

Tricyclic Antidepressant Prescribing for Nonpsychiatric Disorders

An Analysis Based on Data from the 1985 National Ambulatory Medical Care Survey

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Background. Primary care physicians often do not document a psychiatric diagnosis when prescribing psychotropic medications. Recent literature suggests the potential benefit of tricyclic antidepressants (TCAs) in a number of nonpsychiatric conditions (low back pain, peptic disease, fibrositis, headache, peripheral neuropathy, rheumatoid disease, and irritable colon).

Methods. Data from the 1985 National Ambulatory Medical Care Survey (NAMCS) were used to categorize the primary diagnoses given during office visits in which tricyclic antidepressants were prescribed.

Comparisons were made across specialties.

Results. Primary care physicians prescribed tricyclic antidepressants in 1% of all visits (an estimated 2,892,000 visits per year). Whereas 50% of these visits at which TCAs were prescribed were for documented psychiatric illnesses or conditions, 15% were for nonpsy-

chiatric TCA-responsive conditions. The majority of visits by patients with these disorders were to primary care physicians. The pattern of TCA prescribing for these disorders by primary care physicians parallels that of other medical specialties except that primary care physicians prescribed TCAs for nonpsychiatric TCA-responsive disorders less frequently than did other medical specialists.

Conclusions. When nonpsychiatric TCA-responsive disorders are included, primary care physicians document with appropriate diagnoses 15% more of their TCA prescriptions than previous studies have indicated. An understanding of the 35% of TCA prescriptions that do not show proper documentation will require further study and information not available from the NAMCS.

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Although tricyclic antidepressants (TCAs) were first synthesized in the latter part of the 19th century, it was not until the late 1940s that their pharmacologic properties were investigated, and only as recently as 1958 that Kuhn described the antidepressant properties of imipramine.^{1,2} Currently, the only uses for which the US Food and Drug Administration (FDA) has approved drugs in this class are for the treatment of depression, anxiety, mixed anxiety and depression, and childhood enuresis

(imipramine only).³ There are other psychiatric diagnoses that have been reported to respond to TCAs: panic disorder, agoraphobia, obsessive-compulsive disorders, chronic pain syndromes, and bulimia.⁴ Recent reviews⁴⁻⁶ have indicated that TCA medications may also be useful in a number of nonpsychiatric disorders that are commonly seen in primary care settings.

A large and consistent body of literature suggests that TCAs may have specific beneficial effects in the following: peptic ulcer disease,⁷⁻¹⁰ irritable bowel syndrome,^{5,11} muscle contraction headache,^{6,12} migraine headache prophylaxis,^{4,6,13} urinary incontinence in adults,^{4,5,14} insomnia,¹⁵ chronic pain syndromes,^{4,16-19} chronic pelvic pain,²⁰ chronic low back pain,²¹⁻²⁶ rheumatic pain,^{6,27-29} fibrositis and fibromyalgia syndromes,^{30,31} and neuropathic pain.^{6,32,33}

The more esoteric and least well documented uses of

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TCA drugs in nonpsychiatric disorders include the treatment of intractable hiccups,³⁴ aphthous ulcers,³⁵ obstructive sleep apnea,³⁶ heat and cold urticaria,³⁷ interstitial cystitis,³⁸ irritative urinary symptoms in multiple sclerosis,³⁹ restless legs syndrome in Parkinson's disease,⁴⁰ chronic neurotic excoriations,⁴¹ and the neurologic manifestations of ciguatera fish poisoning caused by the ingestion of fish contaminated with toxins produced by the dinoflagellate *Gambierdiscus toxicus*.⁴²

The psychotropic drug-prescribing habits of primary care physicians have been described in several reports over the past decade.⁴³⁻⁴⁶ In 1980 the majority of ambulatory visits during which prescriptions for antidepressants were written were made to the offices of nonpsychiatrist physicians (55.7% primary care physicians and 13.1% other specialists).⁴⁴ Analyses from the 1980 National Ambulatory Medical Care Survey^{43,44,46} indicated that a mental disorder was diagnosed in 57% to 59% of the visits to primary care physicians at which TCAs were prescribed. One recent report based on the 1985 NAMCS⁴⁶ stated that 55% of the prescriptions for TCAs written by primary care physicians were for diagnosed mental disorders.

