COCAINE MISUSE IN SELECTED AREAS: ROME

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Summary. - *Dramatic increases in seizures of cocaine and, perhaps, in its use, are recording in Italy and in many European Countries. This should mean that heavy health problems have to be expected in a middle time (3-4 years), as already in USA where there is spreading of clinically relevant in-patients. The most cocaine users form the unseen part of the iceberg, so it is difficult to contact with it and to verify in extent. We report data, observations and comments on the suitability of the used "Snowball" sampling technique and, mostly, on its supplementary perspectives. This research was carried out in Rome area (September-December 1987) in the frame of the first pilot multi-center study, promoted by the Commission of the European Communities, on cocaine prevalence and incidence (Munich, Rome and Rotterdam). Results about the patterns and the characters of the 83 questioned users random selected (according to "Snowball" sampling technique), 32 females and 51 males (from 25 to 51 years), are reported. Some peculiar points emerged, as the differences by sex referred to:* educational level *(<50% of the males primary/middle school, >70% of the females high school/university);* civil status *(almost 50% of the males are single, less than 20% of the females live with partner);* median length of time of use *(males 8 years, females 6 years);* referred cocaine amount weekly used *(1-7 grams);* associations with other abuse substances *(50% with alcohol);* drug related problems *(police, work, family);* tendency to start use long before *(teen-agers too)* and to increase it with time. *The reported data seem very helpful to know the user's characters better than all other frames and, on this ground, to deal with a suitable preventive-organizing discussion.*

Riassunto (Misuso di cocaina in aree selezionate: Roma). - *In Italia ed in molti Paesi europei, si stanno registrando drammatici aumenti dei sequestri di cocaina e forse del suo stesso uso. Questo significa che, nel giro di tre o quattro anni, si potrebbero presentare problemi di rilevanza sanitaria come già osservato negli USA. La maggior parte dei consumatori di cocaina costituisce la parte sommersa dell'iceberg difficile da quantificare e da contattare. Il lavoro riporta dati, osservazioni e commenti sulla validità della tecnica di campionamento utilizzata, lo "Snowball", come mezzo d'indagine conoscitiva. La ricerca è stata condotta nell'area romana (settembre-dicembre 1987) nell'ambito del primo studio pilota multicentrico sulla prevalenza ed incidenza dell'uso di cocaina in tre centri europei (Monaco, Roma e Rotterdam). Questo studio è stato promosso dalla Commissione delle Comunità Europee. I risultati ottenuti con la tecnica dello "Snowball" permettono una caratterizzazione degli 83 consumatori di cocaina (32 donne e 51 uomini tra i 25 e i 51 anni) intervistati nel corso dello studio. Alcuni punti salienti sono le differenze tra i sessi per quanto riguarda: grado di istruzione (<50% degli uomini hanno un grado d'istruzione limitato alla scuola dell'obbligo, >70% delle donne invece hanno un diploma o una laurea); stato civile (circa il 50% degli uomini vive da solo, <20% delle donne convive con il partner); anzianità di uso (mediana = 8 anni per i maschi e 6 anni per le femmine); quantità di cocaina assunta (da 1 a 7 grammi per settimana); associazioni con altre sostanze d'abuso (50% con alcool); problemi derivanti dall'uso (giustizia, lavoro, famiglia); tendenza ad iniziare l'uso più precocemente (anche tra gli adolescenti) e ad aumentarlo nel tempo. I dati riportati sono di notevole utilità per la conoscenza delle caratteristiche del consumatore di cocaina. Tale conoscenza è indispensabile per affrontare concretamente qualsiasi discorso di carattere preventivo ed organizzativo.*

Introduction

The trends recorded over the last years in Italy, as in many European Countries, focus on dramatic increase in seizures and, perhaps, use of the cocaine.

This means that in 3 to 4 years time, related health problems, as already seen in the USA [1], should be expected in Italy, where supplementary needs for cocaine users are, as yet, unexplored.

Today we know the extent from the spread of the illicit market only. It is therefore important for the planning, organization and for the preventing strategy to get to the heart of the phenomenon.

Since the 1970's the cocaine seizures in Italy have increased continuously and rapidly with a small decline in 1984 (Table 1). A large part was seized in Latium, and almost exclusively in Rome (around 40% as median percentage in the period 1977-1986).

