Healthcare Spending Among Community-dwelling Adults With Schizophrenia

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Abstract

Background: Although expenditures for schizophrenia have been documented previously, direct medical expenses have not been updated to reflect the most recent national data available.

Objective: To identify current direct medical expenditures for schizophrenia and comorbidities among community-dwelling adults in the United States.

Study design: Cross-sectional.

Methods: Nationally representative data from the 2001 and 2002 Medical Expenditure Panel Surveys were analyzed to identify community-dwelling adults, aged ≥20 years, who incurred expenses for selected comorbidities. Annual direct medical spending estimates by site of service and payer source were produced using the average of these 2-year data. Mean and median per-person comorbidity costs among patients with schizophrenia expenses were determined for the following conditions: diabetes, hypertension, heart disease, and dyslipidemia.

Results: Five hundred seventy-one thousand community-dwelling adults incurred $2.13 billion per year in direct medical expenses for schizophrenia in 2001-2002; mean and median yearly per-patient expenses were $3726 and $1748, respectively. Inpatient care accounted for 13% of expenditures, while ambulatory care and prescription drugs accounted for 75%. Medicaid incurred $1 billion spent on schizophrenia treatment. Mean per-person spending for schizophrenia patients with comorbidities ranged from $3913 per year for those with comorbid hypertension to $5618 per year for those with comorbid dyslipidemia. Mean annual total healthcare expenditures for patients with schizophrenia ranged from $5990 for those with no comorbid conditions to $12 292 for those with comorbid hypertension.

Conclusion: The majority of schizophrenia expenses incurrred by patients living in the community occur in an outpatient setting and not in the hospital. Medicaid is the primary payer source for this condition. Among adults with schizophrenia, the costs of comorbidities vary by condition, but are associated with increased expenditures.

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The burden of schizophrenia in the United States is enormous in terms of both human and economic costs.[1] In addition, patients with schizophrenia often have other psychological and medical comorbidities, which drive healthcare costs even further upward.

For example, the prevalence of diabetes and obesity in patients with schizophrenia is 1.5 to 2.0 times greater compared with the general population.[2] One study found that 16% of patients with schizophrenia had diabetes and another 30.9% had impaired glucose tolerance (considered a precursor to diabetes).[3] Results from a recent study found that metabolic syndrome was present in 65% of the patients with schizophrenia.[4] This is almost 3 times greater than that found in the general population (23.1%).[5] In addition, it has been reported that patients with schizophrenia have an increased chance of having a variety of cardiovascular diseases (CVDs), including a 1.5 times greater risk of arrhythmia, a 4 times greater risk of syncope, a 1.7 times greater risk of heart failure, a 2.1 times greater risk of stroke, and a 2.6 times greater risk of transient cerebral ischemia as well as a higher mortality rate from CVD.[6]

Some data on the costs of medical care associated with schizophrenia and the sources of payment for these costs have been published. In a study that was based on a database of claims information from the private health insurance plans of large employers, mean per-patient spending on mental healthcare services among inpatients with schizophrenia was estimated at $12 429 in 1993 and $9506 in 1995. The

respective figures for outpatient care among this cohort were $1692 and $1655.[7]

Analysis of results from the 1996 National Survey of Psychiatric Practice revealed that the main source of payment for direct medical care for psychiatric conditions was private or commercial insurance (35.8% of patients), followed by self-pay (15.7%), Medicare (14.3%), Medicaid (13.8%), other government public (9.6%), "other" or "don't know" (7.2%), and 4.1% were uncompensated.[8]

However, little data are available on recent medical expenditures and payment sources for patients with schizophrenia and related psychoses. The purpose of this study was to estimate current costs and attempt to determine the implications for managed care.

Study Methods

Estimates of spending on schizophrenia and comorbidities were generated from data collected in the household component of the Medical Expenditure Panel Survey (MEPS), a national probability survey that combines household interviews with assessment of actual healthcare expenditures. Health conditions are self-reported, converted to *International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM)* and the Agency for Healthcare Research and Quality (AHRQ) clinical classification codes, and verified against physician reports. In general, annual healthcare expenses incurred by each respondent are obtained directly from medical providers and pharmacies.

The household component of MEPS is designed to produce national estimates of the healthcare use, expenditures, sources of payment, and insurance coverage of the US civilian noninstitutionalized population. MEPS is cosponsored by AHRQ and the National Center for Health Statistics. The surveys include 4 sections: the household component, the nursing home component, the medical provider component, and the insurance component.

Community-dwelling adults, aged ≥20, with at least one expense for schizophrenia comprised the target subsample. Sample data were pooled across survey years 2001 and 2002 (combined N = 32 755) to improve the precision of spending estimates by increasing the subsample of persons with schizophrenia (combined n = 117). The AHRQ Clinical Classification Codes for "schizophrenia and other psychoses" (codes 70 and 72, corresponding to *ICD-9* codes 295, 297, 298.1-298.4, 298.8, 298.9, 299) were used to identify persons who had at least one in-scope expense. Similarly, clinical classification codes were used to identify patients who had expenses for one or more of the specific comorbidities commonly associated with schizophrenia—diabetes, CVD, hypertension, and dyslipidemia.

