Prescribing of Psychotropic Medications to Patients Without a Psychiatric Diagnosis

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Objective: This study used a private insurance claims database to examine the use of diverse classes of psychotropic medications among patients without a psychiatric diagnosis. _Methods:_ MarketScan claims data for 2009 were used to identify privately insured individuals who filled a prescription for at least one psychotropic medication (5.1 million patients). Bivariate and multivariate analyses were used to compare the proportion of patients with and without a psychiatric diagnosis who received a prescription for six different classes of psychotropic medications. The analyses were adjusted for potential medical indications and severity of comorbid general medical illness. _Results:_ Altogether, 58% of individuals who were prescribed a psychotropic medication in 2009 had no psychiatric diagnosis during the year. The proportion of patients who were prescribed a psychotropic medication without a psychiatric diagnosis was highest among individuals aged 50 to 64 (69%) and among individuals who did not receive any mental health specialty care (67%). The odds of being prescribed psychotropic medication without a psychiatric diagnosis were 2.9 times higher among patients aged 50 to 64 than among younger patients. Diagnoses signifying potential medical indications for use and severity of comorbid medical conditions were only weakly related to absence of a psychiatric diagnosis and did not alter these age trends. _Conclusions:_ In a large private claims database, a majority of recipients of psychotropic medication, especially older patients and those not utilizing mental health specialty care, lacked a clear indication for such use. This phenomenon deserves further study and may reflect less than desirable care. (_Psychiatric Services_ 64:1243–1248, 2013; doi: 10.1176/appi.ps.201200557)

U se of psychotropic medications has increased over the past two decades (1,2), with much of the increase attributable to prescribing by nonpsychiatrists (3–5). Studies of antidepressant prescribing have found increasing proportions of patients who are prescribed these medications without any psychiatric diagnosis (6–9). Older patients appear to be at especially increased risk for exposure to this practice (6,7,9). In a cohort of noninstitutionalized older adults newly started on an antidepressant, anxiolytic, or antipsychotic, 48% of patients did not meet criteria for a mental disorder (10). A recent study evaluated national trends in treatment with antipsychotics and found that approximately one-third of visits in which antipsychotics were prescribed lacked a mental health diagnosis and that over 96% of these visits were to nonpsychiatrists (11).

This study analyzed data from the 2009 MarketScan Commercial Claims and Encounters Database to determine rates of prescribing several broad classes of psychotropic medications among adults age 18 to 64 without a psychiatric diagnosis. It also considered use for medical conditions for which psychotropic medications are indicated and severity of an individual's general medical illness. We hypothesized that prescribing psychotropic medication in the absence of a psychiatric diagnosis is not uncommon, increases with age of the individual, is more prevalent in general medical practice than in mental health specialty care, and is modestly accounted for by the severity of an individual's general medical illness or by medical indications for use.

Methods

Sample and data sources
Data were obtained from the 2009 MarketScan Commercial Claims and Encounters Database from Thomson Reuters (Healthcare) Inc., which contains deidentified, person-specific health care data, including clinical utilization, expenditures, insurance enrollment or plan benefit, and outpatient prescription information. The data cover over 34 million individuals annually, and data for this study included all individuals ages 18 to 64 who filled a psychotropic prescription in 2009.

Measures
Psychotropic medication prescriptions are classified into six groups, and measures were constructed to represent any use of each class.

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Antidepressants include amitriptyline, amoxapine, bupropion, citalopram, clomipramine, desipramine, desvenlafaxine, doxepin, duloxetine, escitalopram, fluoxetine, fluvoxamine, imipramine, isocarboxazid, maprotiline, mirtazapine, nefazodone, nortriptyline, paroxetine, phenelzine, protriptyline, selegiline, sertraline, tranylcypromine, trazodone, trimipramine, and venlafaxine.

Antipsychotics include aripiprazole, chlorpromazine, clozapine, fluphenazine, haloperidol, loxapine, molindone, olanzapine, paliperidone, perphenazine, quetiapine, risperidone, thioridazine, thiothixene, trifluoperazine, and ziprasidone.