From the Drug Enforcement Service (Ministry of the Interior) data [5], the highest amount of cocaine seizures was recorded in Italy in 1988 (about 612 kg, a +91% increase compared to 1987), and for the first time it widely got to the quantity of heroin seized, as raw and some more as "normalized" (see *"Normalized" seizures*).

The 1989's forecasting is in agreement with this trend considering that, in the first 6 months of the year, cocaine alone (372 kg) comprised 51.0% of the heroin and cocaine seized (729 kg).

The increase of cocaine seizures seems mainly due to two factors: a) a greater production of the raw materials in the source countries; this directly determines the spread of trafficking throughout the Europe; b) a saturation of the North American market, where there is a verified decline on the street price. An equilibrium relationship (1:3) seems to have been established between the heroin traffic (from Sicily) and cocaine traffic (to Italy).

Cocaine has been transported in consistent quantities normally by South American couriers, by air. Recently, by ship (in June 1988, 118 kg of cocaine from Columbia were seized in the port of Genoa). Cocaine comes predominantly from Columbia (286 kg), Venezuela (89 kg) and Brazil (17 kg). Very few cases concerning the use of "crack" have been reported in Italy.

Drug-related deaths are mainly accidents due to heroin use. Only very few cases, out of the 802 in 1988, have been reported as cocaine related.

The polydrugs use, the reduced tolerance, and the increased debilitation of the users through prolonged drug careers, maybe account for this rapid increasing trend of related deaths, further confirmed by 1989 data.

Epidemiological tools suffer from insufficient traditional methods in the drug abuse field, particularly cocaine studies. Most cocaine users form an unseen part of an iceberg hard to be explored more than the heroin one. This is because the cocaine users do not ask the Public Services for treatment and in Italy there are no indicators for cocaine use such as the "Emergency Room" (indicator D.A.W.N.) available in the USA. In addition the cocaine user is well included into non-user people.

Therefore it is easy to guess the effort and the care in the health and epidemiology field to fit some known models, as well as to look new ones for attaining reliable data. As the former are concerned, one can see the mathematical-statistical sampling "Snowball" model [2, 3], by which the data for Rome area were collected.

This report refers to a research framed into a pilot study on cocaine prevalence and incidence promoted by the Commission of the European Communities in Munich, Rotterdam and Rome.

It constitutes a first multi-center study carried out under international aid and aimed at investigating from the core side the cocaine users framework.

Epidemiological data

The data released refer only to 1982 and have provided the prevalence of cocaine use which was about 1/20 of the positive to the opiates test among youths at the first medical inspection (respectively, 0.9 per 1,000 for the cocaine and 16.7 per 1,000 for opiates) [6].

"Normalized" seizures

Domestic and international comparability of the drug-seizures is improved by signifying the raw weight as its 100% equivalent [7]. This arrangement does allow comparisons among years and/or areas statistics.

The cocaine seizures in 1988 exceed these of heroin much more when compared with their "normalized" weights, and only a little with respect to "mean doses" (M_D) as calculated on the ground of double hypotheses (Table 2).

Table 1 - *Cannabis, heroin and cocaine seizures and drug-related deaths (Italy, Rome and Latium, 1977-1987)*

Year	Cannabis (kg)			Heroin (kg)			Cocaine (kg)			Drug-related deaths		
	Latium	Rome	Italy	Latium	Rome	Italy	Latium	Rome	Italy	Latium	Rome	Italy
1977	1,295		2,860	46		79	3		9	7	7	40
1978	1,727		4,701	41		80	11		15	11		62
1979	1,171		4,400	28		85	11		17	20	20	129
1980	947		4,907	39		197	22		53	50	49	208
1981	857		11,204	48		142	17		64	52	50	239
1982	1,475		4,899	62		230	59		105	53	52	255
1983	890		5,179	66		314	73		223	30	27	259
1984	646		6,056	123		457	27		72	52	51	397
1985	340	338	1,449	102	94	276	45	45	104	45	43	242
1986	3,485	3,480	16,039	96	96	331	84	84	127	26	25	292
1987	390	386	13,043	91	91	323	60	59	326	55	51	542

Source: Ministry of the Interior. Data processing by Istituto Superiore di Sanità