The MEPS households are sampled according to a multistage, stratified, clustered, rotating panel design. Sample weights that account for these design complexities and adjust for differential household sampling probabilities, poststratification, and nonresponse were applied to the MEPS data to generate unbiased estimates for the noninstitutionalized civilian population. Total and mean spending, and numbers of persons with at least one schizophrenia-related expense were averaged over the 2 years of pooled data to give annualized estimates. The SAS "survey means" procedure, which takes into account the clustered multistage design, was used to calculate standard errors for each of the spending estimates.

Results

Expenditures Related to Schizophrenia. During 2001 and 2002, 571 000 adults, aged ≥20 years, who were living in the community spent $2.13 billion in direct medical expenses per year for schizophrenia and related psychoses. Direct medical expenses included hospitalizations, physician visits, outpatient procedures, transportation for medical care visits, and prescription drugs. Mean expenses per patient were $3726 (95% confidence interval, 2625-4827), while median expenses were only $1748.

Three fourths of the expenditures in 2001-2002 were associated with outpatient care (**Table 1**), which included 486 000 ambulatory and emergency care visits (36.6% of overall mean per-person expenditures). These costs alone accounted for $780 million in annual costs. More than half a million (503 000) adults reported a schizophrenia-related prescription drug cost (38.7% of overall mean

Table 1. Direct Healthcare Spending for Schizophrenia and Related Psychoses, and Percent Distribution of Spending by Service Site, Community-dwelling Adults, 2001-2002

	2001-2002					
		Annual Spending per Person				
Site of Service	Number of Patients with an Expense (Thousands)	Total ($ Billions)	Median Annual Spending ($)	Mean ($)	% of Overall Mean	SE of Mean ($)
Overall	571	2.13	1748	3726	100.0	562
Inpatient	47	0.28	0	483	13.0	185
Ambulatory/emergency care	486	0.78	346	1363	36.6	280
Prescription drugs	503	0.82	409	1442	38.7	296
Home healthcare	51	0.25	0	439	11.8	245

per-person expenditures, or $820 million of annual costs). In 2001-2002, 51 000 patients required a home healthcare visit (11.8% of overall mean per-person expenditures, or $250 million of total annual costs).

The MEPS data revealed that 13% of overall mean per-person healthcare expenditures in 2001-2002 were associated with inpatient care. Total inpatient costs for the 47 000 adults who required hospitalization were $280 million per year, for an average inpatient expense of $5856.

Payment Source of Expenditures Related to Schizophrenia. The most common source of payment for schizophrenia and related psychoses among community-dwelling adults in 2001-2002 was out of pocket (**Table 2**). Of the 571 000 adults with schizophrenia-related expenses, 452 000 paid for some part of their medical care. An estimated 249 000 (44%) had Medicare coverage, 242 000 (42%) had Medicaid, and 199 000 (35%) had private insurance.

Of the total $2.13 billion in annual schizophrenia spending, public insurance paid 74.5% (Medicaid 49.3%, Medicare 17.7%, other public insurance 7.5%), private insurance 9.0%, self-pay 16.3%, and other 0.3%.

Expenditures Related to Schizophrenia and Comorbid Conditions. Of the 4 conditions evaluated for this study, the most common comorbidity among adults with schizophrenia or related psychosis was hypertension. In 2001-2002, there were almost as many patients who had comorbid hypertension as those who had none of these 4 comorbidities—165 000 versus 186 000, respectively (**Table 3**). Annual healthcare expenses for community-dwelling adults with schizophrenia and hypertension averaged $12 292, compared with $5990, among adults without comorbidities. Treatment for a comorbidity added 20% to 90% to the annual spending among patients with schizophrenia.

Patients with no comorbidity (average age 43 years) had higher mean annual spending on schizophrenia treatment, $4898, than patients with any listed comorbidity, whose schizophrenia treatment spending ranged from an average of $2374 to $4707. Patients with comorbidities were also older than those without comorbidities, with average age ranging from 53 to 61 years.

Discussion

Schizophrenia is a very costly disease in the US adult population. A review of 1999 Medicaid and Medicare claims involving almost 10 000 adults, aged ≥19 years, demonstrated that the medical expenditures associated with schizophrenia are higher than those for depression, dementia, or medical disorders in all adult age groups

except 45 to 64 years, in which dementia expenses are highest.[9] In this study, which included patients in long-term care facilities, average per-capita expenditures for schizophrenia in 1999 were $39 154 for adults aged 65 to 74, which was $11 304 higher than those for depression, and $28 256 higher than those for medical conditions. Medical expenditures for all conditions have increased considerably in recent years. MEPS reports that mean per-person costs increased 21.5% between 1997 and 2002—from $2717 (in 2002 dollars) in 1997 to $3302 in 2002.[10] Our analysis shows that 571 000 US patients with schizophrenia and related psychoses were responsible for $2.13 billion in direct annual medical expenses during the period 2001-2002, for a mean of $3726 per person.

