week
average duration top period	15.8 months
median duration top period	8 months
medium level of use	
n	82
mean	1,049 mg/week
median	850 mg/week
range	500 - 2,250 mg/week
average duration top period	20.9 months
median duration top period	12 months
high level of use	
n	50
mean	9,536 mg/week
median	7,000 mg/week
range	2,625 - 42,000 mg/week
average duration top period	26.0 months
median duration top period	18 months
total sample	
N	268
mean	2,198 mg/week
median	468 mg/week
range	10 - 42,000 mg/week
average duration top period	19.4 months
median duration top period	12 months

Figure 1. Level of cocaine use over time (number of respondents between brackets, N=268)



length of top period and level of use. It is difficult to say why. High level users experience many more adverse effects from cocaine than other users. Do they value the positive effects more? We observed however that the proportion of high level users who end up abstinent is no smaller than for other users.

Table 8 shows how median dosage at normal occasions of use moves from 100 mg. during the first year of regular use, to 250 mg. during the top period, and then to 125 mg. during the three months prior to interview.[8] The route of ingestion of these users is principally intranasal: almost three-quarters (74%) report snorting as their primary mode of use. But (lifetime) experience with other methods is widespread. In Amsterdam, 66% have smoked cocaine hydrochloride in a cigarette mixed with tobacco, 23% have freebased, and 6% have injected. Community based cocaine users who have other routes of ingestion as their main method are rare: injecting 2%, freebasing 3.5%, in cigarettes 4%.[9] Methods like injecting and freebasing carry a heavy stigma of 'junky' behavior. This was most often mentioned as the reason respondents would not use these methods at all or prolong them beyond initial experimentation. Route of ingestion and the idealogy surrounding it probably are an important control mechanism.

	first cocaine use		**first year of regular use**		**period of heaviest use**	
dosage	n	%	n	%	n	%
none	-	-	-	-	-	-
1 - 99 mg	181	67.5	102	38.1	36	13.4
100 - 249 mg	59	22.0	90	33.6	91	34.0
250 - 499 mg	14	5.2	42	15.7	69	25.7
more than 500 mg	9	3.4	34	12.7	70	26.1
no answer	5	1.9	-	-	2	0.7
total	268	100.0	268	100.0	268	100.0
mean	100 mg		200 mg		444 mg	
median	50 mg		100 mg		250 mg	

	last three months prior to interview			
	zero dosage included		**zero dosage excluded**	
dosage	n	%	n	%
none	59	22.0		
1 - 99 mg	66	24.6	66	31.6
100 - 249 mg	73	27.2	73	34.9
250 - 499 mg	37	13.8	37	17.7
more than 500 mg	21	7.8	21	10.0
no answer	12	4.5	12	5.7
total	268	100.0	209	100.0
mean	178 mg		207 mg	
median	100 mg		125 mg	

Weekend use is the most important mode with low level users. With rare exception all high level users took cocaine daily during their period of heaviest use. Many users lace their cocaine use career with periods of abstention. Such periods may last from a week to several months. We asked only for abstention periods of one month or longer. A minority report no such periods (14%), and another minority report rare occurrence of such periods of one or two times (18%). Two thirds (66%) report three or more of such periods (Table 9).

There were many reasons for such periods of abstention. We divided these reasons into internal and external ones. Of the internal reasons most often mentioned was "no desire for

	n	%
never	38	14.2
1 or 2 times	49	18.3
3 - 5 times	47	17.5
6 - 10 times	42	15.7
more than 10 times	88	32.8
unknown	4	1.5
total	268	100.0

cocaine." This reason was given by 40 respondents (18% of all mentioned reasons). The next reason for periods of abstention was occurrence of negative mental or physical effects mentioned by 21 respondents (9% of all reasons). Fear of dependence was mentioned by 11 respondents (5% of all reasons). The most important external reason was 'no money' given by 43 respondents (19% of all reasons). External reasons that refer to context (friends do not use, no suitable environment for use) account for 37 answers, or 16% of all answers. Other reasons are pregnancy (3), work or study (5), or trips to foreign countries (8).

When asked if respondents have ever cut back on their use, just over 60% answer affirmatively. This very high percentage was surprising against a backdrop of 50% of all respondents never exceeding a use level of 0.5 grams a week. The most important reasons for cutting back were the same as for periods of abstinence. Of the internal reasons, the most important was no desire for cocaine (with 30 respondents). Next in importance were negative mental or physical effects (26 respondents). Of the external reasons, no money was again the most important (46 respondents) and contextual reasons followed with 22 respondents.

Effects, Advantages and Disadvantages of Cocaine

We measured effects in two ways: 1) by asking our respondents to mention the most important advantages and disadvantages of cocaine, and 2) by referring to almost a hundred different effects taken from the literature, and asking respondents if they ever experienced them as a consequence of their cocaine use. One of our goals was to find out which effects depend on dosage and/or level of use. Comparing data on level of use and its relation to effect prevalence with similar data from other studies (Erickson, 1987; Morningstar and Chitwood, 1983), we found agreement, but also some disagreement (Cohen 1989, p 99).[10] Where we found a statistical covariance between level of use and prevalence of effects in Amsterdam, similar covariance was not found elsewhere, or vice versa. We also found that many effects are interrelated. We established this by creating Mokken scales of the effects by computing scalability of a large number of effects.[11] It was possible to construct five scales. It seems that users report typical clusters of effects. In order to sketch a proper background of this finding we will discuss two main difficulties of effect-measurement.