Benzodiazepines, sedatives, or hypnotics (anxiolytics) include alprazolam, buspirone, chloral hydrate, chlorazepate, chlordiazepoxide, clonazepam, diazepam, estazolam, eszopiclone, flurazepam, lorazepam, meprobamate, oxazepam, temazepam, triazolam, zaleplon, and zolpidem.

Stimulants include amphetamine, dexmethylphenidate, dextroamphetamine, lisdexamfetamine, methamphetamine, and methylphenidate.

Anticonvulsant mood stabilizers include carbamazepine, divalproex sodium, gabapentin, lamotrigine, oxcarbazepine, topiramate, valproate sodium, and valproic acid.

Lithium is classified by itself.

The sociodemographic data available include age and gender. Data on age were categorized as 18 to 39 (<40) years, 40 to 49 years, and 50 to 64 years.

Clinical data include diagnoses from the *International Classification of Diseases*, ninth revision (*ICD-9*). Diagnoses are extracted from billing claims data forms that have been cleaned and compiled in a computerized analytic data set. Data on psychiatric diagnoses include all *ICD-9* codes from 290 through 319 as well as 331.00 (Alzheimer's dementia). These codes capture forms of dementia other than Alzheimer's. Categories of medical indications governing use of various psychotropic medications were created on the basis of indications approved by the U.S. Food and Drug Administration for the medications listed above and include seizures (345.xx), insomnia (327.0x, 780.51, and 780.52), migraine and headache (346.x and 784.0), pain and neuropathy (053.12, 250.6, 337.1,

338.x, 350.1, 352.1, 357.2, 719.4, 728.85, 729.1, 729.2, 780.96, and 781.0), narcolepsy (347), nausea and vomiting (787.0x), and pruritis (698.x).

A dichotomous variable identified patients who utilized any mental health specialty care during the year (mental health utilizers), defined as having submitted a claim for psychotherapeutic services; a visit with a mental health or substance abuse treatment specialist, such as a psychiatric nurse, a psychiatrist, or a psychologist; or services at a mental health or substance use specialty clinic, such as mental health facilities and chemical dependency treatment centers (codes available on request). Additionally, a continuous variable was constructed to represent the total number of clinical encounters during the year.

The Charlson Comorbidity Index (CCI) was used to assess the overall severity of comorbid general medical conditions (12). The CCI is a weighted index determined by combining scores for components based on outpatient diagnoses and patient age. Because age was central to our analyses, we used only the score for the components of the index based on outpatient diagnoses.

Analyses

First we present descriptive data on the population, including sociodemographic characteristics, specialty mental health care utilization, and frequency of psychotropic medication. Among individuals receiving any psychotropic medication, we present crosstabulations of age by presence of any psychiatric diagnosis, by class of medication, and by utilization of specialty mental health care. Similar cross-tabulations of age by any medical indication for use as well as by category of medical indication were conducted among individuals receiving any psychotropic medication who lacked a psychiatric diagnosis. Statistical tests are not presented because of the very large sample size.

Logistic regression was then used to identify independent effects of age class (reference group=<40) on absence of any psychiatric diagnosis during the year (coded 1 for no diagnosis and 0 for any diagnosis), apart from potentially confounding variables such as sociodemographic

characteristics, potential medical indications for use, medical comorbidity, number of clinical encounters, and mental health service utilization.

Analyses were based on two conservative assumptions intended to avoid exaggeration of potential risks: a diagnosis of any mental illness may justify the use of any psychotropic medication, and any medical illness that is an indication for use of a particular psychotropic medication may justify use of any psychotropic medication.

The human subject subcommittee of the Veterans Affairs Connecticut Healthcare System determined that the study did not involve human subjects research, given that the data are publicly available and completely anonymous.

