The Influence of Comorbid Major Depression and Substance Use Disorders on Alcohol and Drug Treatment: Results of a National Survey

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INTRODUCTION

The co-occurrence of alcohol use disorders, drug use disorders, and major depression has frequently been reported in alcoholic, drug abuse, and psychiatric patient samples (Allen and Francis 1986; Demilio 1989; El-Guebaly 1990; Ross et al. 1988; Rounsaville et al. 1982). Significant associations between substance use disorders and major depression have also been found in general population surveys (Regier et al. 1990; Robins et al. 1988; Weissman and Meyers 1980), but the magnitude is much lower than that reported in clinical samples. This suggests that people with comorbid substance use disorders and major depression may be more likely to seek alcohol or drug treatment than those without such comorbidities. However, to date, no studies have examined the impact of comorbidity on alcohol or drug treatment in the population of greatest clinical and policy relevance, that is, among those persons with an alcohol use disorder or drug use disorder not found in the treated population.

The purpose of this study was to separately compare the comorbidity status of persons with alcohol and drug use disorders who did or did not seek alcohol or drug treatment, respectively. Separate comparisons were also examined for major types of treatment facilities, including 12-step group programs and inpatient and outpatient facilities.

METHODS

Sample

The study was based on the 1992 National Longitudinal Alcohol Epidemiologic Survey (NLAES), a nationwide household survey sponsored by the National Institute on Alcohol Abuse and Alcoholism (Grant et al. 1992). Field work for the study was conducted by the

Bureau of the Census. During the survey, direct face-to-face interviews were conducted with 42,862 respondents, 18 years of age and older, in the contiguous United States and the District of Columbia. The household response rate for the NLAES was 91.9 percent, and the person response rate was 97.4 percent.

The NLAES featured a complex multistage design (Massey et al. 1989). Primary sampling units (PSUs) were stratified according to sociodemographic criteria and were selected with probabilities proportional to size. Approx-imately 2,000 PSUs comprised the 1992 NLAES sample, 52 of which were self-representing—that is, selected with certainty. Within PSUs, geographically defined secondary sampling units, referred to as segments, were selected systematically for each sample. Oversampling of the black population was accomplished at this stage of sampling in order to have adequate numbers for analytic purposes.

Segments were then divided into clusters of approximately four to eight housing units, and all occupied housing units were included in the NLAES. Within each household, one randomly selected respondent, 18 years of age or older, was selected to participate in the survey. Oversampling of young adults, 18 to 29 years of age, was accomplished at this stage of the sample selection to include a greater representation of this heavier substance-abusing population subgroup. This subgroup of young adults was sampled at a ratio of 2.25 percent to 1.00.

Diagnostic Assessment

The survey questionnaire, the Alcohol Use Disorders and Associated Disabilities Interview Schedule (AUDADIS) (Grant and Hasin 1992), included an extensive list of symptom questions that operationalized the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV) (American Psychiatric Association 1994) criteria for alcohol/drug use disorders and major depression. These questions are described in detail elsewhere (Grant et al. 1994). Past year DSM-IV drug-specific diagnoses of abuse and dependence were first derived separately for alcohol, sedatives, tranquilizers, opioids (other than heroin), amphetamines, cocaine (and crack cocaine), cannabis (and THC and hashish), heroin, methadone, and hallucinogens. A composite measure of any of these drug use disorders (except alcohol) was then constructed.

Consistent with the DSM-IV, an AUDADIS diagnosis of alcohol or drug abuse required that a person exhibit a maladaptive pattern of substance use leading to clinically significant impairment or distress, as demonstrated by at least one of the following in any 1 year: (1) continuing to use despite a social or interpersonal problem caused or exacerbated by the effects of use, (2) recurrent use in situations in which substance use is physically hazardous, (3) recurrent use resulting in a failure to fulfill major role obligations, or (4) recurrent substance-related legal problems. An AUDADIS diagnosis of substance dependence required that a person meet at least three of seven criteria defined for dependence in any 1 year, including: (1) tolerance; (2) avoidance of withdrawal; (3) persistent desire or unsuccessful attempts to cut down or stop using; (4) spending much time obtaining a drug, using it, or recovering from its effects; (5) giving up or reducing occupational, social, or recreational activities in favor of use; (6) impaired control over use; and (7) continuing to use despite a physical or psychological problem caused or exacerbated by use.

