

Cocaine and Heroin Dependence Compared in Poly-Drug Abusers

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Abstract: Concerns about cocaine dependence are increasing, in some ways replacing heroin as the focus of highest concern. We compared cocaine and heroin dependence by levels of cocaine and heroin use in poly-drug users. While dependence indicators differed markedly between regular and sporadic users of these drugs, cocaine dependence indicators did not differ from heroin dependence indicators. Implications of the findings are discussed. (*Am J Public Health* 1988; 78:567-569.)

Introduction

The 1980 edition of the Diagnostic and Statistical Manual (DSM-III)¹ of the American Psychiatric Association (APA) has a category for cocaine abuse, but not cocaine dependence. At present, however, there is concern about the dependence potential of cocaine. In some ways, cocaine has replaced heroin as a focus for alarm. Animal research supports this concern.^{2,3}

The newest editions of American and international nomenclatures include categories for cocaine dependence. Both the revised DSM-III-R⁴ and the tenth revision of the International Classification of Diseases (ICD-10)⁵ are influenced by the Edwards-Gross model of substance dependence,⁶ which combines physiological, behavioral, and subjective indicators of dependence.

While animal research can tell us a great deal about drug effects, human drug problems (exemplified by the Edwards-Gross model) are more complex. This report focuses on cocaine and heroin in poly-drug abusing subjects.

Methods

Subjects

We recruited subjects by randomly sampling all admissions to an alcohol rehabilitation unit at a Manhattan (New York) hospital from January 1982 to July 1983. Three hundred eight subjects were included in the initial sample, out of a total of 664 patients admitted to the facility during the 18 months of data collection for the study.

Among these 308 subjects, 75 (24 per cent) had used cocaine at least six times on a lifetime basis but had not used heroin at all or only up to a maximum of five times. Sixty-seven subjects (22 per cent) had used heroin at least six times. All but five of the heroin-using subjects had used cocaine at least six times, so it was not possible to construct a "pure" group of heroin users.

We separated cocaine users into two groups: those who had used cocaine daily for two weeks or longer, and those who had used cocaine at least six times but never daily for two weeks. We also created two groups of heroin users by patterns of heroin use in a manner analogous to the cocaine

group: one group had used heroin daily for two weeks or more, and the other had used heroin at least six times but never daily for two weeks.

Measures

We collected data with the Diagnostic Interview Schedule (DIS),⁷ a fully-structured interview designed for non-clinicians. Drug assessments from the DIS agreed well in this sample with extensive, reliable clinical assessments of drug abuse and/or dependence.⁸ We utilized information obtained from the interview on specific aspects of drug dependence. Following the broadened definition of dependence specified in ICD-10,⁵ we chose items measuring emotional and behavioral dependence (felt dependent on the drug, unsuccessful attempts to cut down), tolerance, and withdrawal. Since dysphoric mood commonly accompanies the "crash" from cocaine,⁹ we combined two cocaine items from the DIS to indicate cocaine withdrawal, one specifically covering withdrawal and one covering adverse emotional or psychological reactions to the drug. We did not use DIS dependence diagnoses because these are based on older nomenclatures,^{1,10} that were different from or more limited than the concept of dependence embodied in the new criteria found in DSM-III-R and ICD-10.

Results

Table 1 shows characteristics of the four groups of drug-using subjects. Regular heroin users were slightly older and more likely to be Black than the others. Most subjects had DSM-III diagnoses of alcohol abuse or dependence.

Table 2 indicates the proportion of subjects in each drug-use group reporting the dependence indicators. These indicators were common among those using either of these drugs on a daily basis, but much less common among those with less regular patterns of use. In contrast, none of the cocaine-heroin comparisons indicated important differences between the groups (Table 2).

Discussion

These results support the assumption that cocaine has dependence-generating potential comparable to that of heroin. We were somewhat surprised by the results, since we collected our data before crack use became widespread. Very few of our cocaine-using subjects had used crack, and most had used cocaine intranasally, rather than smoking or injecting the drug. Therefore, they did not use cocaine in a form or route of administration that provides the most potent experience of the drug. Data collection is currently under way to determine how the use of crack alters the picture suggested by our findings.

Our indicator of drug-use patterns was not very refined, and some fairly regular users of cocaine or heroin could have been included in each of the sporadic groups. Unfortunately, the data necessary to group subjects more precisely were not available. Nevertheless, the marked differences between the sporadic and regular users for all dependence indicators attest to the validity of the groupings as defined.

As described above, we obtained our data from a clinical sample. The generalizability of our findings to untreated drug-using individuals in the general population is unknown.