Results

In 2009, a total of 5,132,789 individuals filled prescriptions for psychotropic medications, of whom 2,985,553 (58.2%) had no documented psychiatric disorder during the entire year. Among all individuals filling prescriptions for psychotropic medications, 64% were female, 37% were younger than age 40, and 40% were between ages 50 and 64. Less than 20% of patients filling a psychotropic prescription had utilized any mental health specialty care services (Table 1).

Antidepressants were prescribed more often than any other psychotropic medication, followed by anxiolytics (prescribed to 62% and 46%, respectively, of individuals filling psychotropic prescriptions). The proportion of prescriptions for patients without psychiatric diagnoses was highest for anxiolytics (61%), followed by anticonvulsant mood stabilizers (58%) and antidepressants (52%) (Table 2). Among patients prescribed psychotropic medications, the proportion without a psychiatric diagnosis was much smaller among mental health care utilizers than among non–mental health care utilizers (14% and 67%, respectively).

The proportion of individuals who filled a psychotropic prescription but did not have a psychiatric diagnosis increased with age. Age 50 to 64 was the peak at-risk age group for this practice for each class of psychotropic medication (Figure 1). These same age trends were also noted for mental

health care utilizers and nonutilizers (Figure 2).

The proportion of patients who had specific medical indications and who were prescribed psychotropic medication but did not have a psychiatric diagnosis was essentially the same for all age groups. The one exception to this trend was among patients with pain diagnoses—the oldest patients were more likely than younger patients to be prescribed psychotropic medications (ages 50–64, 25%; 40 to 49, 22%, and <40, 16%).

A Pearson product-moment correlation coefficient was calculated to assess the magnitude of the association between the number of clinical encounters and the likelihood of having a psychiatric diagnosis. There was a weak positive correlation between the two variables ($r=.13$, $p<.001$).

The odds of being prescribed a psychotropic medication without a psychiatric diagnosis were 2.9 times higher among individuals aged 50 to 64 compared with individuals younger than 40 (odds ratio [OR]=2.87) (Table 3). Mental health specialty care utilization had the largest effect of any covariate (OR=.10), indicating that the odds of being prescribed a psychotropic medication in the absence of a psychiatric diagnosis were 90% lower among mental health care utilizers than among nonutilizers. Covariates representing the presence of a potential general medical indication for use of psychotropic medications and the CCI of severity of general medical illness were only weakly associated with being prescribed a psychotropic medication in the absence of a psychiatric diagnosis. Infusion of the number of encounters as a covariate did not alter the basic findings.

Discussion

Analysis of a national sample of individuals covered by commercial health insurance indicated that a majority of outpatients, proportionally largest among older adults, were prescribed psychotropic medications in the absence of a clear indication for such use, even after adjustment for medical use and severity of comorbid general medical conditions. Patients who did not use any mental health specialty care services accounted for an overwhelming majority of psychotropic prescriptions among persons without a psychiatric diagnosis. Hence this phenomenon largely occurred in primary care and general medical and surgical settings. Nonetheless, it is concerning that one in seven mental health care utilizers who were prescribed a psychotropic medication had

Table 1

Characteristics of individuals with and without a psychiatric diagnosis who filled a prescription for psychotropic medication in 2009

Characteristic	Total (N=5,132,789)		Psychiatric diagnosis (N=2,147,236)		No psychiatric diagnosis (N=2,985,553)	
	N	%	N	%	N	%
Age						
<40	1,875,509	37	1,044,152	49	831,357	28
40–49	1,184,387	23	475,732	22	708,655	24
50–64	2,072,893	40	627,352	29	1,445,541	48
Gender						
Female	3,306,525	64	1,341,723	63	1,964,802	66
Male	1,826,264	36	805,512	38	1,020,751	34
Mental health care utilizer[a]	857,621	17	736,296	34	121,325	4

[a] Submitted a claim for psychotherapeutic services; a visit with a mental health or substance abuse specialist, such as a psychiatric nurse, a psychiatrist, or a psychologist; or services at a mental health or substance use specialty clinic, such as mental health facilities and chemical dependency treatment centers