One of the reasons we concluded that effects are difficult to study is our finding that variance on scale-scores was hardly explained by parameters of use. The occurrence or prevalence of effects clearly is related to many more variables than use level or dosage alone. As Lindesmith observed: "The sensation or experience varies greatly depending upon the person, the setting, the mood of the user, and the size of the dose and the manner in which it is taken" (Lindesmith, 1968). Although this quote describes Lindesmith's findings about heroin, they are probably just as applicable to cocaine or any other psychotropic substance. All these variables may

again be superimposed upon systematic variation per location, historical period, supply situation, concomitant use of other drugs etc. Thus it becomes comprehensible that simple one-dimensional parameters of use fail to explain the variation in scores of our cocaine effect scales.[12] Good effect measurement should take into account the multiple determinants of drug experience, something we are not yet able to do.[13]

Another problem is the reliability of the effects measurement instrument. In our follow-up study we asked the same effect questions to the same respondents four years later. On scales I and IV, we found 53% of users to score the same, but on scale III only 12%, on scale V 21%, and on scale II 32%. Even more troublesome is that respondents also reported less effects, ranging per scale from 18% less effects to 44%. This shows that the effect measuring instrument we used may be of questionable reliability. Scores on the effects scales computed via prevalence questions for each effect might be sensitive to a lot of 'noise'. This noise may consist of set and setting related variables mentioned above that influence the prevalence of certain effects, but also may include things like forgetting or suppressing the memory of certain effects.

When we compared the distribution of scores on each of the scales between the 1987 sample and the 1991 sample, we found no statistically significant differences. Because of all the other data that support our conclusion that there is a large degree of similarity between the two samples, this finding could be expected. Moreover, if our methodology of effect questioning is questionable, it would be an almost impossible feat of chance that our effect scales result in highly similar scores and score differentiation per sample. Therefore, we assume for the time being that our effect questions and their elaboration into Mokken-scales do have some kind of validity, but that the reliability of our scores per respondent is as yet not understood. Leaving these difficulties as they are we will now present some of the data on effects, advantages and disadvantages.

advantages			**rank order**				**rank order**
of cocaine	1	2	3	4	5*	total	**total**
more energetic	65	64	45	10	6	190	1
communication	33	45	37	11	5	131	2
high, relaxed	38	43	18	7	-	106	3
more creative	37	19	18	8	-	82	4
selfconfidence	27	28	12	5	1	73	5

disadvantages			**rank order**				**rank order**
of cocaine	1	2	3	4	5*	total	**total**
unpleasant physical effects	32	32	29	10	2	105	1
expensive	29	23	26	9	1	88	2
bad for health	23	23	13	3	-	62	3
makes egocentric, introverted	16	15	7	5	3	46	4
creates psych. dependence	20	13	6	2	1	42	5

* The 1987-respondents were allowed to mention five disadvantages, the 1991-respondents four.

We found that these experienced users mention many more different disadvantages of cocaine than advantages. Apart from almost uncodable idiosyncratic answers, users report 9 main categories of advantages versus 22 of disadvantages. We list only the five most important ones. As previously mentioned, we tried to measure the lifetime prevalence (LTP) of almost 100 different effects of cocaine. Table 11 contains the LTP of ten well known and

highly undesirable adverse consequences and effects of cocaine, broken down by level of use. We see that anxiety, being overly suspicious, and tightness in chest are the effects with the highest LTP of these ten. Still, not even half of all respondents mention these effects. But most of these effects are clearly related to level of use in Amsterdam.

We found no significant difference in LTP of these effects when controlling for route of ingestion. We hypothesized that LTP of these ten negative effects would be lower if we computed them for cocaine snorters only. For some effects a lower LTP can be observed, e.g. hemorrhages have a LTP of 6% with snorters only, and of 13% when all experience with other routes of ingestion is included. But the differences are not significant.[14] This means that in our sample of experienced community based users, none of the ten negative consequences can be related to route of ingestion. Still, replication of this finding should be sought in a much larger similar sample.

respondents who exclusively snorted cocaine

	level of use during period of heaviest use								χ^2
	low		medium		high		total		**significance**
effect of cocaine	n	%	n	%	n	%	n	%	
haemorrhages	2	2	4	8	2	6	8	4	~
depressions	7	6	4	8	8	24	19	10	p<0.01
anxiety	28	25	20	38	17	52	65	33	p<0.025
overly suspicious	31	28	23	43	20	61	74	37	p<0.005
spasms	23	21	12	23	13	39	48	24	p<0.10
unconciousness	4	4	1	2	6	18	11	6	p<0.005
panic	17	15	8	15	18	55	43	22	p<0.001
tightness in chest	32	29	17	32	20	61	69	35	p<0.005
violence	8	7	4	8	5	15	17	9	ns
urge to carry weapons	1	1	1	2	10	30	12	6	~
	N=111		N=53		N=33		N=198		

all respondents

	level of use during period of heaviest use								χ^2
	low		medium		high		total		**significance**
effect of cocaine	n	%	n	%	n	%	n	%	
haemorrhages	3	2	4	6	6	13	13	5	~
depressions	11	7	8	12	10	21	29	11	p<0.025
anxiety	43	28	26	38	25	53	94	35	p<0.01
overly suspicious	43	28	29	43	30	64	102	38	p<0.001
spasms	29	19	14	21	20	43	63	24	p<0.005
unconciousness	5	3	2	3	11	23	18	7	p<0.001
panic	21	14	12	18	25	53	58	22	p<0.001
tightness in chest	45	30	25	37	31	66	101	38	p<0.001
violence	12	8	8	12	8	17	28	10	ns
urge to carry weapons	1	1	2	3	16	34	19	7	p<0.001
	N=152		N=68		N=47		N=268		