Table 2. - *"Normalized" substances weight allowing "sei-zures" indicator comparison*

	Heroin (kg)			Cocaine (kg)		
Raw	Normalized	M_p (thousands)	Raw	Normalized	M_p (thousands)
576	213	14,212 (a) 8,520 (b)	612	539	13,475 (c) 8,983 (d)

Hypotheses: M_p (heroin) = 0.015 g (a); 0.025 g (b)
M_p (cocaine) = 0.040 g (c); 0.060 g (d)

Table 3. - *Marital status of the questioned people*

Civil status	M (%)	F (%)
single	47.1	37.4
married	23.5	21.9
separated/divorced	19.6	21.9
living with partner	9.8	18.8
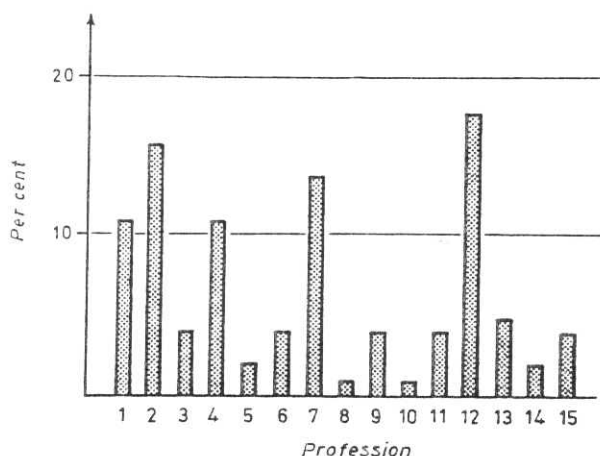
Fig. 1. - Questioned people professions. 1 = shopkeeper, 2 = white collar, 3 = movie/theatre, 4 = fashion/advertising, 5 = student, 6 = school worker, 7 = unemployed, 8 = occasional worker, 9 = craftsman, 10 = blue collar, 11 = housekeeper, 12 = clerk, 13 = agent, 14 = housewife, 15 = prostitute. Unemployed means without even occasional work. In the prostitute class there are both men and women.

Materials and methods

The "Snowball" study in Rome

The field survey was carried out by 5 interviewers well trained to contact the world of drug-abuse and the world of cocaine, which was more hard to do.

For this kind of study, the following field workers ground preparation was very important. The protocol, the procedure for sample "selection", the approach to the subject, and the administration of the questionnaires, were standardized for the field workers. In addition the user's concept was well defined. The survey was carried out in September-December 1987, and the field workers were under our supervision throughout the entire survey.

Description of the sample

The sample was made up of 5 subgroups (51 males and 32 females in all) enrolled from various social, economical and cultural classes in Rome and surrounding areas. According to the original protocol and standardized procedures, as recommended by the Steering Group on Cocaine (Commission of the European Communities), the subjects ranged in age from 23 to 51 years. The questionnaire was adapted to the conditions of Rome, anyhow conformed to the items of the original one. The average ages were 39.2 and 29.5 for men and women respectively.

Results

Educational and socioeconomic level of the subjects

- Educational level: about forty-seven percent males had primary and middle-school education. The figure reversed among the subjects with high school and university education and was made up of females (71%).
- Income/year: most subjects (80.4% and 62.5% of the males and females respectively) enjoyed a large income, greather than 6,600 ECUs (>10 millions of Italian lire). The group with a low or no income was comprised mostly of females.

Fig. 1 shows their different professions.

- Residence: over 50% of the subjects (58.5% and 68.2% of males and females respectively) lived in the central urban area. The others were from the suburban area.
- Marital status: some interesting differences between the sexes emerged mostly from the living with partners group (Table 3).

Pattern of use

Length of time of use (years) was very different by sex. For males mean = 9.6; median = 8.0; min-max = 3-30. For females mean = 6.9; median = 6.0; min-max = 1-18. Mode of administration, referred frequency and quantity of cocaine used, are reported in Tables 4 and 5.

Over 56% of the subjects used cocaine in combination with alcohol, an average of about 19% of males and females together did not use cocaine with other drugs (Fig. 2). The 82 respondents said to know, altogether, about 5,000 users, some of them suffering from health problems. Fig. 3 displays how many users were known by every respondent and how many of them had health problems. This item was included in the questionnaire to give an idea about prevalence. A precise number was given by 34 interviewed who said to know 84 other users. The rest just said "many", "more than 100" or "everyone I know" (Table 6).

