Five-Year Clinical Course Associated With DSM-IV Alcohol Abuse or Dependence in a Large Group of Men and Women

Marc A. Schuckit, M.D.

Tom L. Smith, Ph.D.

George P. Danko, Ph.D.

Kathleen K. Bucholz, Ph.D.

Theodore Reich, M.D.

Laura Bierut, M.D.

Objective: The prognostic validity of the DSM-IV diagnoses of alcohol abuse and alcohol dependence was evaluated by examining the 5-year clinical course associated with those diagnoses in a large group of predominantly blue-collar men and women.

Method: Personal semistructured interviews were carried out 5 years after an initial evaluation with 1,346 (75%) of the approximately 1,800 men and women participating in the Collaborative Study on the Genetics of Alcoholism who were eligible for follow-up.

Results: About two-thirds of the 298 subjects with DSM-IV alcohol dependence at baseline maintained that diagnosis during the 5-year study period. Fifty-five percent of the 288 subjects with DSM-IV alcohol abuse at baseline continued to meet one or more of the 11 DSM-IV abuse/dependence criteria, and 3.5% went on to meet the criteria for dependence at follow-up. Among the 760 subjects with no alcohol diagnosis at baseline, 2.5% met the criteria for alcohol dependence and 12.8% for alcohol abuse at follow-up. Baseline characteristics that predicted the occurrence of any of the 11 DSM-IV abuse/dependence criteria during the 5-year interval included male gender, lack of marital stability, presence of several of the criteria for dependence, and history of illicit drug use.

Conclusions: The data suggest that over 5 years the DSM-IV diagnosis of alcohol dependence predicts a chronic disorder with a relatively severe course, while DSM-IV alcohol abuse predicts a less persistent, milder disorder that does not usually progress to dependence.

One important measure of the clinical relevance of a diagnostic system is the ability of the diagnostic criteria to predict the course of problems over time (1, 2). This attribute of predictive validity facilitates clinical decisions about whether an intervention is appropriate and establishes a baseline against which the outcomes associated with treatment can be evaluated. The optimal study of the course associated with a diagnostic system requires a large group of subjects who are evaluated over an appropriately long period of time.

Only a decade or so has passed since the publication of the DSM-III-R criteria for substance use disorders. This 1987 diagnostic system included abuse/dependence criteria that were markedly different from those of prior classifications (3, 4). In 1994, DSM-IV modified that diagnostic approach yet again (5–7).

Only a few prospective investigations to determine the prognostic meaning of the DSM-IV alcohol abuse/dependence criteria have been carried out. One study evaluated 1-year outcomes for 876 men and women in the general population of New Jersey who reported consuming five or more drinks on at least one occasion over the prior year (8, 9). Among the 239 subjects who met the criteria for alcohol dependence at the time of the initial evaluation, a 1-year

follow-up revealed that 71% continued to manifest at least one of the 11 DSM-IV abuse or dependence criteria (thus fulfilling criteria for the continuation of dependence) and 29% had been free from these problems during the interval. Among the 67 men and women who initially met the criteria for abuse, 33% continued to have enough problems to maintain that diagnosis over the subsequent year, 6% went on to develop alcohol dependence, and 61% reported that they had experienced none of the 11 DSM-IV abuse/dependence criteria. The 570 individuals with no alcohol-related diagnosis at baseline had a 7% incidence of dependence and a 4% incidence of abuse by the time of follow-up.

In another prospective study of the DSM-IV criteria, 435 highly educated men and matched comparison subjects who were participating in an ongoing investigation of sons of alcoholics were reassessed after a 5-year interval (1, 10, 11). At the beginning of the 5-year period, when the subjects were approximately age 30, 63 men (14.5%) had ever fulfilled the criteria for alcohol dependence, 79 (18.2%) had ever met the criteria for alcohol abuse in the absence of dependence, and 293 (67.4%) had never demonstrated an alcohol use disorder. Structured personal follow-up interviews with the subjects and at least one additional informant revealed that 68% of those with alcohol depen-

