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Continuing versus New Antidepressant Use in Older Adults:

US Prescribing Trends from 2006 to 2015

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Abstract

Objectives—Antidepressant use has increased in older adults recently. This study examines the trends of antidepressant prescribing by prescription status (continuing vs. new prescriptions).

Methods—Data were collected from 2006–2015 National Ambulatory Medical Care Survey (NAMCS), a nationally representative sample of office-based outpatient visits. I limited the sample to adults aged 65 or older ($n=10,708$ unweighted). Using a repeated cross-sectional design with survey sampling techniques, prevalence rates of antidepressant prescriptions were estimated by prescription status. Stratified analyses were also performed by key variables (e.g., age, gender, and race/ethnicity).

Results—Continuing antidepressant prescriptions increased over time significantly ($OR=1.07$; 95% CI, 1.03–1.11), and no temporal trend was found in new antidepressant prescriptions. In stratified analyses, the increasing trends of continuing antidepressant prescriptions were pronounced in visits to primary care physicians ($OR=1.06$; 95% CI, 1.01–1.12).

Conclusion—Increasing antidepressant prescribing trends were found in continuing prescriptions. Continued antidepressant prescribing among older adults should be monitored for appropriate use.

Keywords

Antidepressant; older adults; office-based care; prescribing patterns

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INTRODUCTION

Antidepressants are commonly prescribed among older adults for the treatment of depression and other mood disorders.¹⁻³ While there is evidence that antidepressant use in older adults has increased recently from 5.2% in 2002 to 10.1% in 2012,¹ relatively little is known about whether such trends are attributable to continued prescriptions or new prescriptions. If the increasing trend coincided with new antidepressant prescriptions, it may indicate that more older adults are receiving antidepressant medications for their treatment regimens. On the other hand, if continuing prescriptions were a driving factor, the pattern may suggest that older adults receiving antidepressants was due in part to managing their chronic or recurrent clinical conditions. The purpose of this study was to examine the trends of antidepressant prescriptions by prescription status (continuing vs. new) in office-based outpatient visits made by adults ages 65 or older. The study provides a more integrated overview of recent antidepressant prescribing trends in the delivery of mental health care in older adults.

METHODS

I used data from the 2006-2015 National Ambulatory Medical Care Survey (NAMCS). The NAMCS is an annual cross-sectional survey of visits to office-based physicians in outpatient settings, and provides nationally representative information about the provision and/or use of ambulatory medical care services in the United States.⁴ I limited the analyses to patients aged 65 and older (n=10,708 unweighted), who received antidepressant prescriptions in their outpatient visits. The NAMCS collects up to eight prescribed medications in 2006-2010, up to 10 prescribed medications in 2011-2014 and up to 30 prescribed medications in 2015. I only examined the first eight medications for consistency across years. The following six classes of antidepressant medications were considered in this study: tricyclics (TCAs) (i.e., amitriptyline, amoxapine, clomipramine, desipramine, doxepin, imipramine, maprotiline, nortriptyline, protriptyline, and trimipramine), serotonin modulators (i.e., nefazodone, trazodone, vilazodone, and vortioxetine), selective serotonin reuptake inhibitors (SSRIs) (i.e., citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine, and sertraline), monoamine oxidase inhibitors (MAOIs) (i.e., isocarboxazid, phenelzine, tranylcypromine, rasagiline, and selegiline), serotonin and norepinephrine reuptake inhibitors (SNRIs) (i.e., desvenlafaxine, duloxetine, levomilnacipran, venlafaxine, and milnacipran) and miscellaneous (i.e., bupropion and mirtazapine). For each medication, NAMCS asks whether the medication was a continued or new prescription. Using this information, I constructed prescription status variables.

For other key variables, I included clinical diagnoses using the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). The NAMCS collects up to three diagnostic ICD-9-CM codes for each visit, and I constructed three indicator variables: major depressive disorder (MDD) (296.20-296.26 and 296.30-296.36), other psychiatric disorders (290-319, excluding MDD), and FDA-approved indications for psychotropic drugs (i.e., off-label use), which included: seizures (345, 780.31-780.39), insomnia (780.51-780.52, 327.0), migraine and headache (346, 784.0), pain and neuropathy (250.6, 357.2, 337.1, 338, 719.4, 780.96, 729.1, 728.85, 781.0, 053.12, 729.2, 352.1, 350.1), narcolepsy (347), nausea and

vomiting (787.0), and pruritis (698).⁵ Besides these clinical indicator variables, I included patient age (65-74, 75-84, or 85+), gender, race/ethnicity (non-Hispanic whites, non-Hispanic blacks, Hispanics, or other) and physician specialty (primary care, psychiatry, or other).^{6,7}

In the analyses, I estimated prevalence rates of visits in which antidepressants were prescribed from 2006 to 2015. Then, I assessed overall trends across the 10-year period in the proportion of visits in which antidepressants were prescribed using logistic regression models. Survey year was the main predictor variable, and I combined years into 2-year intervals, assigning values ranging from 1 to 5 (1=2006-2007, 2=2008-2009, etc.).⁸ I transformed this variable by subtracting 1 and dividing by 4, resulting in values between 0 and 1. This allowed me to interpret the odds ratio as the change in odds of prescriptions across the 10-year period. Furthermore, I repeated these analyses, stratified by clinical indication, patient age, gender, race/ethnicity, and physician specialty. All analyses were performed in Stata MP/6-Core version 15.1 (College Station, TX),⁹ and accounted for the complex sample design of the NAMCS (e.g., unequal probability of selection, clustering, and stratification). A *p*-value of 0.05 (two-sided) was used for the level of statistical significance in the statistical analyses.