This information could had been biased since it is normal that addicts, or heavy users, think everybody is like them.

Furthermore, this is argueable because we cannot estimate the overlapping of the possible subjects clusters (clubs, groups of friends, and so on).

With due reservation for the uncertainties of the method, the initiation rate was calculated from the first use of cocaine. Fig. 4 shows that about 25% began to use cocaine even before 1976 and more than half of the interviewed started use before 1980, it was the year cocaine seizures began to increase significantly in Italy.
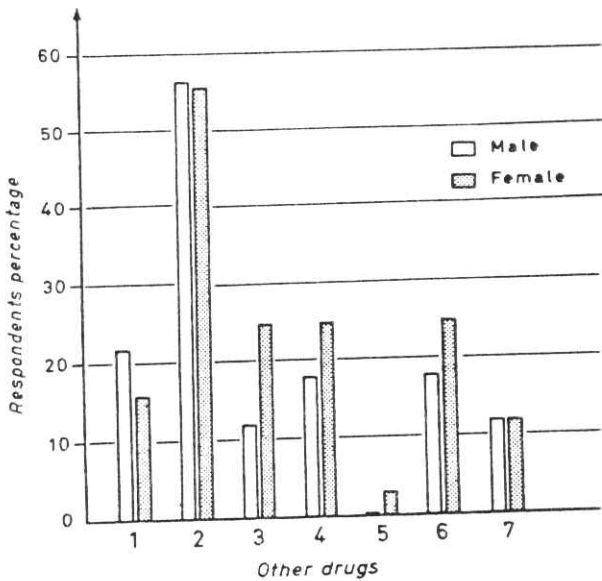
Fig. 2. - Cocaine use in combination with other drugs (in present use). 1 = none, 2 = alcohol, 3 = hashish, 4 = heroin, 5 = acid, 6 = other, 7 = heroin only.
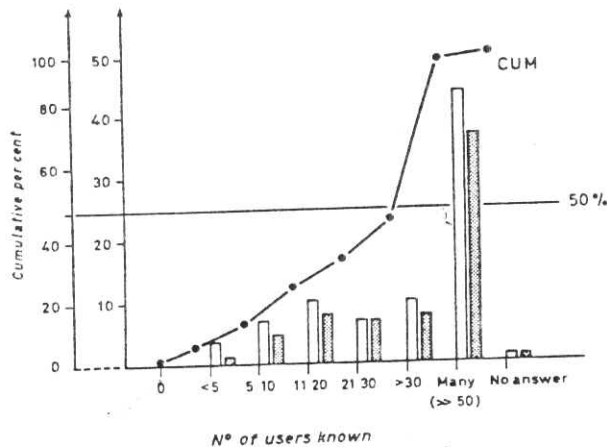
Fig. 3. - Cocaine users known by respondents. ☐ Respondents who said to know as many users as comprises in the displayed classes (outer scale). ▨ Respondents who answered, at least, one of the friends had health problems.

n. questioned = 83; n. respondent = 82; no answer = 1.

A lessening in the rate of cocaine initiation could be supposed in 1984, when the cocaine seizures drastically decreased (Table 1). The guessed relationship between initiation rate and seizures requires further considerations, one specific, the other general.

The lessening extent of cocaine seized in 1984, with respect to the 1983 extraordinary peak (223 kg) was more apparent more than substantial when compared with the former seizures (and the subsequent 1985-1986). In fact a few seizures exceptionally large (several tens kg each of them) were included in the 1983 cocaine seizures.

Drug seizures cannot be useful indicator for the assessment of prevalence nor incidence of abuse.

This is because:

a) the seizures indicate only the amount of drug taken away from the illicit market (and not necessarily destined to the domestic consumption, see point b);

b) the seized drugs could be destined for other markets;

c) on the basis of the percentage of active agent contained in each seizure ("normalized weight"), the approximate number of "average doses" obtainable should be calculated (this opportunity would assign the requirement of the comparability to the seizures in all the world) [7].

Fig. 5 shows three age groups and the average age at which cocaine abuse was started. It can be seen that most people (62.6%) born in the 3rd class started at a younger age of 19.