~ not applicable
ns not significant

The list of adverse effects shows that for some, cocaine can be malicious. A lifetime prevalence of 7% for cocaine induced unconsciousness is not exceedingly high, but dramatic for the few with whom it occurs.[15] Panic attacks have a lifetime prevalence of 22% in this group, and the well known tightness in the chest occurs with 38%. Depressions, so often popularly associated with cocaine, has a surprisingly low LTP of 11%. It is not among the five most frequently

mentioned disadvantages, and is mentioned by only 29 persons (11%). Just sixteen persons (6%) mention depressions as the most important disadvantage of cocaine.
It is clear that the probability of some adverse effects of cocaine can be lowered by lowering ones use level. This undoubtedly is a major reason why so few high level users maintain this level. As reported earlier, negative mental and physical effects were given as important reasons for a period of abstention or cut back on use level. None of these adverse effects have a zero LTP, even with low level users.
Of respondents who in 1987 attributed the urge to carry weapons to cocaine, 36% had a conviction for a felony in the two years prior to interview. Of those who did not report this urge, only 6% were convicted of a felony. Reporters of this urge had almost all committed at least one illegal act to obtain cocaine (91%) in comparison to 27% who never reported this urge. We suspect that the urge to carry weapons is related to more lifestyle determinants than cocaine use per se.[16]
We asked these experienced cocaine users if cocaine had ever been an obsession for them. Thirty five percent answered affirmatively. Almost all (80%) report they sometimes felt a strong desire (longing,in Dutch) for cocaine.

Loss of Control

In order to measure loss of control with cocaine, we designed a 'loss of control scale' based on a long list of items. Since we have an abundance of data from each experienced cocaine user we interviewed, we assembled a multi-item operationalization of the concept 'loss of control'.

Table 12. Item list for the loss of control scale, weight, maximum score and score per item

item	weight	maximum score	n	%
cocaine ever an obsession	1	1	94	35.1
taking extra job to buy cocaine	1 or 3°	3	9	3.4
borrowing money to buy cocaine	1 or 3°	3	14	5.2
selling personal possessions to by cocaine	1 or 3°	3	13	4.9
stealing from family of friends	1 or 3°	3	5	1.9
shoplifting to buy cocaine	1 or 3°	3	7	2.6
burglary to buy cocaine	1 or 3°	3	4	1.5
theft (face to face) to buy cocaine	1 or 3°	3	1	0.4
forging cheques to buy cocaine	1 or 3°	3	8	3.0
stealing cocaine	1 or 3°	3	2	0.7
engaging in prostitution to buy cocaine	1 or 3°	3	6	2.2
running con games to buy cocaine	1 or 3°	3	8	3.0
car breaking to buy cocaine	1 or 3°	3	2	0.7
trading sexual favors for cocaine	1 or 3°	3	6	2.2
had difficulty decreasing cocaine use	3	3	30	11.2
daily use during first year of use*	1	1	4	1.5
daily use during period of heaviest use**	1	1	76	28.4
daily use during the last three months prior to interview	1	1	8	3.0
cocaine ever being the cause of divorce	1	1	34	12.7
general increase of cocaine use during career	1	1	17	6.3
never experienced periods of abstinence	1	1	38	14.2
cocaine being considered as "addictive"	3 and 3•	6	55	20.5
experienced more than ten adverse effects of cocaine	2	2	77	28.7
total maximum score		57		

* In the 1991 survey we asked for the frequency of use in 1987 in stead of their first year of use.
** In the 1991 survey we asked for the frequency of use in the period of heaviest use *after* 1987.
° If the respondent reported this item having occurred three to ten times he or she got one point on the scale. It it happened more than ten times he or she got three points.
• If the respondent considered cocaine being either physically or mentally addictive he or she got three points on the scale. If cocaine was considered being both physically and mentally addictive he or she got six points.

	score on loss of control scale			
	zero		8 or more	
age	n	%	n	%
under 20 years	1	1.2	-	-
20 - 25 years	21	24.4	5	16.7
26 - 30 years	38	44.2	12	40.0
31 - 35 years	18	20.9	9	30.0
36 - 40 years	6	7.0	3	10.0
over 40 years	2	2.3	1	3.3
total	86	100.0	30	100.0
mean	28.6		30.1	
median	28.0		28.5	
Student's t = -1,37; df = 114; n.s. (pooled variance estimate, tested on unclassed data)				

sex	n	%	n	%
man	50	58.1	18	60.0
woman	36	41.9	12	40.0
total	86	100.0	30	100.0
$\chi 2$ = 0.00; df = 1; n.s. (Yates' correction)				

education	n	%	n	%
elementary school	-	-	1	3.3
low level vocational school	1	1.2	1	3.3
low level high school	4	4.7	3	10.0
medium level vocational school	7	8.1	4	13.3
medium & high level high school	10	11.6	8	26.7
high level vocational school	32	37.2	9	30.0
university	32	37.2	4	13.3
total	86	100.0	30	100.0
Mann-Whitney U = 801.5; Z = -3.2090; p = 0.0013				

marital status	n	%	n	%
married	2	2.3	2	6.7
divorced, widowed	4	4.7	4	13.3
unmarried	80	93.0	24	80.0
total	86	100.0	30	100.0
$\chi 2$ not applicable				