All of these reports⁴³⁻⁴⁶ suggest that a large proportion of TCA prescriptions written by primary care physicians were not for psychiatric disorders. One possible explanation is that some of these prescriptions were for nonpsychiatric TCA-responsive disorders.

Wells et al⁴⁷ conducted a prospective quality of care evaluation of the use of antidepressants by primary care physicians that supports this idea. Their definition of a clinical indication for a TCA included not only affective disorders, but signs and symptoms of depression and chronic pain syndromes such as migraine or neuropathy. In their study of 50 patients in 16 academic internal medicine practices, they found that prescriptions for TCAs had been properly documented in all cases. The high rate of proper documentation may be attributable to inclusion of nonpsychiatric disorders, but as Wells et al pointed out, it may also be biased by the training setting in which these physicians practiced.

In reference to primary care physicians prescribing TCAs for nonmental disorder diagnoses, Jencks⁴³ stated of the 1980 NAMCS that "analysis of diagnoses does not suggest other specific [nonpsychiatric] diagnoses that would account for the treatments." Little detail is given on how this analysis was conducted, yet it calls into question the role of nonpsychiatric disorders in these statistics.

In this article, we expanded on the work of Schurman et al,⁴⁸ Jencks,⁴³ and Larson et al⁴⁶ by not restricting our comparisons just to psychiatrists vs nonpsychiatrists, or to psychiatrists vs primary care physicians, or to men-

tal disorders vs nonmental disorders. Instead, our analyses included relevant nonprimary care medical specialists who have high rates of prescribing TCA drugs (neurologists, gastroenterologists, and rheumatologists), and nonmental disorder diagnoses were broken down into categories that reflect the possibility that some of these diagnoses are more likely than others to be treated with antidepressants. The rates of TCA prescriptions for these categories of diagnoses were compared across specialties, and then their contribution to the overall rate of TCA prescribing for each specialty was assessed. We uncovered relationships that may have been hidden by lumping specialties or disorders, as has been done in past studies, and we reassessed previous conclusions about the degree to which an appropriate diagnosis is recorded for each TCA prescription made by a primary care physician.

Methods

The Sample

The National Ambulatory Medical Care Survey (NAMCS) is a nationwide survey of the use of ambulatory medical services in the United States that is conducted by the National Center for Health Statistics. Surveys were conducted in 1973, yearly from 1975 through 1981, and again in 1985.⁴⁹

The sample for the 1985 NAMCS, which was used in this paper, was composed of all physicians for whom the American Medical Association and American Osteopathic Association had files as of December 31, 1984, who were nonfederally employed, office based, and principally engaged in patient care. Physicians in the specialties of anesthesiology, pathology, and radiology were excluded from the survey.⁴⁹

The NAMCS employed a multistage probability design that involved probability sampling of primary sampling units (eg, counties or standard metropolitan statistical areas), physician practices within primary sampling units, and patient visits within practices.⁴⁹

Diagnosis Categories

The NAMCS data contained the principal diagnosis made by the physician for each patient visit. The principal diagnosis was defined as the physician's best assessment of the diagnosis associated with the patient's principal complaint.⁴⁹ The principal diagnosis was coded by trained NAMCS coders according to the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).⁵⁰ In our study the ICD-9-CM codes were used to construct 92 diagnosis clusters based