Diagnoses of alcohol and drug abuse and dependence also satisfied the clustering or duration criteria of the DSM-IV. The duration criteria of the DSM-IV include the requirement for a clustering of symptoms within any 1-year period, in addition to associating duration qualifiers with certain abuse and dependence symptoms. The duration qualifiers are defined as the repetitiveness with which symptoms must occur in order to be counted as positive towards a diagnosis. They are represented by the terms "recurrent," "often," and "persistent" appearing in the description of the diagnostic criteria.

Consistent with the DSM-IV, the AUDADIS diagnosis of major depression required the presence of at least five depressive symptoms (inclusive of depressed mood or loss of pleasure and interest) nearly every day for most of the day during any 2-week period. Social and/or occupational dysfunction must also have been present during the disturbance, and episodes of major depression exclusively due to bereavement or physical illness were ruled out. The reliabilities of the diagnoses of DSM-IV alcohol and drug use disorders and major depression were 0.73, 0.80, and 0.65, as determined from an independent test-retest study conducted in a general population sample (Grant et al. 1995).

Alcohol and Drug Treatment

Respondents in the survey were asked if, during the past year, they had gone anywhere or seen anyone for problems related to their drinking. To

more completely capture the entire alcohol help-seeking population, respondents were specifically instructed to indicate any help they had received for their drinking, including help for combined alcohol and drug use if alcohol was the major problem for which they sought help. Alcohol treatment sources were defined broadly and respondents were asked to indicate separately whether they sought help from 23 different treatment sources: inpatient alcohol and/or rehabilitation programs and inpatient wards of general or psychiatric hospitals; outpatient clinics and alcohol and/or drug detoxification units; 12-step groups including Alcoholics Anonymous, Narcotics or Cocaine Anonymous, or Alanon; social services; and various health professionals such as psychiatrists, psychologists, social workers, and the clergy. Respondents receiving help from any of these sources during the past year constituted the alcohol treatment group examined in this study. The drug treatment measure included the same range of treatment sources as described for alcohol, but information was solicited from respondents regarding help they had received for a drug problem, including help for combined drug and alcohol use if use of a drug or drugs was the major problem for which they sought help.

RESULTS

Tables 1 and 2 separately present the population estimates and prevalence of individuals with past year alcohol and drug use disorders by comorbidity and treatment status. The most striking finding in these tables is the extremely low prevalence of alcohol and drug treatment among those classified with an alcohol or drug use disorder, respectively. Only 1,365,111 (9.9 percent) of the 13,759,846 Americans with alcohol abuse or dependence in the past year sought treatment. Among the 2,855,751 Americans with a past-year drug use disorder, 8.9 percent (N = 253,611) sought treatment for a drug problem.

As shown in table 1, the percentage of respondents with alcohol use disorders seeking alcohol treatment approximately doubled when a comorbid drug use disorder (from 7.8 to 14.9 percent) or a comorbid major depression (from 7.8 to 16.9 percent) was present. The corresponding percentage was four times as great (35.3 percent) when both a comorbid drug use disorder and major depression were present compared to when they were absent (7.8 percent). The percentage of respondents seeking drug treatment with no comorbid disorder (8.6 percent) was greater than those with an additional alcohol

TABLE 1. *Number and percentage of respondents with an alcohol use disorder by comorbidity and treatment status: United States, 1992.*