Table 4. - *Mode of cocaine administration*

Mode	Sex (%)	
	M	F
sniffing or snorting (only)	86.3	78.1
+ injection	13.7	18.8
injection (only)	0.0	3.1

Table 5. - *Frequency and quantity of cocaine used*

Frequency (t/week)	Sex (%)	
	M	F
< 1	3.9	0.0
1 to 2	54.9	78.1
3 to 7	19.6	12.5
> 7	21.6	9.4
Quantity (g/week)		
< 1	7.8	12.5
1 to 2	47.1	59.4
3 to 7	17.7	9.3
> 7	27.4	18.8

Table 6. - *Cocaine users known by respondents*

Known (n.)	Respondents (%)
< 5	3.6
5-10	10.8
11-20	10.8
21-30	6.0
> 30, many (*)	67.4
no answer	2.4

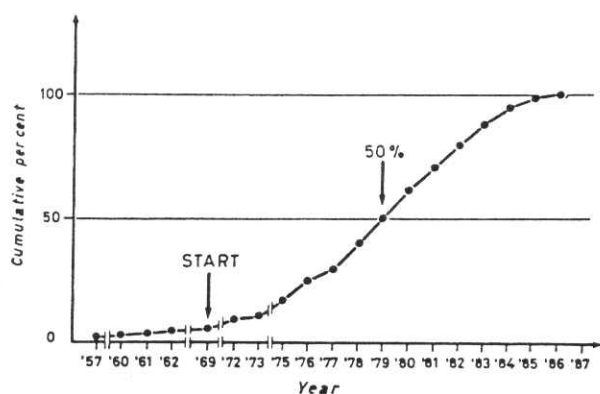(*) included 8.4% who said from 31 to 80 and 59.0% "many"

Fig. 4. - Use derived from age of 1st consumption. Almost 25% of the subjects began the cocaine use before 1976 and more than half started use before 1980 when cocaine seizures began to increase significantly in Italy.
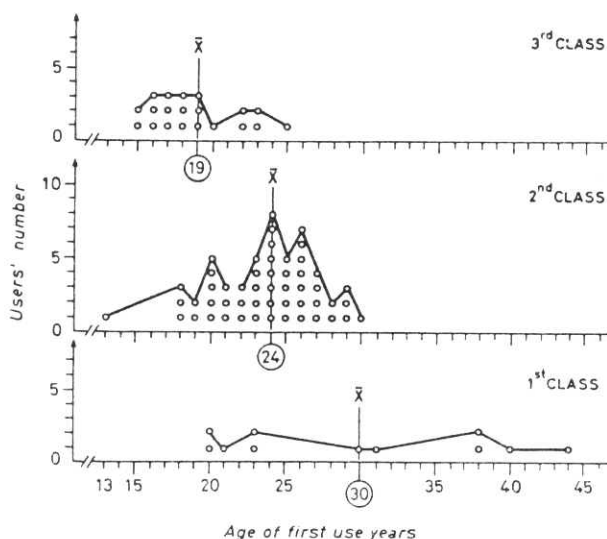

Fig. 5. - Age of initiation by birth-year classes. *1st class* 1930-1949: mean age = 29.8; SD = 8.9; n. = 11. *2nd class* 1950-1959: mean age = 23.7; SD = 3.5; n. = 52. *3rd* class 1960-1969: mean age = 18.7; SD = 2.9; n. = 20. The mean age of initiation was progressively decreasing through the years. The 3rd class people (class '60-'69) started use at younger age.

Consumption habits

A lot of the users, especially females (36%), often or always (19%) get cocaine free; 37% sometimes get it free; 6% never do.

The respondents gave widely varied answers on the price and packaging of cocaine, because these depended on source and time of supply. Table 7 shows different price ranges referred by the users.

The respondents reported they need to spent (on the average) between 500,000-1,000,000 Italian lire per month, because many get cocaine free. About 15% of males (7/44) are known (either directly or indirectly) to be dealers. No females are known to deal. All people could very easily obtain cocaine; the males directly (60%), the females indirectly (72%) and almost always from the partner. Most (>50%) obtained their cocaine from other neighborhood.

