

# Relationship between cocaine use and mental health problems in a sample of European cocaine powder or crack users

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*Numerous studies have pointed out the risks of cocaine use for mental health. Most clinical studies report a high psychiatric comorbidity, mainly among crack users. In this paper the association of mental health problems with sociodemographic variables and patterns of use is analysed, based on data from a multicentre European study including a field survey of cocaine users in different settings. Bivariate analyses revealed that mental health problems were influenced by all variables under consideration, i.e. age, gender, social situation, crack use, days with cocaine use in the past month, lifetime use of cocaine, severity of dependence, and physical health. However, in a regression analysis, intensity of use, physical health, severity of dependence and social situation were found to be predictors of mental health problems, while crack use by itself was not. These findings suggest that mental health consequences are related more to the intensity than to the form of cocaine use.*

**Key words:** Cocaine, crack, mental health problems, intensity of use

Considerable debate has surrounded the potential dangerousness of cocaine, since many people continue to use the drug on a recreational basis without reporting problems. The health risks of cocaine use include a number of medical complications, such as cardiovascular or respiratory disorders, that in some cases can lead to death. Acute cocaine use can lead to the wanted effects of euphoria, self-assurance, increased attention, reduced appetite, less tiredness, among others, but can also lead to unwanted effects such as anxiety and paranoia, egocentric behaviour, dysphoria, anorexia and delusions. After cocaine withdrawal, a typical symptom is anhedonia. A greater severity of cocaine dependence is associated with a more severe depressive symptomatology after withdrawal (1).

Health related effects of cocaine are largely related to the route of use. Routes of use have important implications for pattern of use, drug effect and risk of dependence, with smoking and intravenous use associated with greater absorption, a shorter more intense high and a greater tendency toward a binge pattern of use (2,3). Different routes of using cocaine are associated with different negative consequences (4). Crack users have a greater number of symptoms, and higher levels of anxiety, depression, paranoid ideation, and psychoticism (5,6). Other symptoms, such as aggression and violence, are associated more with crack than with cocaine powder.

Psychiatric comorbidity among cocaine dependent users is not only increased for other substance disorders, but also for personality disorders (7-9), post-traumatic stress disorder (10,11), and depressive disorders (12,13). However, there remains a paucity of research evidence concerning the association of mental health problems with

the complex interaction of length of cocaine use, the social context and the route of use.

## METHODS

### Design

The research project Support Needs for Cocaine and Crack Users in Europe (CocaineEU) was initiated in 2002. This multicentre, multimodal field study was aimed at defining specific recommendations (guidelines) in order to ameliorate the care for regular cocaine and crack users. The project was initially carried out by research centres in nine European cities (Barcelona, Budapest, Dublin, Hamburg, London, Rome, Stockholm, Vienna, Zurich), while a tenth research centre (Paris) joined in during the course of the project.

In each participating city, cocaine and crack users out of three different subgroups were recruited: 70 cocaine/crack users on drug treatment, mainly maintenance treatment; 70 socially marginalized cocaine/crack users not on a specific drug treatment, and 70 socially integrated cocaine/crack users not on a specific drug treatment.

The treatment group was recruited mainly in outpatient maintenance clinics or, if not possible, in other (inpatient or outpatient) addiction treatment settings. The marginalized group was recruited at places where drug users usually meet to sell, buy or use drugs, or in the surroundings of low-threshold addiction facilities (e.g., needle exchange programmes or safe injection rooms). The integrated group was recruited at different party places (e.g., discos, night-clubs or pubs), or through private contacts. To exclude an overlap between the three target groups, each centre deter-

mined specific recruitment locations, e.g. treatment facilities and places typically attended by the two other groups. Besides affiliation to the respective target group, the inclusion criterion was the use of cocaine powder or crack cocaine at least once in the last month.

The three target groups were consecutively recruited according to a criteria oriented sample strategy. Subjects at the determined recruitment locations were first asked with regards to the inclusion criteria. If these were met, and after the subject gave informed consent, the interview took place.