Comorbidity status	No alcohol treatment	Alcohol treatment		
	N	N	Percent	(SE)
Any alcohol dx (no MDD/no drug dx)	10,141,815	857,915	7.80	(0.68)
Alcohol abuse (no MDD/no drug dx)	4,573,922	199,168	4.17	(0.73)
Alcohol dependence (no MDD/no drug dx)	5,567,893	658,747	10.58	(1.03)
Any alcohol dx (no MDD/any drug dx)	1,223,770	213,373	14.85	(2.24)
Alcohol abuse (no MDD/any drug dx)	445,763	18,829	4.05	(2.13)
Alcohol dependence (no MDD/any drug dx)	778,007	194,544	20.00	(3.10)
Any alcohol dx (MDD/no drug dx)	782,098	159,099	16.90	(2.85)
Alcohol abuse (MDD/no drug dx)	281,788	29,245	9.40	(3.71)
Alcohol dependence (MDD/no drug dx)	500,310	129,854	20.61	(3.65)
Any alcohol dx (MDD/any drug dx)	247,052	134,724	35.29	(5.99)
Alcohol abuse (MDD/any drug dx)	79,547	0	0.00	(0.00)
Any alcohol dependence (MDD/any drug dx)	167,505	134,724	44.58	(7.09)
Totals	12,394,735	1,365,111	9.92	-0.59

KEY: MDD = Major depressive disorder.

TABLE 2. *Number and percentage of respondents with a drug use disorder by comorbidity and treatment status: United States, 1992.*

Comorbidity status	No drug treatment	Drug treatment		
	N	N	Percent	(SE)
Any drug dx (no MDD/no alcohol dx)	807,981	76,448	8.64	(1.88)
Any drug abuse (no MDD/no alcohol dx)	616,522	36,230	5.55	(1.98)
Any drug dependence (no MDD/no alcohol dx)	191,459	40,218	17.36	(4.25)
Any drug dx (no MDD/any alcohol dx)	1,355,859	81,284	5.66	(1.31)
Any drug abuse (no MDD/any alcohol dx)	1,010,822	11,854	1.16	(0.77)
Any drug dependence (no MDD/any alcohol dx)	345,037	69,430	20.00	(3.85)
Any drug dx (MDD/no alcohol dx)	128,345	24,058	16.90	(5.29)
Any drug abuse (MDD/no alcohol dx)	73,315	6,580	9.40	(3.98)
Any drug dependence (MDD/no alcohol dx)	55,030	17,478	20.61	(5.09)
Any drug dx (MDD/any alcohol dx)	309,955	71,821	35.29	(6.24)
Any drug abuse (MDD/any alcohol dx)	188,530	25,826	0.00	(5.10)
Any drug dependence (MDD/any alcohol dx.)	121,425	45,995	44.58	(7.68)
Totals	2,602,140	253,611	8.88	(1.32)

KEY: MDD = Major depressive disorder.

use disorder (5.7 percent). However, the presence of a comorbid major depression with (15.8 percent) or without (18.8 percent) a comorbid alcohol use disorder nearly doubled the percentage of respondents with drug use disorders seeking drug treatment compared to those with no comorbidity. Not surprisingly, the percentage of respondents seeking treatment for an alcohol use disorder was greater when the comorbid drug use disorder was abuse than when it was dependence. A similar trend was observed for comorbid alcohol use disorders among respondents classified with a drug use disorder who sought treatment during the past year.

Tables 3 and 4 present the past-year prevalence of individuals with past-year alcohol and drug use disorders by comorbidity status and specific type of treatment facility. Although the percentage of respondents seeking help from 12-step group programs and inpatient and outpatient facilities increased as a function of comorbidity status, help seeking for an alcohol use disorder in each type of facility increased twofold in the presence of a drug use disorder, threefold in the presence of a comorbid major depressive disorder, and fivefold in the presence of both comorbidities. In contrast, help seeking for a drug use disorder decreased in the presence of an additional comorbid alcohol use disorder, but increased 30 percent or remained unchanged in the presence of a comorbid major depressive disorder, and increased 30 to 51 percent in the presence of both comorbid conditions.

Among respondents with alcohol use disorders and comorbid drug use disorders, help was sought more often from 12-step group programs, while outpatient services were more often sought when a comorbid major depressive disorder was involved. For respondents with drug use disorders, help seeking from 12-step group programs and outpatient services were equally likely regardless of comorbidity status.