Motivation for cocaine use

Most of the questioned people began to use cocaine because of curiosity, but later increased its use for various reasons. The distribution of the single and combined reasons is given (Fig. 6). The predominant reasons for use were "need", "depression" and "fun". Note a high percentage (37.5%) of women who use cocaine to fight depression even though in some cases, when the effects of cocaine wore off, deeper depression ensues.

More men than women (only one) used cocaine for sexual stimulation.

Cocaine consumption situations

A large number of men and women (about 40%) used cocaine preferably with friends. Subjects who preferred to use it alone, were mainly men (2:1); on the other hand, more women took it with their partners (3:1). 70% of the married men used it with their wives; others, tried to hide their habit and worry very much if it was known.

Only 2 subjects did not worry at all about this. It could be observed that the marriage was steady if both husband and wife used cocaine, otherwise it broke.

Table 7. - *Price per gram of cocaine*

Italian lire (thousands)	Respondents (%)
as a present	2.4
100	4.8
100-120	3.6
120-150	13.2
140-160	2.4
150	10.8
160-180	15.7
150-200	7.2
200	28.9
200-250	3.6
missing	7.2

Drug-use related problems

As with other drugs, family problems are the heaviest problems for the cocaine user (60-70%). Only 24% of the respondents did not have personal problems at all. Somebody referred health problems, mostly tooth and skeletal muscle ones. Four said that they had AIDS-related problem (unspecified).

As regards the side effects of cocaine use, 38.5% of the people do not have problems at all. The subjects with cocaine related problems are mostly females. Combining the side effects, as referred by the respondents, the "Snowball" data yield the pattern in Fig. 7.

One subject out of 4 had family problems, almost 1/16 work problems and 1/40 reported legal problems. These proportions represent single problem only, and not combinations of them.

The "Snowball" research in the Rome area gave a very interesting picture of the tendencies classified into six types of users' career (Fig. 8).

A net prevalence of pattern 2 is noted; this could indicate a strong tendency to increase the use mainly in women (+20%).

At the same time, there is a group of subjects who used cocaine circumstantially (so to verify its extent is very difficult) and these were able to control their use only when forced to do so. This kind of ability is certain in some of them when the availability of cocaine is limited, but it is uncertain in the contrary.

Fig. 9 shows patterns concerning the habits of the users and a large variability among the answers, both for men and for women. Very often, there is not one single reason for use, but rather a number of factors which are of various degrees, depending on the individual. It does not exist a true prevalence, but rather a tendency, present both in men and women, to use cocaine circumstantially.

Discussion and conclusions

The knowledge of patterns of use and the probability of progression or intensification of use in general population samples (not clinically selected), opens new perspectives to a much more debated research question in the USA [4]: do the increased side (untoward) effects reflect a new cocaine use incidence or, rather, a shifting versus more detrimental use patterns within a relatively steady prevalence pool stabilized some years before?

This question is essential in our country too, when a program is to be designed for a primary or secondary prevention. For this purpose we strongly need useful and reliable methodologies. The most important concern from our research is prevention of use of cocaine in young people.

Results in Fig. 5 must be read on the basis of the following considerations: a) in the three cohorts, probably, the mean age tends to decrease by itself; b) in the 1930-'49 class, someone started use when aged 40-50, but, naturally, in the 1960-'69 age group, it is impossible to find anybody starting at the same age because the survey was carried out in 1987. On the other hand, we do not know if, in the first cohort, some younger subject was not contacted because fell ill or died before the project started.

However, nobody started under 20 in the 1st cohort, all the subjects (except one) started after 18 in the 2nd, while 30% of the subjects in the 3rd started at 15-17.

On the basis of this information, a new, dramatic risk for the teen-agers is clearly indicated. This is in agreement with the recent findings from the USA [1] and stressed by the dangerous hooking capability of the "crack" among the youngest people.