We will not deal here with the theoretical implications of this concept and of the item list (cf. Cohen and Sas 1992;) but simply accept this 'scale' as an operational device. Many behavioral details that are commonly taken as a possible indication of loss of control are merged in this scale. In Table 12 the item list is shown, the weight that is given to each item, and the prevalence of each item. For example, 3.4% of all respondents have in their lifetime, taken on an extra job to buy cocaine. This item counts for one point on the scale score if it occurred between 3 and 10 times, and for three points if it occurred more often than ten times. This 'weighting' of items was considered necessary by us, although the actual weight of each item, one or three, is arbitrary.

Although the maximum score obtainable on the scale theoretically is 57, the highest scored we actually measured was 23. [Pearson R=0.49 ($p. < 0.01$) between scale score and level of use (in mg. per week) during period of heaviest use.] We used score on the loss of control scale to establish eventual differences between two categories of users. We contrasted all whose score zero on the scale with the top scorers. We found 86 respondents (32%) with a zero score. The top scorers are 30 respondents with scores of 8 and higher, 11% of the total.

We contrasted zero score users with top scorers on age, gender, education, marital status, yes/no relation with partner, living alone or with others, income and employment status (Table

Table 13. (continued)

relation with partner	n	%	n	%
no relation with partner	37	43.0	14	46.7
relation, less than 1 year	9	10.5	6	20.0
relation, longer than 1 year	40	46.5	10	33.3
unknown	-	-	-	-
total	86	100.0	30	100.0

household situation	n	%	n	%
living alone	58	67.4	21	70.0
living with partner	20	23.3	6	20.0
living with children, without partner	-	-	-	-
commune	4	4.7	1	3.3
with parents	-	-	1	3.3
other	4	4.7	1	3.3
total	86	100.0	30	100.0

χ^2 not applicable

income	n	%	n	%
less than ƒ1,000	12	14.0	4	13.3
ƒ1,000 - ƒ1,500	34	39.5	11	36.7
ƒ1,500 - ƒ2,000	14	16.3	7	23.3
ƒ2,000 - ƒ2,500	10	11.6	2	6.7
ƒ2,500 - ƒ3,000	9	10.5	2	6.7
ƒ3,000 - ƒ4,000	5	5.8	0	-
ƒ4,000 - ƒ5,000	1	1.2	2	6.7
ƒ5,000 - ƒ6,000	1	1.2	1	3.3
more than ƒ6,000	0	-	1	3.3
total	86	100.0	30	100.0
mean	ƒ1,753		ƒ2,017	
median	ƒ1,250		ƒ1,500	

Student's t = -0.92; df = 36.72; n.s. (Tested on class mids, separate variance estimate, F = 2.72, p<0.001)

employment	n	%	n	%
full-time	26	30.2	10	33.3
part-time	28	32.6	5	16.7
unemployed	7	8.1	9	30.0
other (students)	25	29.1	6	20.0
unknown	-	-	-	-
total	86	100.0	30	100.0

χ^2 = 10.4337; df = 3; p < 0.025

13). Zero score respondents have a slightly higher educational level and show somewhat less unemployment: 8% of zero score users versus 30% of 'high' score users. But even this difference in employment is not really indicative since both groups show large majorities are employed. This way of contrasting subgroups of our respondents does not yield very meaningful results.

The Follow-Up Study

In the months January to June 1991, 40-48 months after initial interviews, we invited 64 persons we had first interviewed in 1987 to participate in a follow-up study about their cocaine consumption. Our goal was to reinterview half of the original group. Locating 80 of the original 160 was not possible. The reasons were: moving out of Amsterdam to unknown

locations (16 persons), moving abroad (5 persons), insufficient information about original address or name (61 persons),[17] refusals (3 persons), not responding to our invitation (8 persons) and death (3 persons).[18] We therefore reinterviewed everybody we could find of our original sample, ending up with 64 follow-up respondents.
In order to find out if the follow-up respondents are a biased selection of the original sample, the 64 follow-up respondents were compared to the 96 non follow-up respondents on a number of variables as we measured them in 1987.

Table 14. Employment status of non-response and follow-up respondents in 1987

	non-response		follow-up	
employment	n	%	n	%
full time	33	34	28	44
part time	23	24	23	36
none	15	16	4	6
other	24	25	9	14
no answer	1	1	-	-
total	96	100	64	100

$\chi 2=7.85$, $p<0.05$, df=3

Table 15. Income of non-response and follow-up respondents in 1987

	non-response		follow-up	
net income per month	n	%	n	%
less than *f* 1,000	15	16	7	11
f 1,000-1,500	34	35	20	31
f 1,500-2,000	22	23	11	17
f 2,000-2,500	7	7	10	16
f 2,500-3,000	10	10	7	11
f 3,000-4,000	4	4	6	9
f 4,000-5,000	2	2	-	-
f 5,000-6,000	1	1	-	-
more than *f* 6,000	1	1	3	5
total	96	100	64	100
mean	*f* 1,776		*f* 2,059	

Student's *t*=1.55 (n.s.), df=158 (test on class-mids)

We found no significant differences between the two aggregates on: cocaine use in initial year, cocaine use during top period, cocaine use during last 3 months prior to 1987 interview, other drug use (sedatives, hypnotics, cannabis, LSD,solvents, opiates), income (see Table 15), marital status, gender, age, and educational level. We did find one significant difference however. In 1987, 80% of the follow-up respondents had some form of employment versus 58% in the non follow-up aggregate (see Table 14). In spite of the difference on this variable we consider findings of the 64 follow-up respondents as representative for the whole group of 160. We had established generalizability of the data of these 160 respondents to recent cocaine users in Amsterdam and believe that the findings of our follow-up study give a reliable image of cocaine use careers in Amsterdam, over a period of about ten years, for those who had started around 1980.

