Psychiatric Hospitalization of Persons With Dual Diagnoses: Estimates From Two National Surveys

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Individuals with both mental illness and alcohol or drug use disorders present distinctive treatment and human service problems, including increased risk for psychiatric hospitalization in community hospitals. Using national hospital discharge abstract data for 1990 and 1994, this study compared differences in psychiatric hospitalization in community hospitals of patients with mental illness only and those with mental disorders and substance use disorders. Individuals with dual diagnoses were younger, and a greater proportion were men. Medicaid was the primary payer for a larger percentage of those with dual diagnoses. Nationally, the number of commmunity hospitalizations for dually diagnosed patients increased 15 percent from 1990 to 1994, and total hospital charges increased from $1.9 to $2.2 billion. (*Psychiatric Services* 49:1615–1617, 1998)

Persons with dual diagnoses are distinctive in that they have an underlying mental illness as well as an alcohol or drug use disorder. In an evaluation of a residential treatment program for patients with this condition in Washington State, 43 percent were hospitalized for psychiatric reasons in community hospitals in the year before admission to residential treatment (Maynard C, Cox GB, unpublished report, 1998).

The purpose of this study was to examine at the national level the pervasiveness of community psychiatric hospitalization of patients with both mental illness and substance use disorders. Using hospital discharge abstract data from two different national databases, the National Hospital Discharge Survey and the Nationwide Inpatient Sample from the Healthcare Cost and Utilization Project, we addressed two questions. First, among patients hospitalized in the community for psychiatric reasons, how do those who have both diagnoses compare with those who have only diagnoses of mental disorders, and, second, did the number of hospitalizations for patients with dual diagnoses increase from 1990 to 1994?

Methods

National Hospital Discharge Survey

The National Hospital Discharge Survey is an annual sample of hospital discharge records from nonfederal short-stay hospitals located in the 50 states and the District of Columbia (1). State mental hospitals as well as federal, military, and Veterans Affairs hospitals are not included. The study reported here used information from both the 1990 (N= 235,947) and 1994 (N=245,121) surveys.

The hospital records contain demographic information about patients as well as information about the geographic location of the hospital, length of stay, and primary payer. Also included are the principal diagnosis and up to six secondary *ICD-9-CM* codes. In addition, sampling weights are provided for calculating national estimates of the number of hospitalizations.

Nationwide Inpatient Sample

The Nationwide Inpatient Sample contains data on more than 6 million hospital discharges from more than 900 hospitals in 17 states for 1994 (2). These records represent 20 percent of hospital discharges in the participating states. Hospitals were randomly selected based on several categories. They were ownership control, bed size, teaching status, urban or rural location, and region of the United States. To calculate national estimates, each hospital was assigned a sampling weight in relation to the universe of hospitals, which included nonfederal acute care community hospitals identified by the American Hospital Association. The sampling frame was constructed from the subset of the universe of hospitals that released their discharge data for research purposes.

Records from the Nationwide Inpatient Sample contain more information than do those from the National Hospital Discharge Survey; for example, the former identifies the actual hospital and includes total charges.

Patient population

We selected hospitalizations of patients who had a principal diagnosis in one of the following diagnostic cate-

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Table 1

Characteristics of mentally ill patients included in the 1990 and 1994 National Hospital Discharge Survey (NHDS) and the 1994 Nationwide Inpatient Sample (NIS) who did and did not have dual diagnoses

Characteristic	1990 NHDS		1994 NHDS		1994 NIS	
	Dual diagnosis	No dual diagnosis	Dual diagnosis	No dual diagnosis	Dual diagnosis	No dual diagnosis
Age (mean±SD years)	36±14	42±20	36±12	40±19	37±13	43±20
Women (%)	38	50	41	50	41	50
Nonwhite race (%)	21	20	25	24	29	28
Geographic region (%)						
Northeast	36	30	34	28	42	39
Midwest	34	36	36	37	30	30
South	19	24	21	25	15	19
West	12	10	9	10	13	12
Payer (%)						
Medicare	19	26	23	26	22	31
Medicaid	23	20	30	25	35	29
Private	30	33	27	33	26	27
Self	17	11	11	8	11	9
Other	10	10	9	8	6	4
Length of stay (mean±SD days)	12±12	13±16	11±12	11±15	9±11	11±22
Principal diagnosis (%)						
Alcohol use disorder	23	23	13	18	20	17
Drug use disorder	11	9	8	12	13	12
Senility and organic disorders	2	7	2	3	3	8
Affective disorder	32	28	48	40	33	30
Schizophrenia	11	14	21	17	13	15
Other psychosis	2	4	0	0	3	4
Personality disorder	4	6	5	6	3	4
Preadult disorder	1	1	<1	1	1	1
Other mental disorder	14	9	3	3	11	8
Personal history of mental disorders	<1	<1	<1	0	<1	<1
N hospitalizations in sample	2,014	10,053	2,300	9,500	81,046	239,970
Weighted N for hospitalizations in all U.S. hospitals	252,797	1,289,235	291,801	1,258,305	429,558	1,281,841