Table 2

Individuals with and without a psychiatric diagnosis who received a prescription for psychotropic medication, by prescription class and utilization of mental health specialty care

Utilization and prescription class	Total	Psychiatric diagnosis		No psychiatric diagnosis	
		N	%	N	%
All individuals					
Any psychotropic	5,132,789	2,147,236	42	2,985,553	58
Antidepressants	3,181,968	1,522,740	48	1,659,228	52
Antipsychotics	378,280	262,072	69	116,208	31
Anxiolytics	2,372,883	927,018	39	1,445,865	61
Stimulants	549,509	404,600	74	144,909	26
Anticonvulsant mood stabilizers	576,635	244,977	42	331,658	58
Lithium	42,246	36,974	88	5,272	12
Mental health care utilizers[a]					
Any psychotropic	857,621	736,296	86	121,325	14
Antidepressants	627,175	559,290	89	67,885	11
Antipsychotics	161,817	156,477	97	5,340	3
Anxiolytics	383,950	324,693	85	59,257	15
Stimulants	160,124	153,653	96	6,471	4
Anticonvulsant mood stabilizers	141,777	126,054	89	15,723	11
Lithium	24,439	24,235	99	204	1
Non–mental health care utilizers					
Any psychotropic	4,275,168	1,410,940	33	2,864,228	67
Antidepressants	2,554,793	963,450	38	1,591,343	62
Antipsychotics	216,463	105,595	49	110,868	51
Anxiolytics	1,988,933	602,325	30	1,386,608	70
Stimulants	389,385	250,947	64	38,438	36
Anticonvulsant mood stabilizers	434,858	118,923	27	315,935	73
Lithium	17,807	12,739	72	5,068	28

[a] Submitted a claim for psychotherapeutic services; a visit with a mental health or substance abuse specialist, such as a psychiatric nurse, a psychiatrist, or a psychologist; or services at a mental health or substance use specialty clinic, such as mental health facilities and chemical dependency treatment centers

Percentage of patients without a psychiatric diagnosis who filled a prescription for a psychotropic medication in 2009, by age and drug class[a]
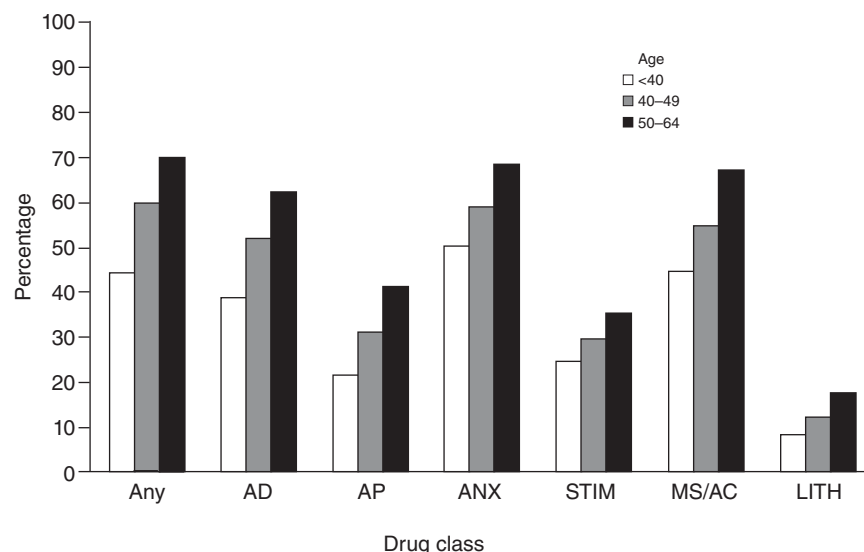
[a] AD, antidepressants; AP, antipsychotics; ANX, anxiolytics; STIM, stimulants; MS/AC, anticonvulsant mood stabilizers; and LITH, lithium

no psychiatric diagnosis in the same year.