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TABLE 1—Characteristics of Patients by Patterns of Use of Cocaine or Heroin

Patient Characteristics	Cocaine				Heroin			
	Group 1 (N = 42) 6+ times, never daily for 2 weeks		Group 2 (N = 33) Daily, 2 weeks or longer		Group 3 (N = 19) 6+ times, never daily for 2 weeks		Group 4 (N = 48) Daily, 2 weeks or longer	
	%	(n)	%	(n)	%	(n)	%	(n)
Gender								
Male	76	(32)	64	(21)	63	(12)	75	(36)
Female	24	(10)	36	(12)	37	(7)	25	(12)
Marital Status								
Married	24	(10)	6	(2)	18	(3)	15	(7)
Never married	64	(27)	61	(20)	63	(12)	52	(25)
Other	12	(5)	33	(11)	21	(4)	33	(16)
Ethnicity								
Black	31	(13)	6	(2)	5	(1)	50	(24)
Hispanic	12	(5)	15	(5)	0	(0)	15	(7)
White	57	(24)	79	(26)	95	(18)	35	(17)
Age (years)								
18–20	5	(2)	6	(2)	5	(1)	2	(1)
20–29	57	(24)	49	(16)	63	(12)	19	(9)
30–39	29	(12)	24	(8)	21	(4)	54	(26)
40+	10	(4)	21	(7)	11	(2)	25	(12)
Most Recent Occupation								
Professional	19	(8)	12	(4)	16	(3)	15	(7)
Managerial	19	(8)	30	(10)	26	(5)	10	(5)
Clerical	29	(12)	18	(6)	16	(3)	29	(14)
Skilled	10	(4)	12	(4)	26	(5)	23	(11)
Unskilled	24	(10)	27	(9)	16	(3)	23	(11)
DSM-III Alcohol Abuse and/or Dependence	98	(41)	85	(28)	79	(15)	98	(47)

TABLE 2—Dependence Indicators for Cocaine and Heroin, by Patterns of Use

Dependence Indicators	Cocaine				Heroin				Differences in % of Subjects Reporting Dependence Indicators between Groups (95% confidence intervals)							
	Group 1 (N = 42) 6+ times, never daily for 2 weeks		Group 2 (N = 33) Daily, 2 weeks or longer		Group 3 (N = 19) 6+ times, never daily for 2 weeks		Group 4 (N = 48) Daily, 2 weeks or longer		Group 1 vs. Group 2		Group 3 vs. Group 4		Group 1 vs. Group 3		Group 2 vs. Group 5	
	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)
Felt dependent on the drug	14	(6)	79	(26)	11	(2)	85	(41)	65	(44,85)	75	(31,90)	4	(-26,19)	-6	(-26,13)
Unsuccessful attempts to cut back	14	(6)	64	(21)	16	(3)	63	(30)	49	(27,72)	47	(32,68)	-2	(-24,21)	1	(-23,25)
Tolerance	26	(5)	64	(21)	26	(5)	85	(41)	30	(6,55)	59	(30,96)	7	(-31,30)	-22	(-44,0)
Withdrawal	19	(8)	76	(25)	21	(4)	83	(40)	57	(35,78)	62	(33,92)	-2	(-33,29)	-8	(-28,13)

Note: Small inconsistencies between the differences in proportions (right portion of table) and the proportions themselves (left portion of the tables) are due to the effects of rounding. When the sample size was adequate, we used the method for constructing confidence intervals (CI) described in Fleiss.¹¹ When any cell count in a four-fold table fell below 5, we based the CI on the Fisher-Irwin "exact" test.¹¹

The proportion of the original sample of 308 patients reporting a history of daily use of cocaine or heroin was quite high. Some patients had serious drug problems only in the past, and had substituted alcohol. Others were currently abusing both alcohol and drugs at the time of their admission. All such patients may present a high risk for unsuccessful outcome. Clinicians in either alcohol- or drug-oriented settings may help patients achieve better outcomes if they remain alert to the use of both alcohol and drugs.

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1987 Kimble Methodology Award; Nominations Invited for 1988 Awards

The 1987 Kimble Methodology Award, sponsored by the Conference of Public Health Laboratorians, was presented to Dr. Karim E. Hechemy in recognition of his development of simple, effective latex tests for serodiagnosis of the rickettsioses. He is Project Director, Laboratory of Rickettsial Diseases, New York State Department of Health, Albany and was honored at the Annual Meeting of the Conference held at New Orleans, LA, in October 1987 in conjunction with the APHA annual meeting.

Nominations are now being sought for the 37th award to be presented at the annual meeting of the Conference of Public Health Laboratorians scheduled for November 13, 1988 in Boston, Massachusetts. This award, recognizing significant contributions to public health laboratory practice, consists of \$1,000 and a plaque presented by the Kimble Division of Owens-Illinois, Inc, of Toledo, Ohio. Travel and subsistence will be paid for the recipient to attend the 1988 meeting.

The deadline for submission of nominations for this year is June 17, 1988. All nominations should be entered to the following rules:

- Nominee's work should be a fundamental contribution, or an adaptation of such, to diagnostic methodology for use in the public health or diagnostic laboratory. Degree of acceptance and use of the methodology will be considered.
- Nominee(s), either an individual or two or more working together, must live and work on the North American continent.
- The nomination (*10 copies*) shall consist of a letter of nomination describing the reason for nomination; the recognition accorded the nominee for the work and the degree of acceptance by and/or its importance of the work to public health or diagnostic laboratories; the curriculum vitae of the nominee; the nominee's current place of employment; a list of the nominee's publications; and, optionally, letters of support for the nomination.

Send nominations to: Dr. C. Dwayne Morse, Kimble Award Chairperson, Maricopa County Health Division, 1845 East Roosevelt Street, Phoenix, AZ 85006. Phone (602) 258-6381, Ext. 405.