### Measures

Structured face-to-face interviews were conducted to assess the consumption behaviour, social and health status. The instrument used was an adjusted version of the Maudsley Addiction Profile (MAP) (14), including a 10 item physical health symptom scale (adapted from the Opiate Treatment Index, OTI, 15) and a 10 item scale to assess mental health problems (derived from the anxiety and depression subscales of the Brief Symptom Inventory, BSI) (16). Dependence upon cocaine was assessed using the Severity of Dependence Scale (SDS) (17).

The MAP is a brief, interviewer-administered questionnaire that measures problems in four domains: substance use, health risk behaviour, personal/social functioning, and physical and psychological health. The adjusted version included items concerning patterns and history of cocaine and crack use, and some items concerning the social situation. In addition to the current drug use data, lifetime data assessed according to the European Addiction Severity Index (ASI) (18) were reported for cocaine powder and crack cocaine.

### Subjects

Because of the low prevalence of cocaine in Stockholm (19), it was not possible to recruit a sufficient number of cocaine users who met the inclusion criterion of having used cocaine powder or crack cocaine at least once in the past month. Therefore, the following analysis is based on data from nine European cities.

The total number of subjects was 1855, with 34% belonging to the treatment group, 33% to the marginalized group, and 33% to the integrated group. There were small deviations from the originally intended sample size of 70 cocaine users in each group and each city. In the treatment group, 81% were recruited in maintenance clinics, 9% in other drug treatment services. The marginalized group was mainly recruited in low-threshold facilities (58%), on the drug scene (16%), or via snowballing (10%). The integrated group was recruited mainly at night-life sites (38%), or via snowballing (40%), and the rest at different medical services or public places. The patterns of use varied greatly between cities and between the three target groups (20).

## RESULTS

Thirty-two percent of the sample were female. The average age of the whole sample was 30.8 ( $\pm$  7.4) years, ranging from 16 to 62 years. On average, males (31.7  $\pm$  7.5 years) were older than females (28.8  $\pm$  6.6 years).

Eighty-six percent of all subjects had used cocaine powder in the 30 days prior to the interview, 27% had used crack cocaine (73% had used cocaine powder alone, 14% crack cocaine alone, 13% cocaine powder as well as crack cocaine). About 90% of the crack cocaine users were smoking, about 10% were injecting. In the last 30 days, the average number of days with cocaine use was 14.4 ( $\pm$ 11.1). The severity of dependence (according to SDS) was 5.5 (range: 0-15, SD=4.1). Fourteen percent of the sample reported no period of regular cocaine use (period of at least six months with a use of more than two times per week) in their lifetime. In those with a period of lifetime regular use, the average duration of regular use was 6.1 years ( $\pm$ 5.1). With respect to problems with physical health, the sample reported an average of 12.0 ( $\pm$ 7.6) on the OTI subscale (range 0-40).

With respect to mental health problems, the sample showed an average BSI score of 14.3 (range 0-40, SD=8.89). Only 4% had a sum score of 0, reporting no mental health problems. The mental health problems score showed highly significant differences for gender, social situation, present crack use and regular cocaine use (Table 1). The mental health problems score also correlated significantly with age ( $r=.124$ ,  $p<0.001$ ), days with cocaine use in the last 30 days ( $r=.370$ ,  $p<0.001$ ), years of regular use ( $r=.109$ ,  $p<0.001$ ) and severity of cocaine dependence ( $r=.502$ ,  $p<0.001$ ). A very highly significant correlation was found between the mental health problems score and problems with physical health ( $r=.623$ ,  $p<0.001$ ).