gories: alcohol use disorders; drug use disorders; senility and organic mental disorders; affective disorders; schizophrenia and related disorders; other psychoses; anxiety, somatoform, and personality disorders; preadult disorders; other mental conditions; and personal history of mental disorders. These diagnostic categories and their corresponding *ICD-9-CM* diagnosis codes have been defined elsewhere (3). Individuals with dual diagnoses had a combination of alcohol or drug use disorders plus one or more disorders in one or more of the other eight diagnostic categories.

Results

Patients with dual diagnoses accounted for 17 percent and 19 percent of psychiatric hospitalizations in the National Hospital Discharge Survey in 1990 and 1994, respectively. In the Nationwide Inpatient Sample, which had more secondary diagnosis codes, they constituted 25 percent of hospitalizations for mental disorders.

Table 1 shows the characteristics of mentally ill patients in the three samples who did and did not have dual diagnoses. Patients with dual diagnoses were younger than their counterparts with only mental illness, and a greater proportion were men. The primary payer was also different for the two groups—Medicaid was the primary payer for a larger percentage of the dual diagnosis group.

In the National Hospital Discharge Survey, a slight but statistically significant increase was noted from 1990 to 1994 in the proportion of hospitalizations for which both mental illness and substance use disorders were recorded (χ^2=31.6, df=1, p<.001). Using the case weights provided, we estimated that the number of these hospitalizations for all nonfederal acute care hospitals increased 15 percent, from 252,797 hospitalizations in 1990 to 291,801 in 1994. The number of hospitalizations decreased 2.4 percent between 1990 and 1994 for those with mental illness only.

Using case weights for the Nationwide Inpatient Sample for all U.S. hospitals, we estimated a total of 429,558 hospitalizations of patients with both mental illness and alcohol or drug use disorders. This estimate is 47 percent greater than the estimate from the 1994 National Hospital Discharge Survey, although for

1994 the total number of hospitalizations for mental disorders only was 2 percent higher in the Nationwide Inpatient Sample. To make the two surveys comparable, only the first six diagnostic codes were considered. Even with this adjustment, there were still an estimated 373,212 hospitalizations of patients with dual diagnoses in 1994.

In 1994 in the Nationwide Inpatient Sample, the mean charge per hospital stay was almost $7,400 for patients with dual diagnoses. Applying this charge to the more conservative estimates of hospitalizations from the National Hospital Discharge Survey resulted in total charges of $1.9 billion for 1990 and $2.2 billion for 1994 for patients with dual diagnoses. Using the higher number from the Nationwide Inpatient Sample, we estimated that community psychiatric hospitalization for patients with mental illness and chemical dependencies resulted in hospital charges of $3.2 billion.

Discussion and conclusions

Psychiatric hospitalization for individuals with dual diagnoses is often indicative of a breakdown in the treatment process or an undesired change in the disorder (4). Patients with dual diagnoses place heavy demands on publicly funded psychiatric hospitalization, which increased from 1990 to 1994. Compared with persons with mental disorders only, those with dual diagnoses are younger men who are more likely to be arrested, hospitalized, or placed in conservatorship (5,6) and after hospitalization are more likely to be rehospitalized (7). Other reports indicate that individuals with dual disorders are not receiving the services they need (8,9). One powerful argument for improved residential and outpatient treatment, as well as stable housing (10), is that these factors may reduce high costs associated with psychiatric hospitalization.

It is important to recognize limitations of large administrative databases. For 1994 the National Hospital Discharge Survey and the Nationwide Inpatient Sample produced different estimates of the number of hospitalizations for the dual diagnosis group, although the estimates for those with mental disorders only were similar. This discrepancy may be partly due to the different diagnostic coding practices at the individual hospitals. Changes in coding practices might explain the increase in hospitalization for patients with dual diagnoses. In addition, diagnosis of these patients is often a complex undertaking and can be quite arbitrary depending on the clinician.

A second limitation is that none of the databases contained record linkage numbers to permit identification of repeat hospitalizations. Strictly speaking, the unit of analysis in this report is the hospitalization and not the patient. Finally, the national estimates of total charges and number of hospitalizations are based on random samples and may not be representative of all nonfederal short-term hospitals.

Despite these limitations, the findings of this report document the pervasiveness of psychiatric hospitalization for those with dual diagnoses. ♦

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