In this perspective for improving data acquisition and, so, planning more suitable prevention programs, deeper studies are needful.
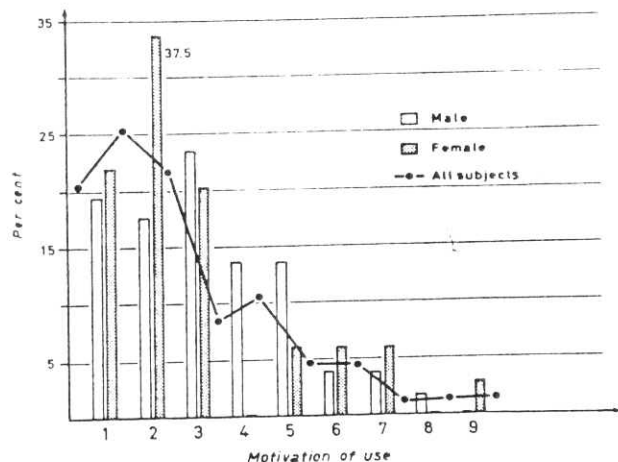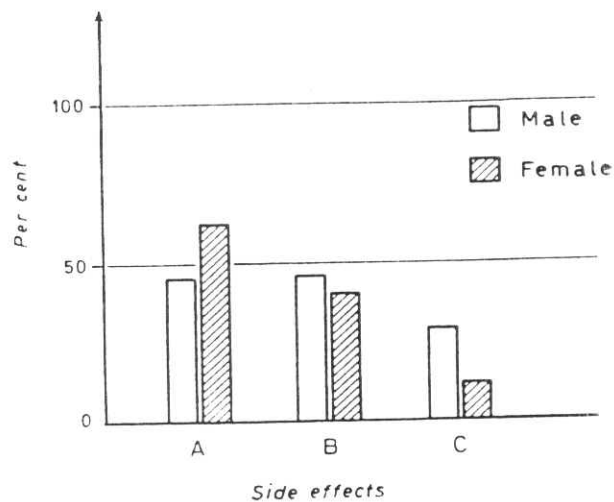
Fig. 6. - Motivation of use. 1 = need, 2 = depression, 3 = fun, 4 = sexuality, 5 = work stimulation, 6 = habit and depression, 7 = fun and depression, 8 = depression and work stimulation, 9 = fun and work stimulation. There are very interesting differences between sexes mainly as regard the cocaine use to fight depression and to enhance sexuality.

Fig. 7. - Side effects like referred. A = *Sensation:* irritability, nervousness, hypersensitivity, anxiety, fear, anguish. B = *Disturbances:* depression, delirium halucinations, insomnia, haedaches, vertigo, sweating, shaking, nausea. C = *Illnesses:* painful erections, difficult in breathing, feelings of soffocation and death, allergic itching, impotency, diminution of sex drive, psychosis, paranoia, becoming accustomed to use.
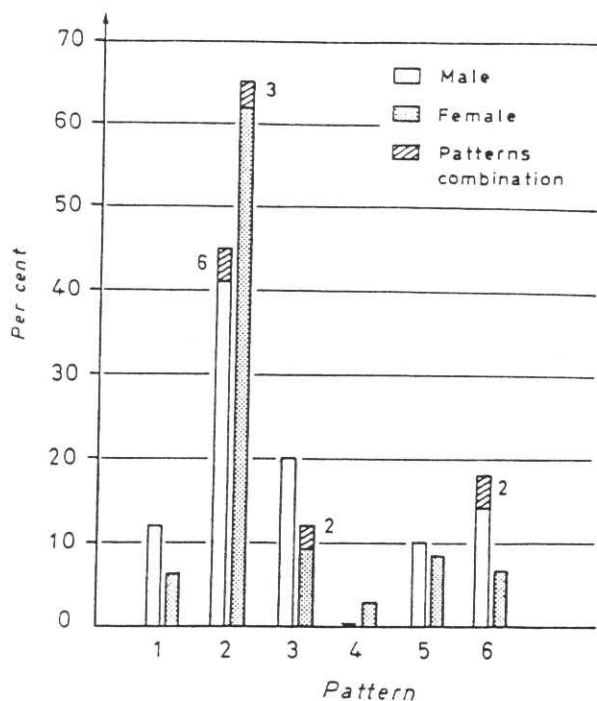
Fig. 8. - User careers described by six types of patterns. 1 = gradually decreasing use, 2 = increasing use, 3 = stationary use, 4 = increased and then decreasing use, 5 = often started and stopped use, 6 = varied use over the years. A net prevalence of pattern 2 could indicate a tendency, mainly in women, to increase use.
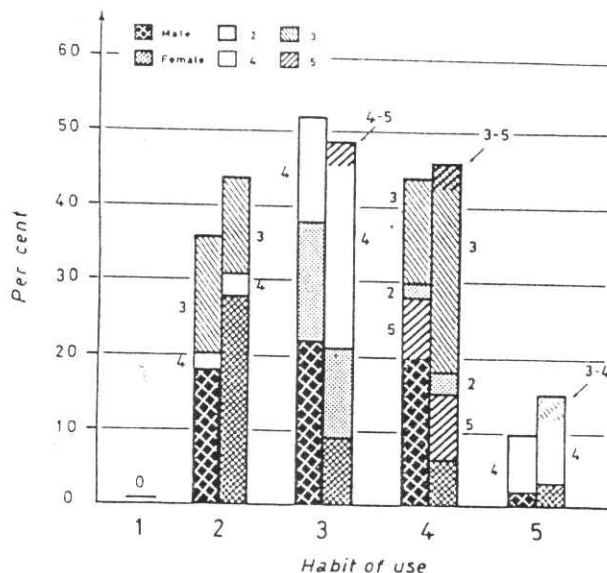