TABLE 1. Number of the DSM-IV Alcohol Abuse/Dependence Criteria Met Over a 5-Year Follow-Up Period by Subjects With a Lifetime History at Baseline of DSM-IV Alcohol Dependence or Abuse or No Alcohol-Related Diagnosis[a]

| DSM-IV Criteria Met Over 5-Year Follow-Up | Baseline DSM-IV Diagnostic Group | | | | | | Analysis | | Groups With Significant Post Hoc Differences (df=3)[b] |
| | Subjects With Alcohol Dependence (Group 1) (N=298) | | Subjects With Alcohol Abuse (Group 2) (N=288) | | Subjects With No Alcohol-Related Diagnosis (Group 3) (N=760) | | | | |
	N	%	N	%	N	%	χ^2	df	
Number of the 11 alcohol abuse/ dependence criteria							365.24*	6	1 and 2, 1 and 3, 2 and 3
None	95	31.9	130	45.1	578	76.1			
1	19	6.4	60	20.8	77	10.1			
2	25	8.4	47	16.3	49	6.5			
≥3	159	53.4	51	17.7	56	7.4			
At least three of the seven criteria for alcohol dependence	110	36.9	10	3.5	19	2.5	292.34*	2	1 and 2, 1 and 3
At least one of the four criteria for alcohol abuse			104	36.1	97	12.8	72.11*	1	

[a] Study subjects were from the Collaborative Study on the Genetics of Alcoholism; 17.7% of the subjects in the current study were probands in the collaborative study who met DSM-III-R or Feighner criteria for alcohol dependence, 54.0% were relatives of probands, and 28.3% were members of comparison families.
[b] Post hoc pairwise chi-square tests with Bonferroni correction (significant p<0.0167).
*p<0.001.

dence at the initial evaluation met at least one of the 11 DSM-IV alcohol abuse/dependence criteria at follow-up (thus fulfilling criteria for continued dependence), while 32% were free of these problems. Among the men with alcohol abuse at the initial evaluation, 36% maintained enough problems at the the 5-year follow-up to be diagnosed with continuing abuse, 11% met the full DSM-IV criteria for alcohol dependence, and 53% met none of the DSM-IV alcohol abuse/dependence criteria. Finally, of the men who had satisfied no diagnostic criteria at the initial evaluation, 94% had no diagnosis at follow-up, but 1% had developed alcohol dependence and 5% had developed alcohol abuse. The study also evaluated characteristics at the initial evaluation that predicted meeting DSM-IV alcohol abuse/dependence criteria at 5-year follow-up in this white-collar, relatively highly functional group (1). A higher risk for these problems was associated with the following characteristics at the initial evaluation: a history of consuming large quantities of alcohol, a history of a high frequency of alcohol consumption, meeting a higher number of the DSM-IV abuse/dependence criteria, reports of illicit drug use, evidence of less job stability, and a family history of alcohol dependence.

This study extends these earlier findings by reporting data from a follow-up at approximately 5 years in a large group of predominantly blue-collar men and women. The goal of these analyses was to evaluate whether the prognostic validity of the DSM-IV alcohol abuse/dependence criteria reported in previous studies could be replicated in a different group of subjects.

Method

The subjects gave written informed consent to take part in the phase II follow-up component of the Collaborative Study on the Genetics of Alcoholism. As described in more detail elsewhere

(12–14), families were originally selected through a proband who met DSM-III-R and Feighner criteria for alcohol dependence and who entered treatment at any of six collaborating centers across the United States. The initial probands were invited to participate regardless of whether they had additional psychiatric diagnoses. Exclusion criteria were limited to the presence of an immediately life-threatening disorder, inability to speak English, or evidence of recent intense intravenous drug use.

All subjects and their available relatives were interviewed with the Semi-Structured Assessment for the Genetics of Alcoholism (13), which is used to screen for 17 axis I DSM-III-R diagnoses and to gather detailed information about the clinical course of all substance use disorders. The interview also included questions relevant to DSM-IV substance use disorders. Information on family history was collected by using the Family History Assessment Module of the Semi-Structured Assessment for the Genetics of Alcoholism.

Identical methods were used to evaluate the comparison subjects selected at each of the six centers, along with their relatives. The comparison subjects were chosen through a variety of methods, including mailings to a random group of students and nonacademic staff at a university, to individuals listed in driver's license records, and to individuals appearing for treatment in medical or dental clinics.

The phase II, follow-up component of the Collaborative Study on the Genetics of Alcoholism involved contacting initial probands, comparison subjects, and appropriate relatives an average of 5.1 years (SD=0.66) after the initial interview. Across the six centers, approximately 75% of eligible subjects agreed to participate in the follow-up (range=62%–81% across centers). The data reported are from subjects who were reinterviewed between November 1, 1996, and February 28, 1999. The follow-up face-to-face interviews were conducted with an updated version of the Semi-Structured Assessment for the Genetics of Alcoholism that included questions about the recency of psychiatric and substance use disorder symptoms, to determine whether they occurred during the follow-up period.