Developments in Cocaine Use of Follow-up Respondents

Our follow-up respondents were subjected in 1991 to the same very extensive interview schedule as in 1987. However, if respondents had used cocaine on less than ten occasions in the four years since 1987, most of the questions were not relevant for them. We considered such respondents as nonusers and subjected them to a much shorter interview. Out of 64 follow-up respondents, 30 (47%) had become nonusers according to our definition, leaving 34 respondents (53%) as subjects for our extended interview schedule.[19] When we look at the period four weeks prior to interview in 1991, it appears that 45 (75%) of our follow-up respondents did not use cocaine. This leaves us with a group of only 19 persons out of 64 once regular users who might still be considered as relatively regular and continuous users at follow-up.
Looking at the period of three months before follow-up interview, 22 respondents (34%) report use. Cross tabulating their levels of use during the three months prior to interview in

1987 and 1991 makes it possible to see some of the changes that took place. Of the 17 follow-up respondents who in 1987 reported no use of cocaine in the 3 months prior to interview, four had resumed their use, three at a low level. None of these 17 reported medium or high levels of use at the time of the follow-up interview. Of the 41 follow-up respondents who used at a low level 3 months prior to the 1987 interviews, 27 report no use during the 3 months prior to the 1991 interviews, 13 remained at low levels of use, and one person moved from a low to a medium level of use by 1991. Development to high level of use did not occur. Of the five persons who reported medium level use in 1987, two remained at medium levels and three moved down to low levels by 1991 (Table 16). This means that of the 64 persons we interviewed, just four persons (6%) moved to a level of use higher than they reported in 1987. Twenty nine (45%) remained at the same level (nonuse included) and 27 (42%) moved to a lower level of use (nonuse included). This suggests that at least for this group of experienced cocaine users, stable or decreasing use patterns were the norm, with very few reporting a pattern of increasing use in the four years between 1987 and 1991.

Table 16. Level of use during last three months prior to interview in 1987 and 1991

	level of use in 1991							
level of use	none		low		medium		total	
in 1987	n	%	n	%	n	%	n	%
none	14	82	3	18	-	-	17	100
low	27	66	13	32	1	2	41	100
medium	-	-	3	60	2	40	5	100
total	41	65	19	30	3	5	63	100

Pearson prod.-moment corr.: r=0.59, p<0.01 (computed over unclassed data)
binominal test increased level vs. decreased level: p<0.001 (test prop. 0.5)

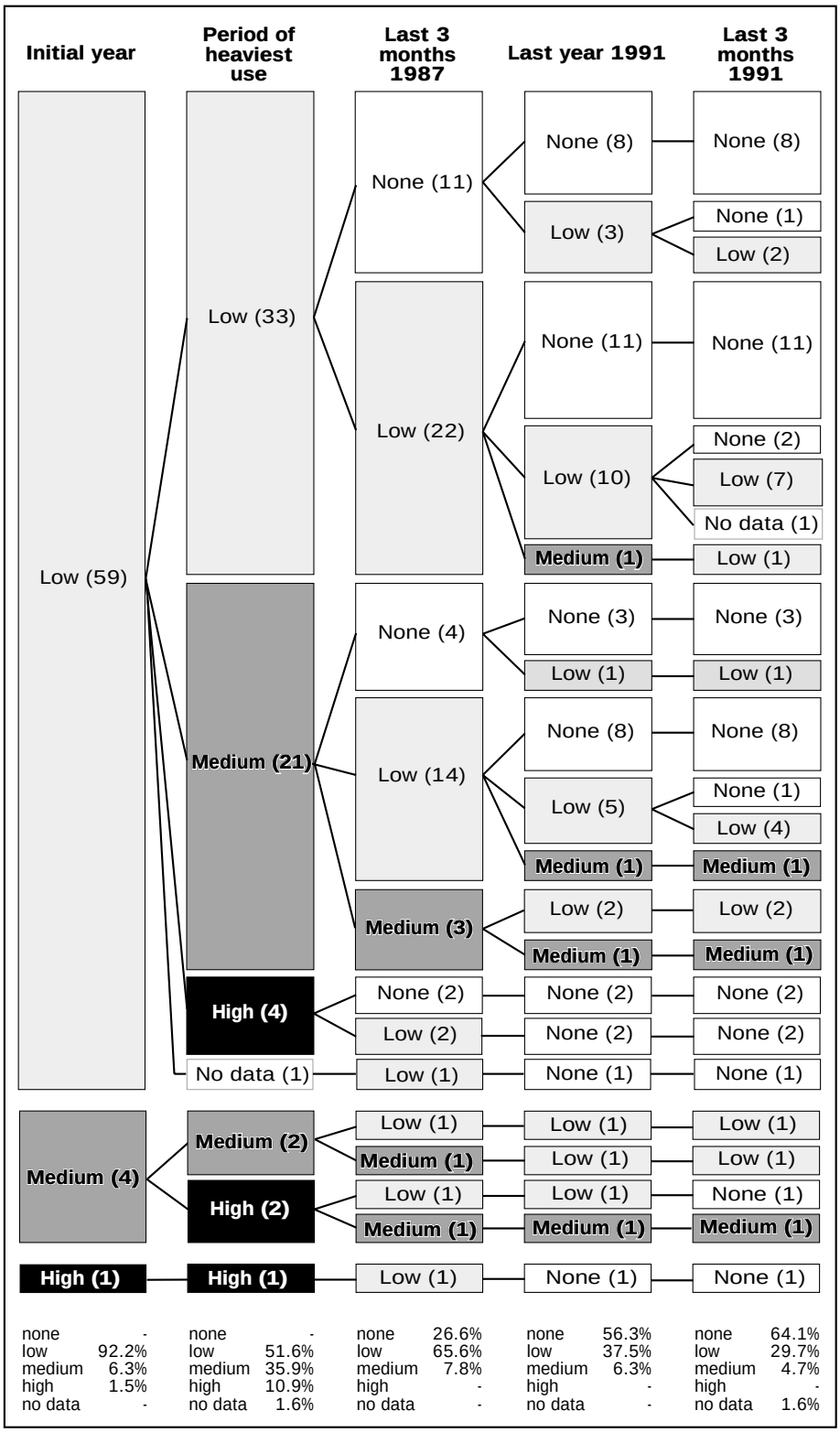
When we compare top levels of use prior to 1987 and during the period from 1987-1991 an important finding emerges. Here the same dynamics of decreasing levels are apparent. For six respondents the top level of consumption increased (from low to medium), but for the majority the top level either remained constant (low for 14 respondents), or decreased (13 respondents).[20]