Fig. 9. - Patterns of habit of use. 1 = experimental use, 2 = social-recreational use, 3 = circumstantial use, 4 = intensified use, 5 = compulsive use. The figure shows the large variability among the respondents and the tendency to use cocaine circumstantially.

In conclusion, the pilot study seems to suggest that:

1. Many cocaine users, especially women, are polydrug users. They mainly combine cocaine with hashish, heroin and alcohol. This fact, could accelerate the increase of health problems (more than a few users, known by the interviewed ones, have them).

2. The mean age of the users is decreasing, independently of profession and income. The mean age of initiation was progressively lessening: from around 30 years for those born in the 30's and 40's (13.2%) to 24 and 19 years for those born in the 50's (62.6%) and 60's (24.0%), respectively. Even if there is a bias in the sampling method (for example subjects at risk because they are already users) *we can confirm that the mean age of initiation is dropping, and therefore cocaine is being consumed by younger people.*

3. The tendency to "increase the use" that makes the cocaine user actually unable to control the use itself even if he thinks he is able to do it. Only a few of the respondents, infact, considered themselves slaves to cocaine.

4. The prevalence of circumstantial use suggests a more rapid spread of this custom than estimated.

5. The strong tendency of women to use cocaine against depression suggests the high risk to think, in common opinion, cocaine like a pharmacological tool relieving depression.

6. The most useful function of the preliminary reported data, is related to the psycho-social aspects of the questioned users behaviour. This fact is much more important if we consider that the prevalence was certainly overestimated and the incidence is even more difficult to be determined because of the lack of any denominator.

Thus we think the "Snowball sampling technique" could be very useful to understand the character of the user in its entirety. This knowledge is essential in dealing with preventive-organizing type discussions and interventions.

REFERENCES

1. U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICE. 1988. *Epidemiology of drug abuse in the United States and Europe.* Proceedings. Community Epidemiology Work Group. June 1988. National Institute of Drug Abuse, Rockville, Maryland. 446 p.

2. GOODMAN, L.A. 1961. Snowball Sampling. *Ann. Math. Stat.* 32: 148-170.

3. KAPLAN, C.D., VAN METER, K.M. & KORCZAK, D. 1985. *Estimating cocaine prevalence and incidence in three European community cities.* Commission of the European Communities, Luxemburg, 19 September 1985. pp. 1-60.

4.	ADAMS, E.H. & KOZEL, N.J. 1985. Cocaine use in America: introduction and overview. In: Cocaine use in America: epidemiological and clinical perspectives. *NIDA Res. Monogr. Ser.* **61**: 1-7.

5.	ITALIA. 1988. *Attività antidroga delle forze di polizia nel 1988. Dati nazionali.* Ministero dell'Interno. Servizio Centrale Antidroga. Ministero dell'Interno, Roma. 125 p.

6.	AVICO, U. & MARIANI, F. 1983. *TO.DI.2 project, spread of use of opiates and other psychoactive drugs and profiles of users among 1982 draftees.* Roma, Istituto Superiore di Sanità, 1983. (Rapporti ISTISAN 83/58).

7.	URCIUOLI, R., MACCHIA, T. & AVICO, U. 1987. Side effects of control policy in Italy. In: *Side effects of control policy.* Commission of the European Communities, Luxemburg. pp. 53-65.