Alcohol-dependent subjects with antisocial personality disorder (7.5% of the original study group) were excluded from the analyses reported here in order to optimize comparisons with previous studies (1, 8, 9). The 1,346 subjects were divided into groups of those with a lifetime history of DSM-IV alcohol depen-

TABLE 2. Baseline Characteristics of Subjects With a Lifetime History of DSM-IV Alcohol Dependence or Abuse or No Alcohol-Related Diagnosis Who Did and Did Not Report Alcohol-Related Problems Over a 5-Year Follow-Up Period[a]

Characteristic	Baseline DSM-IV Diagnostic Group and Presence of Alcohol-Related							
	Alcohol Dependence at Baseline				Alcohol Abuse at Baseline			
	Problems in 5 Years (Group 1) (N=203)		No Problems in 5 Years (Group 2) (N=95)		Problems in 5 Years (Group 3) (N=158)		No Problems in 5 Years (Group 4) (N=130)	
	N	%	N	%	N	%	N	%
Ethnicity								
Caucasian	151	74.4	71	74.7	131	82.9	110	84.6
Black	33	16.3	13	13.7	14	8.9	9	6.9
Hispanic	14	6.9	9	9.5	10	6.3	10	7.7
Other	5	2.5	2	2.1	3	1.9	1	0.8
Marital status								
Married	89	43.8	64	67.4	93	58.9	100	76.9
Widowed	3	1.5	1	1.1	0	0.0	2	1.5
Separated/divorced	57	28.1	16	16.8	21	13.3	14	10.8
Never married	54	26.6	14	14.7	44	27.8	14	10.8
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Education (years)	13.0	1.92	12.9	2.35	13.6	2.03	13.7	2.00
Alcohol use history								
Maximum drinks/day	27.9	22.68	24.1	14.97	15.9	9.68	13.7	12.78
Number of the seven DSM-IV criteria for alcohol dependence met	5.4	1.42	5.3	1.49	1.5	1.07	1.1	1.00
Number of the four DSM-IV criteria for alcohol abuse met	2.5	1.07	2.5	1.06	1.3	0.53	1.2	0.51
	N	%	N	%	N	%	N	%
Female gender	83	40.9	46	48.4	61	38.6	71	54.6
Proband	85	41.9	38	40.0	14	8.9	10	7.7
DSM-IV criteria met								
Criteria for alcohol dependence								
Tolerance	185	91.1	82	86.3	66	41.8	39	30.0
Withdrawal	107	52.7	49	51.6	5	3.2	3	2.3
Longer use or more use than intended	190	93.6	91	95.8	87	55.1	57	43.9
Inability to cut down	184	90.6	85	89.5	49	31.0	22	16.9
Much of time spent using	123	60.6	58	61.1	5	3.2	2	1.5
Reduction of other activities	116	57.1	58	61.1	4	2.5	3	2.3
Use despite medical/psychological problems	184	90.6	80	84.2	21	13.3	17	13.1
Criteria for alcohol abuse								
Interference with major role	140	69.0	67	70.5	13	8.2	8	6.2
Use in hazardous situations	178	87.7	80	84.2	143	90.5	121	93.1
Legal problems related to use	37	18.2	15	15.8	5	3.2	1	0.8
Use despite social problems	147	72.4	76	80.0	36	22.8	30	23.1
Illicit drug use history								
Marijuana use	175	86.2	69	72.6	125	79.1	91	70.0
Cocaine use	114	56.2	49	51.6	70	44.3	43	33.1
Amphetamine use	86	42.4	37	39.0	53	33.5	36	27.7
Depressant use	69	34.0	36	37.9	34	21.5	19	14.6
Hallucinogen use	82	40.4	28	29.5	44	27.8	29	22.3
PCP use	18	8.9	11	11.6	6	3.8	9	6.9
Opiate use	59	29.1	24	25.3	15	9.5	18	13.8
Inhalant use	17	8.4	7	7.4	2	1.3	4	3.1
Use of any drug	179	88.2	74	77.9	126	79.8	93	71.5
History of drug dependence	103	50.7	50	52.6	32	20.3	27	20.8

[a] Study subjects were from the Collaborative Study on the Genetics of Alcoholism; 17.7% of the subjects in the current study were probands in the collaborative study who met DSM-III-R or Feighner criteria for alcohol dependence, 54.0% were relatives of probands, and 28.3% were members of comparison families.