Career data on all 64 follow-up respondents are presented in Figure 2 for five periods of use. This figure shows substantial shifting of use levels over 5 periods in the career of all 64 follow-up respondents. These five periods are initial year of regular use, period of heaviest use before interview in 1987, last three months prior to interview in 1987, one year prior to follow-up in 1991 and last three months prior to follow-up. These five periodd span a cocaine consumption career of about ten years since first regular use (12 years since initiation).

As in 1987, the main method of use among our follow-up respondents remained snorting. Since 1987, 27 of the 34 nonabstinent follow-up respondents (79.4%) reported they had snorted almost without exception. Seven had used one or more other methods: injection (once for 1 person), eating (four persons once, 1 person "always," and two others occasionally). Five respondents reported that on rare occasions they had applied cocaine to their genitals, and three respondents had on rare occasions freebased. Two persons mainly smoked cocaine in handmade cigarettes, and 24 others had experience with smoking cocaine at least once.

We asked each of our 34 nonabstinent follow-up respondents about the advantages and disadvantages they perceived in different modes of ingestion. They offered many opinions, but here we refer only to those regarding injecting and freebasing. All 34 had an opinion on

Figure 2. Level of cocaine use over time (number of respondents between brackets, N=64)



injecting, some more than one. Altogether they mentioned 39 perceived advantages of injection and 59 perceived disadvantages. The most frequently mentioned perceived advantage of injection was the better effect and/or "the flash" (22 times). The most often mentioned perceived disadvantage was that injection is unhealthy and/or dangerous (21 times). The next most often mentioned disadvantage had to do with the image of injection: "it is addicting" and/or "like junkies do" (18 times).

Interestingly, in spite of the fact that many respondents believed that the effects of injection were better than those of snorting, actual experience with injecting remained rare because of the perceived risks. This perception about injection risks may be seen as an important informal control to which most of our respondents held strongly throughout the follow-up period. Almost the same holds for freebasing. Nearly all of our nonabstinent follow-up respondents (33 of 34) noted advantages of freebasing as a method of ingestion, of which better effects was the most commonly mentioned (24 times). Yet the related disadvantage that freebasing is addicting or is something "like junkies do" was mentioned almost as often (23 times). Six said freebasing was too expensive and six thought it was too complicated or messy.

In short, our follow-up respondents perceived numerous advantages and disadvantages of various modes of ingestion and chose the one that they considered both safe and not associated with groups perceived as deviant. While many experimented with other modes, they generally did not stick to methods they perceived as more pleasurable but also as more risky and deviant. We cannot exclude the possibility that these users absorb many social constructions about drugs just as everyone else. "Normal" aversion against injection and its modern association with 'junkie behavior,' and sensitivity to mass media images about crack are probably as prevalent with these snorting cocaine users as with nonusers.

Price and Quality of Cocaine

The price of cocaine in Amsterdam appears to have decreased and quality increased between 1987 and 1991. This finding applies only to the market segment of the users we investigated. According to the 28 follow-up respondents who answered our question about the current cost of cocaine, the mean and median price per gram in 1991 was fl 149 ($81). In 1987, the mean price was fl 180 ($100). Just over 50% of the respondents had paid over fl 200 per gram in 1987. In 1991, only 15% had paid such a price.

We were able to buy 9 cocaine samples from 34 nonabstinent follow-up respondents in 1991. These samples were analyzed in the central Laboratory of the Municipal Police in Amsterdam,[21] yielding an average cocaine hydrochloride purity of 87%, with a range between 74% and 96%. In 1987 we found an average purity of 65% with 39 samples with a range between 14% and 90%.