on the work of Schneeweiss et al.⁵¹ The diagnosis clusters were combined into six categories: (1) 4 psychiatric illness clusters (nonpsychotic depression, anxiety neuroses; schizophrenia and affective psychoses; personality disorders; and alcoholism); (2) 29 acute and self-limiting illness clusters (eg, acute upper respiratory infections; acute lacerations, contusions, or abrasions; urinary tract infections); (3) 23 chronic medical condition clusters (eg, hypertension, ischemic heart disease, diabetes mellitus); (4) 25 indeterminant conditions, which might be chronic or acute depending on the presentation (eg, dermatitis and eczema, hemorrhoids, bursitis); (5) 7 nonpsychiatric disorder clusters that were believed to be responsive to TCAs based on a review of the literature; and (6) a residual category of 5 "other" diagnosis clusters (eg, medical and surgical aftercare, general medical examination, diagnoses not in a Schneeweiss cluster).

The diagnosis clusters within the TCA-responsive category were low back pain diseases and syndromes (excluding acute strains), peptic disease, fibrositis, myalgia, arthralgia, headaches, peripheral neuropathy (neuritis), rheumatoid disease, and irritable colon. Most of these diagnoses are not purely nonpsychiatric and may often be accompanied by an Axis I diagnosis such as a "psychological factor affecting physical condition" (316.00 in the multiaxial system of the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised* [DSM-III-R]).⁵² The term *nonpsychiatric* was used to indicate primary diagnoses for these seven diagnosis clusters that are on Axis III (Physical Disorders and Conditions) according to the DSM-III-R.

Medical Specialties

We restricted our analyses of prescribing habits to those specialties that would be most likely to prescribe TCAs. These were psychiatry (includes hypnosis, psychoanalysis, and psychosomatic medicine), primary care (family practice, general practice, and internal medicine), and those medical specialties most likely to see patients with the nonpsychiatric TCA-responsive clusters listed above (gastroenterology, neurology, and rheumatology). Because of the instability of estimates that resulted from small numbers of encounters in each category, general practice, family practice, and internal medicine were combined into one primary care group for most of the analyses.

Definition of Tricyclic Antidepressant Visit

The NAMCS encounter form permitted the physician to record up to five medications that were prescribed during

each patient visit, and to indicate which medications were prescribed for the principal diagnosis for the visit. A "tricyclic antidepressant visit" was the term used for any visit in which the physician indicated that a TCA had been prescribed for the principal diagnosis. The TCAs identified in the 1985 NAMCS included amitriptyline, amoxapine, desipramine, doxepin, imipramine, nortriptyline, protriptyline, trimipramine, and a combination of amitriptyline and perphenazine. Trazodone and maprotiline, though not actually TCAs, were included in this group because of their similar use and actions.

Monoamine oxidase inhibitors were excluded from the study because they were rarely used by primary care physicians in the 1985 NAMCS sample (less than 2% of all antidepressant prescriptions by these specialists), and there was little in the literature to suggest that they were used in the treatment of these disorders.

Newer antidepressants such as fluoxetine hydrochloride and bupropion hydrochloride were not in use at the time of the survey.

Analysis

Based on the sampling design, weights were computed to allow extrapolation to unbiased national estimates. Computation procedures had three components that adjusted for the sampling design: (1) inflation by reciprocals of sampling probabilities, (2) adjustment for nonresponse, and (3) ratio adjustment.⁴⁹

The National Center for Health Statistics considers an estimate to be unreliable if it has a relative standard error (RSE) over 30%.⁴⁹ The RSE is the percentage of the estimate represented by the standard error. Whenever the RSE exceeds 30%, this is indicated in the table footnote. In all of the tables, the number of visits is an estimate projected to the total number of visits nationally, and the percentages are weighted.

Results

The 1985 NAMCS survey involved 2879 physicians in the United States and 71,594 patient encounters.⁴⁹ The data for this study were derived from 60,620 office visits made by persons aged 16 years and older during the period March 1985 through February 1986.