[b] At least one of the seven alcohol-related problems that constitute the DSM-IV criteria for alcohol dependence or one of the four problems that constitute the DSM-IV criteria for alcohol abuse.

[c] The statistical significance levels are descriptive; major inferential statistical significance levels are presented in Table 3.

*p< 0.05.   **p< 0.01.   ***p<0.001.

dence, a lifetime history of DSM-IV alcohol abuse, or no DSM-IV alcohol-related diagnosis at the time of initial interview (baseline). Then, subjects within each group were further divided into those who did and did not experience one or more of the 11 problems that constitute the DSM-IV alcohol abuse/dependence criteria during the 5-year follow-up period. Differences across groups were evaluated with the chi-square statistic for analysis of categorical data and with analysis of variance for continuous data. Finally, multivariate logistic regression analysis was used to determine the baseline characteristics that best predicted the pattern of DSM-IV alcohol abuse/dependence criteria experienced during the follow-up period.

Problem[b] Over 5-Year Follow-Up

No Diagnosis at Baseline				Analysis				
Problems in 5 Years (Group 5) (N=182)		No Problems in 5 Years (Group 6) (N=578)		Groups 1 + 3 + 5 Versus Groups 2 + 4 + 6	Groups 1 + 3 Versus Groups 2 + 4	Group 1 Versus Group 2	Group 3 Versus Group 4	Group 5 Versus Group 6
N	%	N	%	χ^2 (df=3)[c]	χ^2 (df=3)[c]	χ^2 (df=3)[c]	χ^2 (df=3)[c]	χ^2 (df=3)[c]
				2.75				
133	73.1	447	77.3					
28	15.4	68	11.8					
12	6.6	44	7.6					
9	5.0	19	3.3					
				62.66***	31.28***	14.39**	16.61***	32.30***
98	53.9	397	68.7	46.27***	28.95***	14.34***	10.53***	13.42***
2	1.1	18	3.1	4.91*	0.35	0.09	2.45	2.19
19	10.4	73	12.6	6.50**	6.31**	4.42*	0.43	0.62
63	34.6	90	15.6	44.09***	17.75***	5.17*	12.94***	31.22***
Mean	SD	Mean	SD	F (df=1, 1344)[c]	F (df=1, 584)[c]	F (df=1, 296)[c]	F (df=1, 286)[c]	F (df=1, 758)[c]
13.3	2.31	13.6	2.27	4.08*	0.28	0.08	0.06	1.89
12.5	10.02	6.7	7.25	135.39***	9.14**	2.17	2.60	71.80***
1.5	1.68	0.4	1.05	246.38***	16.19***	0.15	10.55**	102.02***
0.6	1.12	0.1	0.52	208.45***	3.56	0.06	0.07	55.83***
N	%	N	%	χ^2 (df=1)[c]	χ^2 (df=1)[c]	χ^2 (df=1)[c]	χ^2 (df=1)[c]	χ^2 (df=1)[c]
106	58.2	428	74.1	63.85***	8.23**	1.50	7.36**	16.55***
30	16.5	61	10.6	23.08***	2.74	0.09	0.13	4.62*
59	32.4	46	8.0	186.50***	14.83***	1.61	4.27*	69.55***
14	7.7	9	1.6	65.97***	4.31*	0.03	0.19	17.75***
80	44.0	84	14.5	178.78***	8.35**	0.58	3.59	70.81***
52	28.6	50	8.7	159.32***	16.42***	0.10	7.62**	47.27***
14	7.7	13	2.3	70.25***	4.92*	0.01	0.80	11.97***
7	3.9	8	1.4	57.00***	2.44	0.41	0.02	4.34*
42	23.1	31	5.4	140.72***	10.38***	2.65	0.00	50.02***
21	11.5	15	2.6	89.20***	4.78*	0.07	0.45	24.53***
41	22.5	27	4.7	192.74***	0.02	0.67	0.62	54.17***
7	3.9	1	0.2	33.14***	3.18	0.27	2.01	17.93***
33	18.1	20	3.5	99.17***	0.71	1.98	0.00	45.93***
119	65.4	218	37.7	121.39***	11.90***	8.04**	3.19	42.94***
51	28.0	64	11.1	89.61***	5.58*	0.55	3.75	30.96***
34	18.7	59	10.2	44.06***	2.17	0.31	1.13	9.25**
19	10.4	23	4.0	41.60***	1.15	0.43	2.25	11.02***
39	21.4	35	6.1	75.27***	5.86*	3.31	1.15	37.22***
6	3.3	7	1.2	3.75	1.01	0.54	1.42	3.58
15	8.2	16	2.8	28.17***	0.30	0.47	1.30	10.60***
7	3.9	3	0.5	10.43***	0.04	0.09	1.15	11.80***
123	67.6	230	39.8	117.88***	9.32**	5.34*	2.64	42.98***
37	20.3	22	3.8	75.41***	0.61	0.09	0.01	52.78***