Our findings are similar to previous results about antidepressant prescribing in the absence of psychiatric diagnosis. Both Pagura and colleagues (7) and Mojtabai and Olfson (6) found high rates of such prescribing by nonpsychiatrists. The proportions of patients prescribed antidepressants (52%) and antipsychotics (31%) in the absence of

a past-year psychiatric diagnosis were similar to those reported by others using different methods (6–9,11). Rates of prescribing without a psychiatric diagnosis were lower for lithium, stimulants, and antipsychotics than for other classes of medications. It is unclear why these classes were so closely linked to diagnoses. One possibility is that these medications have more narrowly defined clinical indications for use and

lower rates of off-label prescribing than the other classes studied. Another explanation may be that medications such as antipsychotics and lithium are more likely to be prescribed to patients with severe mental illness, who have a greater number of clinical encounters related to mental illness, and hence are more likely to receive a psychiatric diagnosis. We found that the number of encounters and the likelihood of having a psychiatric diagnosis were significantly but weakly correlated.

Our work expanded upon previous studies in several key ways. First, we evaluated prescribing trends for a much broader set of medications, including six different classes of psychotropics, and we found similar trends by age for each. Second, our analyses adjusted for general medical indications for use of psychotropic medications as well as for a measure of severity of general medical illness. The fact that assessments of general medical use and comorbidity were not strongly associated with increased risk suggests that the presence of general medical diagnoses did not account for the practice of prescribing psychotropic medication for patients without a psychiatric diagnosis. Third, we included a broader definition of mental disorder than in previous work, increasing the generalizability of our

Percentage of mental health care utilizers and non–mental health care utilizers without a psychiatric diagnosis who filled a prescription for a psychotropic medication in 2009, by age and drug class[a]
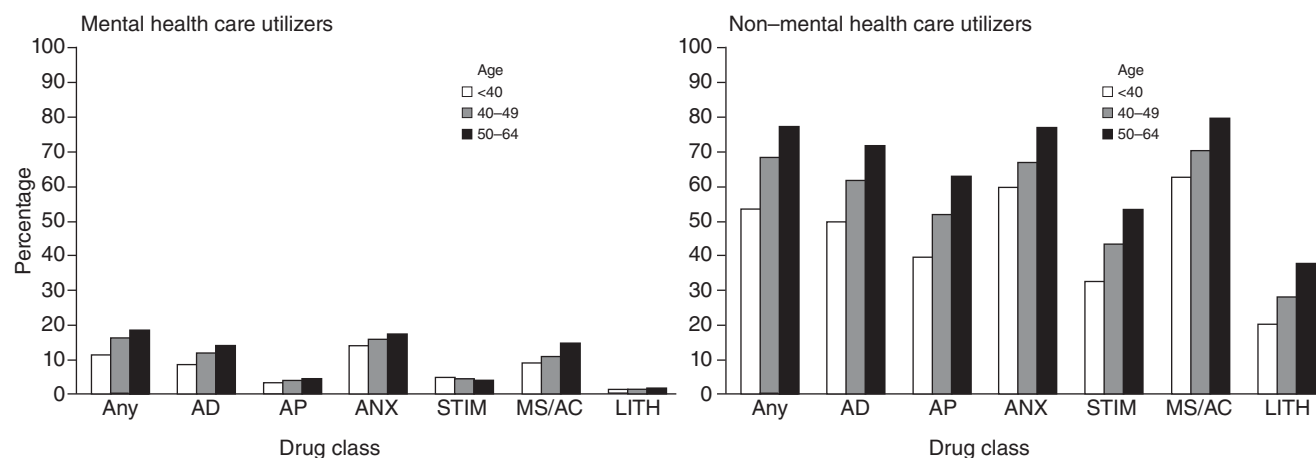
[a] AD, antidepressants; AP, antipsychotics; ANX, anxiolytics; STIM, stimulants; MS/AC, anticonvulsant mood stabilizers; and LITH, lithium. Mental health care utilizers are defined as patients who submitted a claim for the following: psychotherapeutic services; a visit with a mental health or substance abuse specialist, such as a psychiatric nurse, a psychiatrist, or a psychologist; or services at a mental health or substance use specialty clinic, such as mental health facilities and chemical dependency treatment centers.

findings. Pagura and colleagues (7) studied patients with a limited number of mood, anxiety, substance use, and eating disorders, and Milea and colleagues (8) included only approved indications for antidepressant use.