Table 1 displays the weighted percent distributions for the age, race, and sex of the patients; the specialty of the physician; and the diagnostic groupings of the primary diagnoses for the 60,620 patient visits. The largest number of office visits were to primary care physicians, and the weighted percentage of visits for nonpsychiatric

Table 1. Demographic Characteristics, Physician Specialty, and Diagnosis Category for Office Visits by Patients 16 Years and Older (from the 1985 National Ambulatory Medical Care Survey)

Variable	National Estimates* (N = 511,252,000) Weighted Percent
Age (y)	
16-39	41
40-64	34
65+	25
Sex	
Male	36
Female	64
Race	
White	90
Black	8
Asian/Pacific	1
Native American	1
Physician specialty	
Primary care	46
Psychiatry	3
Gastroenterology	1
Neurology	1
Rheumatology	1
Other specialty	49
Principal diagnosis category	
Psychiatric	4
Nonpsychiatric TCA-responsive	5
Acute	23
Chronic	20
Indeterminant	14
Other	34

*Based on a sample of 60,620 encounters.

NOTE: Percentages may total more than 100% owing to rounding.

TCA-responsive clusters was greater than the percentage of psychiatric visits.

Table 2 demonstrates the rate of TCA prescriptions by specialty for all diagnoses and by diagnosis category. For example, the rate of TCA prescriptions written by primary care physicians for all diagnosis categories was

only 1% of all visits, whereas 24% of all primary care patients with a psychiatric diagnosis as the primary diagnosis for their office visit received a TCA prescription or renewal. The next highest frequency of TCA prescribing by primary care physicians was for the TCA-responsive diagnostic category (3%). The rate of visits during which TCAs were prescribed by primary care physicians was much lower for the acute, chronic, indeterminant, and other diagnostic categories. Similar rates of prescribing TCAs were seen for each of the primary care specialties when they were broken down into family practice, general practice, and internal medicine.

For comparison, the overall rate of TCA prescribing by psychiatrists was 21% of visits, with a rate of 23% for those visits with a clearly psychiatric diagnosis. Evaluation of the TCA-prescribing habits for other specialties is limited by the unstable estimates resulting from small numbers of patient visits to these specialists in this NAMCS sample. The overall rate of TCA prescribing by other medical specialists, however, appears to have been higher than that of primary care specialists. Neurologists had the second highest overall rate of TCA prescribing after psychiatrists, and the highest rate of prescribing TCAs for patients with psychiatric disorders of all the specialties (40%). Gastroenterology and neurology specialists were most likely to prescribe TCA drugs for a patient with a diagnosis in the TCA-responsive category.

Table 3 shows the percentage distribution of visits at which TCAs were prescribed across diagnosis categories for each of the nonpsychiatric specialty groups studied. Half of the TCA prescriptions by primary care physicians were written for documented psychiatric diagnoses, and an additional 15% were for TCA-responsive conditions. When the data are further broken down into the three primary care specialties studied, the numbers are quite similar, with a TCA-prescription rate for psychiatric conditions of 54% for family physicians, 40% for general practitioners, and 52% for internists. The estimates for

Table 2. Percentage of Visits to Five Specialty Groups at Which a Tricyclic Antidepressant Was Prescribed, by Diagnosis Category

Diagnosis Category	Primary Care (n = 232,992)*	Psychiatry (n = 16,038)	Gastroenterology (n = 4,610)	Neurology (n = 4,455)	Rheumatology (n = 4,274)
Psychiatric	24	23	0	40†	0
Nonpsychiatric	3	0	11†	12†	2†
TCA-responsive					
Acute	<1†	0	0	9†	0
Chronic	1	0	0	1†	3†
Indeterminant	<1†	0	1†	3†	0
Other	1	12†	<1†	6†	0
All diagnoses	1	21	2†	7†	1†

*Number of visits in thousands for each specialty.

†Unstable estimate, relative standard error >30%.