Results

At follow-up, the 1,346 subjects had a mean age of 42.9 years (SD=13.7) and a mean of 13.4 years (SD=2.19) of education; 59.1% (N=795) were female. Approximately 17.7% (N=238) were probands in the Collaborative Study on the Genetics of Alcoholism, 54.0% (N=727) were relatives of probands, and 28.3% (N=381) were comparison subjects or members of their families. The racial distribution was 77.5% Caucasian (N=1,043), 12.3% African American (N=165), 7.4% Hispanic (N=99), and 2.9% other (N=39). At the time of follow-up, 62.5% of the subjects (N=841) were cur-

TABLE 3. Logistic Regression Analysis Identifying Significant Baseline Predictors of Alcohol-Related Problems Over a 5-Year Follow-Up Period Among All Study Subjects and Subjects With a Lifetime History of DSM-IV Alcohol Dependence or Abuse at Baseline[a]

Baseline Predictor	All Subjects (N=1,346)			Subjects With Alcohol Dependence or Abuse at Baseline (N=586)		
	Standard Regression Coefficient	χ^2 (df=9)[b]	Odds Ratio	Standard Regression Coefficient	χ^2 (df=5)[c]	Odds Ratio
Female gender	−0.11	8.81**	0.66	−0.13	6.98**	0.62
Separated or divorced	0.08	54.39***	1.48	0.16	9.28**	2.13
Never married	0.28	4.43*	3.44	0.24	18.47***	2.88
DSM-IV alcohol abuse/dependence criteria met						
Tolerance	0.13	8.33**	1.61			
Longer or more use than intended	0.16	12.81***	1.80			
Inability to cut down	0.13	9.59**	1.67	0.17	11.94***	1.88
Use in hazardous situations	0.13	8.60**	1.63			
Any marijuana use	0.18	17.45***	1.94	0.16	10.31**	2.00
Any cocaine use	0.12	8.29**	1.60			

[a] Study subjects were from the Collaborative Study on the Genetics of Alcoholism; 17.7% of the subjects in the current study were probands in the collaborative study who met DSM-III-R or Feighner criteria for alcohol dependence, 54.0% were relatives of probands, and 28.3% were members of comparison families.
[b] Significant overall final regression equation (χ^2=391.34, df=9, p<0.001); R^2=0.34.
[c] Significant overall final regression equation (χ^2=61.50, df=5, p<0.001); R^2=0.14.
*p< 0.05.   **p< 0.01.   ***p< 0.001.

rently married, 20.7% (N=279) were single (never married), 14.9% (N=200) were separated or divorced, and 1.9% (N=26) were widowed.

Table 1 shows the rate of occurrence of one or more of the 11 DSM-IV alcohol abuse/dependence criteria during the 5-year follow-up in the three groups of subjects categorized on the basis of alcohol-related diagnoses at baseline: those who had ever met criteria for alcohol dependence, those who met criteria for alcohol abuse in the absence of dependence, and those with no alcohol-related diagnosis. At follow-up, the proportion of subjects who met none of the criteria was highest in the group with no diagnosis, followed by the alcohol abuse group and the alcohol-dependent group, while the proportion of subjects with three or more problem areas was highest in the alcohol-dependent group, followed by the alcohol abuse group and the group with no diagnosis. The overall differences in the numbers of problems in the three groups was significant.