There are several possible explanations for the practice of prescribing psychotropic medication in the absence of a psychiatric indication. First, there may be concerns about stigma associated with psychiatric diagnosis in general medical settings, where an overwhelming majority of prescriptions for psychotropic medications without a psychiatric diagnosis were written. Previous work has found that prescribers are reluctant to record mental health diagnoses on claims data because of concerns about lower reimbursement rates for mental illness (13,14). Second, it is possible that there is an especially strong emphasis on symptom-based rather than diagnosis-based treatment in general medical settings, although there is little empirical evidence to support this practice. Previous studies have noted that subthreshold or mild psychiatric symptoms were associated with antidepressant prescribing in the absence of psychiatric diagnosis (6,7,10). In addition, previous work has shown that among adults treated with antidepressants, patients treated by general medical providers were less likely than those treated by psychiatrists to meet criteria for mood or anxiety disorders based on structured interviews (5). These trends are of potential concern, given the ongoing controversy surrounding the efficacy of antidepressants for treatment of mild depressive symptoms (15–17).

Third, patient or caregiver requests may be driving some of this practice. With increased exposure to direct-to-consumer advertising, direct requests for a specific medication may be more frequent. Fourth, prescriptions for psychotropic medications may be continued when clinical indications are no longer present. Fifth, poor documentation of diagnostic indications for use of psychotropic medication may also account for some component of our findings, but it also represents inadequate record keeping, which may impede communication with other providers.

Table 3

Odds of not having a psychiatric diagnosis among patients prescribed a psychotropic medication in 2009, by characteristic

Characteristic	Wald chi square	OR	95% CI	p
Age (reference: <40)				
40–49	51,320	1.81	1.80–1.82	<.001
50–64	194,469	2.87	2.86–2.88	<.001
Female (reference: male)	3,654	1.14	1.13–1.14	<.001
Charlson Comorbidity Index	23,766	1.19	1.19–1.20	<.001
Any medical indication for use	6,200	1.19	.1.19–1.20	<.001
Mental health care utilizer[a]	493,534	.10	.09–.10	<.001
Clinical encounters (N)	72,207	.98	.98–.98	<.001

[a] Submitted a claim for psychotherapeutic services; a visit with a mental health or substance abuse specialist, such as a psychiatric nurse, a psychiatrist, or a psychologist; or services at a mental health or substance use specialty clinic, such as mental health facilities and chemical dependency treatment centers

Several methodological limitations deserve comment. Administrative data may not reflect clinical indications that are more fully described in clinical notes, even in the absence of relevant diagnoses on billing forms. There may be a variety of reasons for differences in documentation of diagnoses on encounter forms versus clinical notes, such as reimbursement rates and limits on the allowable number of diagnoses. Furthermore, precise data on date of initiation of medication use were not available. Patients with chronic mental illness requiring long-term use of psychotropic medications may have been diagnosed in the past, but subsequent refills of medications captured during our study period lacked a coded diagnosis. Finally, the generalizability of these findings is uncertain. We did not have data on the extent to which claims in the MarketScan database are representative of commercially insured Americans generally. Patients in this database are likely to be quite different from those treated in public-sector programs or in a system like the Veterans Health Administration. Application of the methods used in this study to other health systems would be informative.

Conclusions
Large numbers of outpatients, especially those who were not utilizers of mental health specialty care and those aged 50 to 64, were prescribed a variety of psychotropic medications in the absence of a psychiatric diagnosis. This practice may represent either incomplete record keeping or possible exposure of patients to the risks of psychotropic medications without clear indications for use. Further research to better understand this phenomenon and its relationship to quality of care is warranted.

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