Settings of Cocaine Use

In 1987 we found that the most important settings for cocaine use were "going out," "going to parties" and "social gatherings with friends." We asked about settings again in 1991 to see if there had been any such shift in the overwhelmingly social contexts of cocaine use for our follow-up respondents. We found none. The same three settings were reported as by far the most important.

Situations in which respondents felt it best not to use also had not changed. The four most often mentioned ones in 1987 were 'work and study' situations, 'before some kind of achievement,' in 'daily life' situations, and 'with nonusers.' These four situations were reported in exactly

the same rank order in 1991 by 33 of our 34 non-abstinent respondents. These data, too, suggest that the subcultural functions of cocaine use have remained very stable among our respondents. The fact that most of these 34 experienced users had decreased their levels of use considerably seemed to have no effect upon the uses to which cocaine was put.

Emotional sets played some role in cocaine consumption in 1987. In 1991, similarly, 19 out of 34 respondents said that certain emotional states could provoke their desire to use cocaine. As in 1987, "joy" or "feeling very well" was the most often mentioned (25% of all answers in 1987, 29% in 1991). This was in keeping with the predominantly social functions that cocaine served for these respondents. Next in importance was "feeling tired" (20%). Many other emotional states were mentioned by very small numbers of respondents.

Rules of Use

Those who claim that cocaine is inherently addictive sometimes cite experiments with caged rats and monkeys who had unlimited access to unlimited supplies of cocaine and nothing else to do. Although such conditions virtually never exist for humans, our follow-up respondents (as did all our other respondents) had very easy access to cocaine—culturally and geographically. Financial access is not much of a problem, although income level generates its own limits. Therefore, if addiction were strictly a function of the physiological presence of and access to the substance, we would expect to find many long-term, frequent cocaine users exhibiting patterns of use we associate with addiction. As shown in our data on development of use patterns in our follow-up respondents, this was not the case.

Advice to Novice Users

We asked about "rules" of use in many different ways.[22] One was that we invited the nonabstaining respondents to give advice to novice users on route of ingestion, dosage, situations, combinations with other drugs and buying cocaine. Clearly snorting is the route of ingesting these experienced cocaine users want novices to practice. This shows that route of ingestion (i.e. stay with snorting) serves as a control mechanism for these users: "snort only" was the advice of 24 out of 34 (71%) of our nonabstinent follow-up respondents. Two respondents advised that novices avoid injecting, and two others advised snorting or else smoking (via cigarette). Only one respondent said that one can use any amount, and one other advised simply to use "enough." All the others advised that doses be limited in some way: "not too much, not more than..., just a little." When we asked about conditions of use, we received exactly the same answers we got when we asked respondents about situations fit for cocaine use: use in good company and be sure that you feel good already. Only two persons said that conditions of use were unimportant. When we asked respondents in 1987 if they had advice for novices about buying cocaine, 20% said they should always buy from one steady dealer. In the 1991 follow-up, however, only two persons gave such advice. But while buying from a single dealer no longer seemed very important, the 1991 answers indicate that not buying in public places like discos or on the streets is important. The proportion giving this response increased from 15% in 1987 to 40% in 1991. Unchanged from 1987 to 1991 was the most frequently given advice about buying—the desirability of going to a reliable person.

Conclusions

To judge from this summary of rules that are recognized by cocaine users, we might infer that control mechanisms are very much in line with the dominant modes and levels of use in this group. From the relative absence of destructive and compulsive use patterns over a ten year period, we may conclude that users can and do exercise control. Our respondents applied two basic types of controls to themselves: 1) restricting use to certain situations and to emotional states in which cocaine's effects would be most positive, and 2) limiting mode of ingestion to snorting of modest amounts of cocaine, staying below 2.5 grams a week for some, and below 0.5 grams a week for most. Nevertheless, those whose use level exceeded 2.5 grams a week all returned to lower levels.

Neither of these forms of user control appeared to rely on external social control agencies, although it remains unclear if price of cocaine plays a role.[23] Quite probably the enormous increase in prevalence of adverse cocaine effects for use levels over 2.5 gram a week works as a physical control for high level users. A number of negative cocaine effects cannot be escaped by any user. Since most of these users are socially fully integrated, cocaine consumption has to find its niche among many other activities and goals of these users (cf. Waldorf et al., 1991; Reinarman et al., this issue). Since cocaine use has such strong social functions, dysfunctional consequences disrupt the very reasons of use. Some take some time to learn this, but our data show that most do.[24]

Of course, such external social controls as law enforcement are present in Amsterdam, but were not seen as relevant by half of our respondents. The other half reported that their cocaine use was influenced by current laws and policies, but this influence was equally divided between positive and negative. All nonabstinent follow-up respondents had a range of cocaine dealers to choose from, and cocaine buying, typically in apartment houses, presented no risk.[25] Nonabstinent follow-up respondents earn enough money to buy cocaine (average net monthly income fl 2971).