DISCUSSION

The major findings of this study show that comorbid substance use disorders and major depressive disorder have a major impact on obtaining treatment for an alcohol or drug use disorder regardless of type of treatment facility. In general, respondents with past-year alcohol use disorders were twice as likely to seek help for their alcohol problems in the presence of either a comorbid drug use disorder or a major depression,

TABLE 3. *Percentage of respondents in alcohol treatment by comorbidity and treatment status: United States, 1992.*

Comorbidity status	12-step group	Inpatient	Outpatient	Any treatment
Any alcohol dx (no MDD/no drug dx)	5.4	2.7	4.6	7.8
Alcohol abuse (no MDD/no drug dx)	2.3	1.0	1.9	4.2
Alcohol dependence (no MDD/no drug dx)	7.8	3.9	6.7	10.6
Any alcohol dx (no MDD/any drug dx)	10.8	6.5	9.9	14.9
Alcohol abuse (no MDD/any drug dx)	1.7	1.1	1.2	4.1
Alcohol dependence (no MDD/any drug dx)	15.1	9.0	14.1	20.0
Any alcohol dx (MDD/no drug dx)	10.7	9.1	12.2	16.9
Alcohol abuse (MDD/no drug dx)	7.7	1.4	3.1	9.4
Alcohol dependence (MDD/no drug dx)	12.2	12.9	16.6	20.6
Any alcohol dx (MDD/any drug dx)	20.8	16.8	27.4	35.3
Alcohol abuse (MDD/any drug dx)	0.0	0.0	0.0	0.0
Alcohol dependence (MDD/any drug dx)	26.3	21.2	34.7	44.6

KEY: MDD = Major depressive disorder.

TABLE 4. *Percentage of respondents in drug treatment by comorbidity and treatment status: United States, 1992.*

Comorbidity status	12-step group	Inpatient	Outpatient	Any treatment
Any drug dx (no MDD/no alcohol dx)	6.0	3.3	7.2	8.6
Any drug abuse (no MDD/no alcohol dx)	3.0	2.2	4.6	5.6
Any drug dependence (no MDD/no alcohol dx)	14.5	6.5	14.5	17.4
Any drug dx (no MDD/any alcohol dx)	4.6	4.4	3.9	5.7
Any drug abuse (no MDD/any alcohol dx)	0.5	0.9	0.0	1.2
Any drug dependence (no MDD/any alcohol dx)	14.9	12.9	13.6	16.8
Any drug dx (MDD/no alcohol dx)	8.4	3.0	10.4	15.8
Any drug abuse (MDD/no alcohol dx)	7.5	0.0	0.7	8.2
Any drug dependence (MDD/no alcohol dx)	9.4	6.3	21.1	24.1
Any drug dx(MDD/any alcohol dx)	12.3	6.0	10.4	18.8
Any drug abuse (MDD/any alcohol dx)	9.6	2.5	2.5	12.1
Any drug dependence (MDD/any alcohol dx)	15.8	10.6	20.6	27.5

KEY: MDD = Major depressive disorder.

and five times more likely to seek help when both comorbidities were present. In contrast, a comorbid alcohol use disorder alone did not increase help seeking among respondents with past-year drug use disorders, while help seeking increased twofold for these respondents when a major depressive disorder was present with or without a comorbid alcohol use disorder. These results, in combination, suggest that the severity of an alcohol or drug use disorder may be greater in the presence of a comorbid major depression, thereby increasing help-seeking behaviors. Moreover, the results indicate that the magnitude of the association often cited between substance use disorders and major depression in treated samples may be artificially inflated. That is, this association may represent the greater propensity of respondents with comorbid major depression to seek treatment for a substance use disorder compared to those individuals with no comorbid major depression.

Perhaps one of the most interesting results of this study is the sheer number of respondents with alcohol and drug use disorders missing from the treated population. Only 9.9 percent and 8.8 percent of the respondents classified with past-year alcohol or drug use disorders, respectively, sought treatment. The percentages of respondents not seeking treatment are much lower than the corresponding percentage reported in other general population surveys. For example, in the Epidemiologic Catchment Area (ECA) survey, 21 percent of the respondents with an alcohol use disorder sought treatment while 28 percent of the respondents with a drug use disorder did so during the year preceding the interview (Narrow et al. 1993). The examination of the reasons the majority of individuals with substance use disorders do not seek treatment, regardless of comorbidity status, would require a more indepth analysis of factors impacting on help seeking than is possible here. Future studies using the present survey data will address this important unexplored issue.