However, this estimate does not reflect the much higher direct treatment costs incurred by persons residing in nursing homes, psychiatric institutions, or other long-term care facilities. Also excluded are indirect expenses such as those because of lost work productivity. The differences in mean and median annual spending per person (Table 1) suggest that a small percentage of community-dwelling adults with schizophrenia may be responsible for a disproportionate amount of the associated costs. Indeed, MEPS reports that in 2002, 5% of Americans

Table 2. Payment Source for Direct Healthcare Spending Associated with Schizophrenia and Related Psychoses, Community-dwelling Adults, 2001-2002

	2001-2002			
	Annual Schizophrenia Spending			
Source of Payment	Number of Persons With Expenses (Thousands)	Total ($ Billions)	% of Total	SE of Total ($ Billions)
Overall	571	2.13	100.0	0.58
Private	199	0.19	9.0	0.10
Self-pay	452	0.35	16.3	0.15
Medicare	249	0.38	17.7	0.15
Medicaid	242	1.05	49.3	0.45
Other public	100	0.16	7.5	0.11
Other	19	0.01	0.3	0.00

Table 3. Annual Spending per Person With Schizophrenia or Related Psychoses, by Comorbidity Category*, Community-dwelling Adults, 2001-2002

			Annual Spending per Person ($)								
			For Schizophrenia Only			For Schizophrenia and Comorbidity			For Schizophrenia and All Other Healthcare		
Comorbidity Category of Person	Number of Persons (Thousands)	Mean Age, Years	Median	Mean	SE of Mean	Median	Mean	SE of Mean	Median	Mean	SE of Mean
Schizophrenia + no comorbidity	186	43	3320	4898	601	3320	4898	601	3949	5990	599
Schizophrenia + diabetes	83	57	1413	2542	276	2736	4504	373	8249	11 611	1530
Schizophrenia + dyslipidemia†	79	53	882	4707	2146	1844	5618	2171	5617	10 803	2244
Schizophrenia + hypertension	165	61	1319	2675	314	1998	3913	323	8249	12 292	1122
Schizophrenia + heart disease	130	60	882	2374	363	2148	4428	542	8173	10 415	1422

Note: Persons with >1 comorbidity appear in multiple comorbidity categories. Therefore, their expenses for total annual healthcare spending and spending for schizophrenia are double-counted.

*Comorbidity is limited to the 4 conditions listed: diabetes, dyslipidemia, hypertension, and heart disease.

†Schizophrenia costs and comorbidity costs for persons with dyslipidemia should be treated with caution because relative standard error is >30%.

incurred 49% of medical costs for all conditions, while half of the population incurred only 3% of total costs.[11]

Common comorbidities can significantly increase the annual healthcare costs of patients with schizophrenia. About two thirds of these patients have at least 1 of 4 associated comorbidities, whose treatment adds 20% to 90% to their annual healthcare expenditures. For example, MEPS data show that patients with schizophrenia and hypertension spend on average $3913 per year to treat both, 46% more than their spending on schizophrenia alone ($2675). When total healthcare spending is considered (ie, schizophrenia, hypertension, all other conditions), these patients spend on average $12 292 per year, more than 4 times the amount they spend on schizophrenia alone.

Community-dwelling patients with schizophrenia but without the other comorbidities presented in this study are younger and spend more on their schizophrenia treatment than patients with comorbidities living in the community. Although the reason for this is unclear, it may reflect an age-related difference in schizophrenia severity among community-dwelling adults. The MEPS sample is drawn from noninstitutionalized patients, and their disease is presumably less severe than those who have been institutionalized. As a schizophrenia cohort ages, the most severe cases would tend to leave the community setting for long-term care in nursing homes, leaving behind patients whose disease may be more manageable and less costly to treat. Thus, the community-dwelling adults with a comorbidity, those likely to have comorbidities, may have on average less severe schizophrenia.

Most of the healthcare for patients with schizophrenia living in the community is now being delivered in an outpatient setting, not in the hospital, which is helping to lower overall costs. An earlier study of private insurance claims for mental healthcare services filed by 3.9 million Americans per year from 1993-1995 observed a similar trend.[7] Per-person inpatient costs decreased more than 30% between 1993 and 1995, mainly because of fewer inpatient days per person. In this study, patients diagnosed with schizophrenia had the smallest decrease in inpatient service costs (23.5%), compared with patients with other mental health conditions.

Conclusions

Recent data on the costs of schizophrenia treatment in community-dwelling adults show that more than half a million adults incurred more than $2 billion in direct medical expenses in 2001-2002. During this time, a greater proportion of patients were managed as outpatients rather than as inpatients. This information is relevant to managed care organizations in terms of providing a baseline for the site of service of schizophrenia treatment; it demonstrates the need for a continuum of treatment sites based on severity of symptoms. It also shows the need to understand which patients are incurring the costs, and how common medical comorbidities increase related expenses. Such comorbidities must be considered carefully when evaluating healthcare services and expenses. Future research is needed to identify individual characteristics of this patient population and determine how these characteristics affect their utilization of medical services.

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