In order to understand which variables best predict mental health problems in this sample of cocaine users, a multiple linear regression analysis was performed, including the variables gender, age, social situation, days with

**Table 1** Differences in mental health problems (Brief Symptom Inventory score)

	N	Mean $\pm$ SD	F	Post hoc
<b>Gender</b>				
Male	1257	13.8 $\pm$ 8.7	11.54**	
Female	595	15.3 $\pm$ 9.1		
<b>Social situation</b>				
Stable (1)	815	11.3 $\pm$ 8.0		
Partially stable (2)	760	16.2 $\pm$ 9.0	90.27**	2, 3 > 1*
Unstable (3)	236	17.7 $\pm$ 8.9		
<b>Crack use</b>				
Yes	495	16.8 $\pm$ 9.0	56.13**	
No	1358	13.4 $\pm$ 8.7		
<b>Regular cocaine use lifetime</b>				
Yes	1579	14.9 $\pm$ 8.8	60.09**	
No	258	10.4 $\pm$ 8.2		

\* $p<0.05$ , Scheffé test; \*\* $p < 0.001$ , ANOVA

Stable: stable living situation and employed; partially stable: unstable living situation or unemployed; unstable: unstable living situation and unemployed.

**Table 2** Regression analysis summary for variables predicting mental health problems

Variable	B	SEB	$\beta$	t
Problems with physical health	.56	.02	.48	23.39**
Severity of cocaine dependence	.53	.05	.24	11.33**
Stable social situation	-1.49	.33	-.08	-4.47**
Days with use of cocaine	.05	.02	.07	3.11*

\* $p < 0.01$ ; \*\* $p < 0.001$

cocaine use, crack use, length of regular use (those with no lifetime regular use were set at 0 years), severity of dependence and problems with physical health. Results of this regression analysis are found in Table 2, indicating that mental health problems are related to physical health, severity of dependence and intensity (frequency) of cocaine use, as well as the social situation of the user. However, crack use by itself and the length of regular cocaine use do not predict the extent of mental health problems.

## DISCUSSION

In the past, numerous studies have shown the risks of cocaine use for both physical and mental health. The focus with respect to mental health risks has come mainly from clinical studies, reporting a high proportion of psychiatric comorbidity. Many studies have concentrated on the specifically high risk of health problems related to crack use.

This paper is based on a field survey of cocaine users and explores the association of mental health problems with sociodemographic factors as well as patterns of use. Since not only clinical cases were included in the survey, the study allows for a much wider view of cocaine use in the population, including users who do not consider their cocaine use a problem. Although not assessing a representative sample of the population, the survey includes a large sample of all the main subgroups of cocaine users in the society.

The main result of the study is the association of mental health problems with various sociodemographic factors as well as patterns of use. This included the variable of crack use, with a significantly higher mental health problems score for crack users than for users of cocaine powder. However, the regression analysis was then able to show that crack use by itself was not a predictor of higher mental health problems. Predictors of mental health problems were the intensity of use, physical health and the social situation. These findings suggest that the severe consequences are related more to the intensity than the form of cocaine use. Although this position has been stated in a review in the past (3), there have been numerous studies since then which all focus on the form of cocaine use (crack cocaine versus cocaine hydrochloride) rather than on the intensity of use.

With respect to the prevention of mental disorders among cocaine users, the high correlation of mental health problems and physical health problems points to the importance of screening for mental health problems among cocaine

users in other medical settings such as general practitioners and emergency rooms, similar to the Drug Abuse Warning Network system implemented in the USA (21).

The results with respect to the severity of dependence and the social situation emphasize the necessity of implementing harm reduction measures. Severity of cocaine dependence, as assessed by means of the SDS, mainly refers to psychological components of dependence, such as impaired control over drug taking and preoccupation and anxieties about drug use. Hence, harm reduction measures that are aimed at safer, more controlled, less intensive use of cocaine may decrease mental health problems. Similarly, stabilising the social situation of drug users may have the same effect. Furthermore, the higher risks for female users, in line with the findings of McCance-Katz et al (22), need to be addressed in prevention, treatment and research.

## APPENDIX

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