DSM-IV notes that a patient has continuing alcohol dependence if the patient experiences one or more of the 11 abuse/dependence criteria continuously over time. It is noteworthy that, in our study, more than half of the subjects with alcohol dependence at baseline met three or more of the 11 abuse/dependence criteria at follow-up and that nearly 37% of subjects with alcohol dependence at baseline met three or more of the seven criteria for alcohol dependence at follow-up. This latter rate was significantly higher than that observed for subjects with alcohol abuse or with no diagnosis at baseline. Only 3.5% of the men and women with alcohol abuse at baseline went on to develop alcohol dependence by the time of the follow-up, a rate not significantly higher than the 2.5% incidence of alcohol dependence at follow-up among the individuals with no initial diagnosis (Table 1). However, more than a third of the individuals with alcohol abuse at baseline met at least one of the four criteria of alcohol abuse at follow-

up, compared with only about 13% of the individuals with no alcohol-related diagnosis at baseline, a significant difference (Table 1). Some of the individuals with alcohol abuse at baseline met one or two of the criteria for alcohol dependence at follow-up but did not meet enough criteria for a diagnosis of alcohol dependence.

Table 2 presents data on the baseline characteristics that were associated with the occurrence during the 5-year follow-up of one or more of the 11 problems that constitute the DSM-IV alcohol abuse/dependence criteria. Data for individuals with dependence, abuse, or no diagnosis at baseline were analyzed separately. The overall statistical analyses included comparisons of the combined group of all individuals who reported having alcohol-related problems during the follow-up period (Table 2, groups 1, 3, and 5) and the combined group of those who did not (Table 2, groups 2, 4, and 6). When the difference between these combined groups was significant, comparisons were made between those with alcohol dependence or abuse at baseline who manifested alcohol-related problems during the follow-up and those who did not (Table 2, groups 1 and 3 versus groups 2 and 4). When appropriate, similar comparisons were made within the three diagnostic groups (Table 2, group 1 versus 2, group 3 versus 4, and group 5 versus 6). More men, probands, unmarried subjects, and people with less education developed alcohol problems during the follow-up, but there were no significant differences for race. The overall pattern of the data presented in Table 2 supported the contention that baseline univariate predictors of substance-related problems during follow-up also included a history of higher maximal alcohol intake and more alcohol-related problems. In addition, a history of use or abuse of drugs generally predicted alcohol-related problems, even in this study group, which excluded individuals with antisocial personality disorder. Data on these variables were evaluated across

centers, with similar findings regarding gender, marital stability, baseline alcohol problems, and drug use as they related to alcohol problems at follow-up (data not shown).

The evaluation of the characteristics associated with the 5-year rate of occurrence of one or more of the 11 DSM-IV abuse/dependence criteria as presented in Table 2 did not indicate which predictors continue to operate even in the context of the others. Therefore, all variables that significantly differentiated between the groups were entered into a logistic regression analysis, but two items (the number of dependence problems at baseline and reduction of other activities in order to use alcohol) significantly overlapped with other predictors and functioned as suppressor variables. With those two items removed, 30 variables were entered into the logistic regression analysis, with nine variables significantly contributing to a final equation (χ^2=391.34, df=9, p<0.001) (Table 3). Consistent with the data reported in Table 2, the predictors included female gender (negative coefficient), lack of marital stability, three of the diagnostic criteria for alcohol dependence (tolerance, longer use or more use, inability to cut down), one diagnostic criterion for alcohol abuse (use in hazardous situations), and a history of marijuana or cocaine use. To evaluate the consistency of these general conclusions across centers, the regression analysis was repeated while adding dummy coded variables for the six centers. The results for the items presented in Table 3 were unchanged. When the full set of predictors was subsequently applied to the subgroup of subjects who had evidence of alcohol abuse or dependence at baseline, the same types of items entered the equation, although only five items contributed significantly (χ^2=61.50, df=5, p<0.001).

Discussion

These data support the usefulness of DSM-IV diagnoses of alcohol abuse and alcohol dependence as predictors of the clinical course over the subsequent 5 years after diagnosis. Both diagnoses were associated with an increased risk for experiencing one or more of the 11 DSM-IV alcohol abuse/dependence criteria over a 5-year period, compared to the risk for individuals who had no history of an alcohol use disorder.

The results also support the conclusion that abuse is not just a prodromal phase of dependence, at least not over a 5-year period. Although about half of the men and women with alcohol abuse at baseline continued to have some alcohol-related problem at follow-up, only 3.5% went on to develop dependence, a rate that was not significantly different from the 2.5% incidence of dependence among subjects who had no diagnosis at baseline.