Table 3. Percentage of All Visits at Which Tricyclic Antidepressants Were Prescribed by Each of Four Specialty Groups and by Diagnosis Category

Diagnosis Category	Primary Care	Gastroenterology	Neurology	Rheumatology
Psychiatric	50	0	10*	0
Nonpsychiatric	15	86	44*	66*
TCA-responsive				
Acute	5*	0	10*	0
Chronic	11	0	3*	34*
Indeterminant	4*	5*	2*	0
Other	16	8*	31*	0

*Unstable estimates, relative standard error >30%.

NOTE: Total percentages may vary from 100% owing to rounding.

each primary care specialty are unstable for the TCA-responsive diagnostic category; therefore, comparisons between specialties cannot be made. The proportion of TCA prescriptions given to patients with a diagnosis in this category, however, was similar to the overall rate for all three primary care specialties: 17% for family practice, 13% for general practice, and 14% for internal medicine. A smaller proportion of visits to primary care physicians involving TCA prescriptions occurred for acute, chronic, and indeterminant diagnostic categories. Most prescriptions for TCAs made by nonprimary care specialists were for nonpsychiatric TCA-responsive disorders. Not surprisingly, 95% of prescriptions for TCA drugs made by psychiatrists were for psychiatric indications (data not shown).

Table 4 shows the proportion of all nonpsychiatric TCA-responsive diagnoses made by each of the nonpsychiatric specialty groups. The estimates are unstable for most individual specialties, but when the primary care specialties are combined, it is apparent that most patients with peptic ulcer disease, fibrositis, headache, and irritable colon are seen by primary care physicians. Primary care physicians are the medical specialty group that cares for the greatest number of patients with low back pain

and peripheral neuropathy. Only rheumatoid diseases are seen more frequently by a single other specialty group: rheumatologists.

The rate at which physicians prescribe TCAs for each of these diagnosis clusters is shown by specialty in Table 5. For example, primary care physicians treat 7% of patients presenting with headaches with TCAs compared with neurologists, who prescribe TCAs for 20% of patients with headaches. Similarly, gastroenterologists are more likely than primary care physicians to use TCAs for patients with peptic ulcer disease or irritable bowel syndrome. Interestingly, rheumatologists appear to use these drugs for low back pain and rheumatoid pain, but not for fibrositis or fibromyalgia.

Discussion

Estimates of Appropriate Prescribing

In studies by Beardsley et al⁴⁴ and Jencks⁴³ it was pointed out that the discrepancy between psychotropic drug prescribing and mental diagnosis labeling make it difficult to assess the quality of psychiatric care provided by primary

Table 4. Percentage of Office Visits for Each of Seven TCA-Responsive Diagnosis Clusters, by Medical Specialty

Diagnosis Cluster	Primary Care	Gastroenterology	Neurology	Rheumatology	Other Specialties
Low back pain (n = 6,257) [†]	42	<1*	5	2*	50
Peptic disease (n = 5,287)	72	9	<1*	1*	18
Fibrositis (n = 3,087)	72	0	2*	4*	22
Headaches (n = 3,930)	69	1*	11	1*	18
Peripheral neuropathy (n = 2,390)	29	<1*	13	3*	55
Rheumatoid disease (n = 2,926)	39	<1*	0	51	10
Irritable colon (n = 1,748)	66	13*	0	1*	20

*Unstable estimate, relative standard error >30%.

[†]Number of visits in thousands.

TCA—tricyclic antidepressant.

Table 5. Percentage* of Visits for Each TCA-Responsive Diagnosis Cluster at Which Tricyclic Antidepressants Were Prescribed, by Specialty

Diagnosis Cluster	Primary Care	Gastroenterology	Neurology	Rheumatology
Low back pain	2	0	7	13
Peptic disease	<1	8	0	0
Fibrositis	2	†	19	0
Headaches	7	0	20	0
Peripheral neuropathy	3	0	5	0
Rheumatoid disease	<1	0	†	1
Irritable colon	8	22	†	0

*All estimates in this table have relative standard error >30% and are unstable.