This study helped to answer the fundamental question of whether the association between substance use disorders and major depression observed in clinical settings is artifactual, that is, a function of increased treatment seeking. The findings suggest that the magnitude of the association between substance use disorders and major depression seen in clinical samples is, in part, due to increased treatment-seeking behavior in comorbid individuals. However, it remains unclear whether increased treatment seeking among comorbid individuals is the result of the increased severity of the substance use disorder due to comorbid major depression or of other factors not examined here. Future analyses of the survey data will

explore the numerous factors influencing treatment entry, including a full array of sociodemographic variables, enabling variables (e.g., income, availability to health insurance coverage), and need factors that impact on the severity level of both comorbid disorders.

REFERENCES

Allen, M.H., and Francis, R.J. Varieties of psychopathology found in patients with affective disorders: A review. In: Meyer, R.E., ed. *Psychopathology and Addictive Disorders*. New York: Guilford Press, 1986. pp. 86-102.

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders.* 4th ed. Washington, DC: American Psychiatric Association, 1994.

Demilio, L. Psychiatric syndromes in adolescent substance abusers. *Am J Psychiat*ry 146:1212-1214, 1989.

El-Guebaly, N. Substance abuse and mental disorders: The dual diagnosis concept. *Can J Psychiatry* 35:261-267, 1990.

Grant, B.F.; Harford, T.C.; Dawson, D.A.; Chou, S.P.; Dufour, M.; and Pickering, R.P. Prevalence of DSM-IV alcohol abuse and dependence: United States, 1992. *Alcohol Health Res World* 18:243-248, 1994.

Grant, B.F.; Hartford, T.C.; Dawson, D.A.; Chou, S.P.; and Pickering, R.P. The Alcohol Use Disorders and Associated Disabilities Schedule (AUDADIS): Reliability of alcohol and drug modules in a general population sample. *Drug Alcohol Depend* 39:37-44, 1995.

Grant, B.F., and Hasin, D.S. *The Alcohol Use Disorders and Associated Disabilities Interview Schedule*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism, 1992.

Grant, B.F.; Peterson, A.; Dawson, D.; and Chou, P. *Source and Accuracy Statement for the National Longitudinal Alcohol Epidemiologic Survey (NLAES).* Rockville, MD: National Institute on Alcohol Abuse and Alcoholism, 1992.

Massey, J.T.; Moore, T.F.; Parsons, R.P.; and Tadros, W. *Design and Estimation From the National Health Interview Survey, 1985-1994.* Hyattsville, MD: National Center for Health Statistics, 1989.

Narrow, W.E.; Regier, D.A.; Rae, D.S.; Manderscheid, R.W.; and Locke, B.Z. Use of services by persons with mental and addictive disorders. *Arch Gen Psychiatry* 50:95-107, 1993.

Regier, D.A.; Farmer, M.E.; Rae, D.S.; Locke, B.; Keith, S.J.; Judd, L.L.; and Goodwin, F.K. Comorbidity of mental disorders with

alcohol and other drug abuse: Results from the Epidemiological Catchment Area study. *JAMA* 264:2511-2519, 1990.

Robins, L.N.; Locke, B.Z.; and Regier, D.A. An overview of psychiatric disorders in America. In: Robins, L.N., and Regier, D.A., eds. *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study*. New York: The Free Press, 1988. pp. 328-366.

Ross, H.E.; Glaser, F.B.; and Germanson, T. The prevalence of psychiatric disorders in patients with alcohol and other drug problems. *Arch Gen Psychiatry* 45:1023-1031, 1988.

Rounsaville, B.J.; Weissman, M.M.; and Kleber, H. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry* 39:161-166, 1983.

Rounsaville, B.J.; Weissman, M.M.; and Rosenberger, P.H. Diagnosis and symptoms of depression in opiate addicts. *Arch Gen Psychiatry* 39:151-156, 1982.

Weissman, M.M., and Meyers, J.K. Clinical depression in alcoholism. *Am J Psychiatry* 137:372-373, 1980.

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