These two conclusions are consistent with several longitudinal evaluations of the prognostic implications of alcohol abuse and dependence. Both a 1-year follow-up of a general population sample from New Jersey and a 5-year follow-up of relatively highly educated and functional

sons of alcoholics and comparison subjects also indicated that about two-thirds of individuals with dependence continued to have DSM-IV substance-related problems (1, 9). Furthermore, the current study agrees with the two earlier studies that at least a third of those with alcohol abuse maintain that diagnosis at follow-up, while a substantial proportion demonstrate no problems. The two prior studies reported that the 1–5-year probability of the de novo development of abuse in adult populations is between 3% and 5%, while the rate in the current study was close to 13%. This difference may be related to the lower educational level and high familial loading for alcohol problems among subjects in the Collaborative Study on the Genetics of Alcoholism. All three investigations reported rates of 7% or less for new cases of alcohol dependence.

There is additional support for the probable independence of alcohol abuse and dependence. Prior factor or cluster analyses of the 11 DSM alcohol abuse/dependence criteria reveal the existence of two separate factors relating to alcoholism, one that is consistent with the criteria for abuse and one that is consistent with those for dependence (5–7, 15–18), although not all studies agree (19, 20). Evidence supporting the distinction between alcohol abuse and dependence also comes from the documentation of differences in cross-sectional clinical characteristics, such as quantity of alcohol consumed and treatment histories, between people with the two disorders (6, 9, 21, 22). However, these differences are not as strong as those between subjects with abuse or dependence and subjects with no diagnosis.

The proportion of subjects with abuse or dependence who reported none of the 11 alcohol-related problems at follow-up is worth noting. Almost one-third of the alcohol-dependent men and women and almost half of those with alcohol abuse reported no difficulties. These results are likely to reflect the 20% or higher spontaneous remission rate in alcohol dependence, the fluctuating nature of alcohol problems over the lifetime, and the effects of interventions and treatment (23–25). Although the follow-up interviews were not structured to allow conclusions about cause-and-effect for those events, the data highlight the substantial proportion of people with alcohol abuse and dependence who do well (1, 9).

The current study also identified characteristics that predict the occurrence of problems within diagnostic categories. Consistent with the findings for the highly functioning group of sons of alcoholics and comparison subjects (1), specific predictors included marital status (never married), the presence of several dependence criteria, and evidence of the use of illicit substances. The results in the 1-year follow-up of a general population sample in New Jersey (9) were consistent with our finding that prior substance-related problems predict outcome, but the earlier evaluation demonstrated an additional impact of race (Caucasian) that was not corroborated here.

In interpreting the current data, it is important to consider that only the abuse/dependence criteria for alcohol

were evaluated and that only the properties of DSM-IV were studied, without comparisons to other diagnostic schemes. Additional investigations will be needed to determine the prognostic meaning of other DSM-IV substance use disorders. Furthermore, the subjects were participants in the Collaborative Study on the Genetics of Alcoholism, an investigation involving families with a high density of alcoholics. Thus, the rates of alcohol abuse and dependence might have been inflated by the high familial loading for these disorders. Factors predictive of problems might differ across groups with different levels of education or other differences in background characteristics. In addition, all information about the rate of problems during the follow-up came from self-reports. Finally, although the 75% rate of participation in the follow-up is substantial, the results might have been different if all the eligible subjects had been evaluated at follow-up. However, taken together with the findings of two prior prospective studies, the current results support the usefulness of the DSM-IV criteria for alcohol abuse and dependence.

References

1. Schuckit MA, Smith TL, Landi N: The five-year clinical course of high functioning men with DSM-IV alcohol abuse or dependence. Am J Psychiatry 2000; 157:2028–2035

2. Goodwin DW, Guze SB: Psychiatric Diagnosis, 5th ed. New York, Oxford University Press, 1996

3. Schuckit MA: DSM-IV: was it worth all the fuss? Alcohol Alcohol 1994; 2(suppl):459–469

4. Rounsaville BJ, Kosten TR, Williams JB, Spitzer RL: A field trial of DSM-III-R psychoactive substance dependence disorders. Am J Psychiatry 1987; 144:351–355