Our data directly contradict the physiological models under girding current law. For example, Gawin (1991) states:

> *Limitation on drug access, including the high price of cocaine and legal limitations on distribution, regulate human cocaine use and may prevent human cocaine use from more frequently mimicking animal free-access experiments in producing death.*

In our follow-up sample, drawn from the much larger pool of users outside the treatment population, only 4 of our 64 respondents had ever considered seeking treatment, only one of whom actually did so (for combined heavy alcohol use with medium level cocaine use). This means that under the low external control conditions prevailing for our respondents, 6% had negative subjective experiences of cocaine abuse, sufficient to move them to start thinking about treatment. Thus, we may safely infer that reliance on self-regulatory or informal social controls was what prevented the great majority of these users from succumbing to the risks of cocaine abuse, rather than institutional, external law enforcement type of control.

The evidence from our limited follow-up sample cannot, of course, fully refute claims that large proportions of humans who use cocaine regularly will over time progress to heavy use and addiction. For such refutation to be conclusive, there would have to be repeated longitudinal measurements of use patterns in many different settings. But these Amsterdam

data do demonstrate that extended careers of cocaine use, lasting even a decade, do not inevitably culminate in compulsive and/or destructive use or "addiction." When viewed in combination with similar findings from other studies of non-treatment samples such as Erickson et al.'s (1987, 1992) in Canada and Murphy et al.'s (1989) in California, our data cast serious doubts on the validity of claims that cocaine use generally eventuates in abuse and addiction.

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Notes

1 We allowed our snowballs to self direct themselves into deviant circles if this occurred.
2 Primarily heavy opiate users who also use cocaine.
3 We wanted to prevent unknown nominee preferences from biasing respondent selection.
4 Lifetime prevalence of cocaine use in the household population sample of 12 years and older (N=4,371) was 5.6% in 1987 (Sandwijk et al., 1988). In 1991, the LTP of cocaine use (N=4,440) was 5.3% (Sandwijk et al., 1991).
5 Writers, painters, film producers, all kinds of advertisement people, graphics artists.
6 Dutch fl= $ 0.5, ú 0.4
7 Of 50 high level users at top period, 12 (24%) were abstinent at time of interview. Of 82 medium level users at top period, 23 (28%) were abstinent at interview. Of 134 low level users at top period, 27% were abstinent at the time of the interview.
8 Median values are mentioned here because of the enormous range of typical dosages. A few very high dosage users can change average values considerably in the upward direction, which is the reason medians give a better idea of central tendency here.
9 Crack, a commercial form of freebase smokable cocaine was not mentioned by our respondents. Although we did not explicitly ask for crack use in our interviews, we are quite sure that if crack use had occurred it would not have escaped us.
10 Comparability was limited because sampling, entry criteria and definitions of level of use were dissimilar. With this in mind we found that of 41 common effect questions, 27 effects were related to some parameter of use in all three studies; 14 effects show no consistency among the studies.
11 Mokken scale analysis is based on Guttman scale analysis. The latter however is deterministic, which means that a respondent who answers an item in a positive way must answer less difficult items also in a positive way. Mokken analysis is probabilistic, meaning that a respondent answering an item positively has a significantly greater probability than null to answer a less difficult item in a positive way as well (Mokken et al., 1982, Sijtsma et al., 1992).
12 In other words, the pharmacology of cocaine is one thing, but the psychological and social system in which is used by humans is not unimportant (cf. Hartnoll, 1990).
13 A good theory of drug effects would have to be developed first. Providing such theory is probably one of the most difficult challenges of drug research.
14 The reason why we did not compare snorters with injectors only or freebasers only is that the latter categories were too small for meaningful comparison. The solution we chose, almost exclusively snorters versus all users, has the advantage that in the latter group even rare experience with other routes of ingestion than snorting is included.
15 We did not ask for details of these effects. One of our problems is whether effects were induced by cocaine only, or by mixtures of drugs. Cocaine is often taken with alcohol, and concomitant use of MDMA and cannabis is not uncommon.
16 We performed this analysis in 1989 only for our 1987 respondents.
17 No respondent was refused if he or she was not willing to provide a full set of identification data. Interviewers were not instructed to secretly write down these details. We were surprised that under 1987 conditions of cocaine policy still 30% of our respondents preferred to remain anonymous.
18 Two young homosexuals died of AIDS and one middle aged academic who lived on health insurance benefits, of heart disease.
19 Of 30 nonusers, 23 had used between one and ten times during the follow-up period. Seven respondents reported zero use.
20 We have no reliable top level data for 1987 for one respondent.
21 The Police and Public Prosecutor made our investigations possible by cooperating wholeheartedly. For instance, a written guarantee was provided that our data would not be seized. We considered this guarantee vital to insure complete safety to our respondents and interviewers. The investigator and one assistant were allowed to bring the cocaine samples (that we bought from respondents for

fl 50) to the police laboratory where, after analysis, they were destroyed.

22 We specifically asked if respondents had any rules they tried to follow and we asked questions about rules in many other ways, e.g. with whom they would and would not use; when they would use and not use, etc.

23 When asked if a lower price of cocaine would influence their use level, 27 out of 34 nonabstinent follow-up respondents said this would have no influence. Six affirmed that if prices dropped by about 50%, this would have an influence on their use level.

24 For some, this learning phase entails some tough lessons that may be very dangerous. Harm reduction policies might be advanced if this learning phase could be studied from the perspective of prevention. Some of the tough lessons are unnecessary. For most cocaine users studied here, prevention efforts directed to abstention would have been totally useless. But prevention efforts directed towards safer use and prevention of 'tough and dangerous lessons' would be useful.

25 Police concentrates its law enforcement efforts on large scale dealing and transit transaction. Low level individual dealers are left untouched as long as they remain inconspicuous.