†No visits in this category were made.

TCA—tricyclic antidepressant.

care physicians. These authors postulated that the low number of documented psychiatric disorders and the high number of visits at which TCA prescriptions are written might be due to inadequate evaluation of the patients by the physicians, a lack of proper physician training in and vocabulary for describing recognized psychological distress in patients, poor record keeping, or physicians' reluctance to record a mental disorder as the diagnosis.

Our findings suggest an additional source for such discrepancies: a significant portion of the patients receiving TCA prescriptions do not have psychiatric disorders, but do have disorders that may respond to TCA drugs. Furthermore, primary care physicians in this survey appear to have recognized this group of TCA-responsive diagnoses, distinguished them from other nonpsychiatric diagnoses, and prescribed TCAs at a higher rate to patients with a diagnosis in the TCA-responsive group than to those with other nonpsychiatric disorders.

Fifteen percent of all visits to primary care physicians during which TCAs were prescribed (an estimated 431,000 visits per year) were for these TCA-responsive nonpsychiatric disorders. When these are added to the visits for psychiatric disorders, almost 65% of visits to primary care physicians during which a TCA prescription was written had appropriate documentation of a disorder, either psychiatric or nonpsychiatric. Current estimates that only 55% of TCA prescriptions are based on an appropriate diagnosis^{43,44,46} are probably too low, and may reflect the omission of the TCA-responsive nonpsychiatric diagnoses. As discussed below, however, there are limitations to the methods by which these rates are calculated.

Calculation of Rates

The results of this study provide what are probably conservative estimates of the rate of TCA prescribing by primary care physicians for nonpsychiatric disorders. The physician had to have indicated that the prescription was

written for a particular diagnosis for that visit to be counted as a visit during which a TCA was prescribed for that disorder. Some visits in which a TCA was prescribed for a TCA-responsive nonpsychiatric disorder may not have been included in our study because the physician did not indicate this linkage. Nonpsychiatric TCA-responsive disorders are relatively uncommon, and a working knowledge of the usefulness of TCA drugs for their treatment is not widespread. Therefore, an approach that did not rely on the clinician to link the TCA prescription to a diagnosis would potentially have overestimated the rate of TCA prescribing for nonpsychiatric TCA-responsive disorders.

Our method would have been less appropriate for a survey of purely psychiatric disorders, which are more common and more likely to be treated with TCAs. Furthermore, our method has probably resulted in an underestimate of the rate of psychiatric disorders diagnosed in visits at which TCAs were prescribed. Indeed, in a study based on the same 1985 NAMCS sample, Larson et al⁴⁶ describe a 55% rate, as compared with our 50% rate. Larson and his colleagues, however, did not require that the linkage between the diagnosis and prescription be made by the physician.

Limitations of NAMCS Data

The NAMCS has other limitations that must be addressed in interpreting these analyses. This was a survey of office visits and not of individual patients; thus, it overrepresents frequent users. It should, however, provide a good estimate of physician TCA-prescribing habits for the average office visit. It was dependent on the physician having recorded data for each visit, which may not be complete. Jencks⁴³ has made it clear that there is a baseline of nonrecording of appropriate diagnoses for a given prescription of about 4% for penicillin/amoxicillin. Furthermore, he has suggested that the rate of not recording a diagnosis for 15% of digoxin prescriptions and 23% of cimetidine prescriptions found in the 1980

NAMCS may have resulted from the poor reliability of recording chronic disorders seen on repeated visits. This phenomenon might explain a portion of the discrepancy in recording appropriate diagnoses for psychotropic medications, because the disorders included in this study are chronic and recurring.

Despite the large number of visits in the 1985 NAMCS, when these are broken down by specialty, TCA prescriptions, and disease categories, it is difficult to obtain sample sizes adequate to make any statistical comparisons between groups. With this caveat, the NAMCS provides us with the only available national estimates of TCA prescribing for nonpsychiatric disorders.