5. Cottler LB, Schuckit MA, Helzer JE, Crowley T, Woody G, Nathan P, Hughes J: The DSM-IV field trial for substance use disorders: major results. Drug Alcohol Depend 1995; 38:59–69

6. Winters KC, Latimer W, Stinchfield RD: The DSM-IV criteria for adolescent alcohol and cannabis use disorders. J Stud Alcohol 1999; 60:337–344

7. Nelson CB, Rehm J, Ûstûn TB, Grant B, Chatterji S: Factor structures for DSM-IV substance disorder criteria endorsed by alcohol, cannabis, cocaine and opiate users: results from the WHO reliability and validity study. Addiction 1999; 94:843–855

8. Hasin D, Van Rossem R, McCloud S, Endicott J: Alcohol dependence and abuse diagnoses: validity in community sample heavy drinkers. Alcohol Clin Exp Res 1997; 21:213–219

9. Hasin DS, Van Rossem R, McCloud S, Endicott J: Differentiating DSM-IV alcohol dependence and abuse by course: community heavy drinkers. J Subst Abuse 1997; 9:127–135

10. Schuckit MA, Smith TL: An 8-year follow-up of 450 sons of alcoholic and control subjects. Arch Gen Psychiatry 1996; 53:202–210

11. Schuckit MA: Biological, psychological and environmental predictors of the alcoholism risk: a longitudinal study. J Stud Alcohol 1998; 59:485–494

12. Schuckit MA, Daeppen J-B, Danko GP, Tripp ML, Smith TL, Li T-K, Hesselbrock VM, Bucholz KK: Clinical implications for four drugs of the DSM-IV distinction between substance dependence with and without a physiological component. Am J Psychiatry 1999; 156:41–49

13. Bucholz KK, Cadoret R, Cloninger CR, Dinwiddie SH, Hesselbrock VM, Nurnberger JI, Reich T, Schmidt I, Schuckit MA: A new, semi-structured psychiatric interview for use in genetic linkage studies: a report on the reliability of the SSAGA. J Stud Alcohol 1994; 55:149–158

14. Feighner JP, Robins E, Guze SB, Woodruff RA Jr, Winokur G, Muñoz R: Diagnostic criteria for use in psychiatric research. Arch Gen Psychiatry 1972; 26:57–63

15. Schuckit MA: DSM-IV criteria for abuse and dependence: basis for a field trial, in DSM-IV Sourcebook, vol 4. Edited by Widiger TA, Frances AJ, Pincus HA, Ross R, First MB, Davis W, Kline M. Washington, DC, American Psychiatric Association, 1998, pp 69–84

16. Hasin D, Paykin A: DSM-IV alcohol abuse: investigation in a sample of at-risk drinkers in the community. J Stud Alcohol 1999; 60:181–187

17. Muthén BO, Grant B, Hasin D: The dimensionality of alcohol abuse and dependence: factor analysis of DSM-III-R and proposed DSM-IV criteria in the 1988 National Health Interview Survey. Addiction 1993; 88:1079–1090

18. Feingold A, Rounsaville B: Construct validity of the dependence syndrome as measured by DSM-IV for different psychoactive substances. Addiction 1995; 90:1661–1669

19. Fulkerson JA, Harrison PA, Beebe TJ: DSM-IV substance abuse and dependence: are there really two dimensions of substance use disorders in adolescents? Addiction 1999; 94:495–506

20. Hasin DS, Muthén B, Wisnicki KS, Grant B: Validity of the bi-axial dependence concept: a test in the US general population. Addiction 1994; 89:573–579

21. Hasin D, Paykin A: Alcohol dependence and abuse diagnoses: concurrent validity in a nationally representative sample. Alcohol Clin Exp Res 1999; 23:144–150

22. Hasin D, Grant BF, Cottler L, Blaine J, Towle L, Ustun T, Sartorius N: Nosological comparisons of alcohol and drug diagnoses: a multisite, multi-instrument international study. Drug Alcohol Depend 1997; 47:217–226

23. Schuckit MA, Tipp JE, Smith TL: Periods of abstinence following the onset of alcohol dependence in 1,853 men and women. J Stud Alcohol 1997; 58:581–589

24. Vaillant GE: A long-term follow-up of male alcohol abuse. Arch Gen Psychiatry 1996; 53:243–249

25. Cunningham JA: Resolving alcohol-related problems with and without treatment: the effects of different problem criteria. J Stud Alcohol 1999; 60:463–466