Comparisons with Other Specialties

Most of the outpatient visits to physicians in the United States by patients with nonpsychiatric TCA-responsive diagnoses are to primary care physicians. Yet, most of the studies describing the use of TCAs for treating patients with these diagnoses are not in the primary care literature and often involve investigations of patients presenting to subspecialty clinics. Primary care physicians might actually prescribe more TCAs for this group of patients if they were more aware of the usefulness of these drugs in these diagnoses.

Data from previous studies of the NAMCS,^{43,46,48} which did not compare primary care with other nonpsychiatric medical specialties, suggest indiscriminate prescribing of TCAs by primary care physicians. In this analysis, when the comparisons with other specialists who have the highest rates of TCA prescriptions (neurologists, gastroenterologists, and rheumatologists) were made, we showed a degree of discrimination between diagnosis categories that is consistent with the other specialties (Table 3). Furthermore, when we compared the rates of TCA prescribing for each diagnosis cluster, we found that the prescribing patterns of primary care physicians parallel those of neurologists for low back pain, fibrositis, headache, and peripheral neuropathy, those of gastroenterologists for irritable colon, and those of rheumatologists for low back pain, even though the overall TCA-prescribing rate of primary care physicians for each diagnosis is lower. These data indicate that primary care physicians use TCA drugs in a manner consistent with other specialties, but at lower rates. The differences between specialties in rates of TCA prescription for patients with these disorders may reflect a lack of knowledge by primary care physicians of the usefulness of TCAs in these disorders, but also may reflect the differences in case mix across specialties. Medical subspecialists may be more likely than the primary care physician to prescribe TCAs because the specialists' patients

with the same disorders are likely to be sicker and to have failed other treatments before being referred to them for treatment.

Need for Further Research in Primary Care

TCA-responsive nonpsychiatric disorders are common in primary care, but the FDA has not approved the use of TCAs for these disorders. Clinical trials of the efficacy of antidepressants in some of these disorders have been conducted: peptic ulcer disease,⁸ migraine,¹³ muscle contraction headache,¹² chronic pain syndromes,^{17,26} low back pain,^{21,23-25} rheumatic pain,²⁷⁻²⁹ fibromyalgia,³⁰ peripheral neuropathies,^{32,33} and irritable bowel syndrome.¹¹ Sufficient research has not been conducted, however, to establish guidelines or criteria for the use of TCAs in these disorders, especially in the primary care setting.

Given the large number of office visits (14,427,000) per year to primary care physicians by patients with nonpsychiatric TCA-responsive disorders, there is a need to develop guidelines that will assist the primary care physician in identifying patients with these disorders who are most likely to benefit from TCA therapy. For example, there may be severity criteria or other characteristics that help the physician determine which patient with a TCA-responsive disorder needs a TCA prescription. Using data from a survey of experts on the use of TCAs in the treatment of depression, Goldberg et al⁵³ provided an excellent model for developing an index of accepted community practice. This method could easily be extended to nonpsychiatric uses of TCAs. Finally, if guidelines are developed, the dissemination should take advantage of what is known about the best techniques for changing the prescribing behaviors of physicians.⁵⁴

Conclusions

This analysis of the National Ambulatory Medical Care Survey differs from previous analyses in that it documents a significant number of tricyclic antidepressant prescriptions by primary care physicians for nonpsychiatric disorders that are responsive to TCAs. Thus, our estimate that 65% of TCA prescriptions in primary care have an appropriate reason documented is higher than estimates by other investigators who considered only the diagnosis of a mental disorder as an appropriate diagnosis for a TCA prescription. An understanding of the reasons for 35% of TCA prescriptions that did not have adequate documentation will require further study and cannot be fully addressed on the basis of the NAMCS

data because of nonrecording of data by the participating physicians, especially for chronic and recurring diseases.

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