RESULTS

Between 2006 and 2015, 9.8% of all visits made by older adults had antidepressant prescriptions written. Of these visits, 89.0% were continuing antidepressant prescriptions. The proportion of visits in which continued antidepressants were prescribed increased from 15.3% in 2006-2007 to 23.9% in 2014-2015 (OR for overall trends=1.07; 95% CI, 1.03-1.11). For visits in which new antidepressants were prescribed, the rates fluctuated over time and no significant overall trend was found. In stratified analyses, patient age groups, 65-74 and 75-84, both gender groups, and non-Hispanic whites showed increasing trends of visits in which continued antidepressants were prescribed. For instance, among patients aged 65 to 74, visits where continued antidepressants were prescribed increased from 15.5% in 2006-2007 to 26.2% in 2014-2015 (OR for overall trends=1.09; 95% CI, 1.04-1.14). Among physician specialties, an increasing trend of visits with continued antidepressant prescriptions was found in visits to primary care (*p*=0.017). Among visits in which new antidepressants were prescribed, no temporal trend was found.

DISCUSSION

This study highlights two major findings. First, the proportion of visits in which continued antidepressants were prescribed increased significantly over time. This finding is supported by an earlier study, which suggested that the long-term use of antidepressants among the general population increased from 6.5% in 1999-2000 to 10.4% in 2009-2010.¹⁰ Rates reported in this study are higher because I focused on older adults, who tended to report higher prevalence rates of long-term antidepressant use than their younger counterparts in previous studies.^{2,10} Furthermore, the increased prescribing patterns were mostly evident from 2006-2007 to 2008-2009. This pattern may be related to the expansion of Medicare

Part D: Prescription Drug Plans coverage, which was initiated in 2006 and successfully implemented over time.^{11,12}

Second, when stratified, the proportion of visits to primary care, in which continued antidepressants were prescribed, also increased overtime. This is similar to a previous study,¹⁰ which reported that long-term antidepressant prescribing was most prominent in general medical providers rather than among psychiatrists or other non-psychiatrist specialists. This may coincide with the increasing psychotropic prescribing among primary care physicians in the past two decades. While patients who received antidepressant prescriptions from general practitioners tend to have less severe psychiatric symptoms than those seen by psychiatrists,¹⁰ the role of primary care physicians prescribing antidepressants remains critical.

For clinical indications, it is noteworthy to evaluate that antidepressants are commonly used in other psychiatric disorders and in off-label use indications regardless of prescription status. This phenomenon may be justifiable because antidepressants are used for other psychiatric disorders (e.g., anxiety and bipolar disorders) and for other indications, such as insomnia and neuropathic pain. Yet, pharmaco-vigilance at the national level is needed to monitor patient safety, including potential adverse drug events. In particular, as we observed an increasing trend of continuing prescriptions among physicians in other specialties, future research is needed to investigate if a such pattern is due in part to the continued off-label use.

There are several limitations in this study. First, because NAMCS does not collect medications that are *pro re nata* (PRN) status (i.e., prescribed as needed), the reported estimates may have been underestimated. Second, it is possible that a physician might have marked a prescription as new when the same medication had been provided by a different physician. In such case, the data collection and analyses are subject to bias. Third, the NAMCS excludes outpatient visits to hospital-affiliated clinics or emergency departments, which accounted for approximately 8.5% of all outpatient visits, and does not include prescription orders made by phone. Thus, it may not be generalizable to these outpatient care settings. Future research should address this issue to better understand the delivery of pharmaceutical mental health care among older adults in office-based outpatient settings.

Overall, while there was an increasing trend of overall antidepressant prescriptions among older adults in office-based outpatient care,¹ this study suggests that the pattern may be partly attributable to the increasing trend of continued prescriptions rather than new prescriptions. And, the pattern was pronounced particularly in primary care visits than in visits to psychiatrists. While continued antidepressant prescribing may indicate that patients are treated with chronic or recurrent psychiatric or related symptoms, a previous study showed that many patients receiving long-term antidepressants do not actually meet criteria for psychiatric disorders.¹³ Thus, with the expansion of mental health care for older adults (e.g., Medicare Part D coverage for psychotropic prescriptions) and the greater roles of primary care physicians for antidepressant prescribing, it is critical that continued antidepressant prescribing among older adults should be monitored for appropriate use.

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Dr. Rhee conceived the study, and acquired, analyzed, and interpreted the data, led the writing of the manuscript, and oversaw every aspect of the study. Dr. Rhee appreciates initial inputs from Dr. Olfson (Department of Psychiatry, Columbia University College of Physicians and Surgeons). Dr. Rhee also appreciates Dr. Pestka (University of Minnesota College of Pharmacy) for her critical feedback.

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Table 1
U.S. trends (weighted row %) in prescribing continued and new antidepressant medications[†] among older adults in office-based outpatient visits, 2006-2015 NAMCS

	Years (%)					Trend (2006-2015)		
	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015	OR	95% CI	P-value
Continuing prescriptions								
All visits (n=9,655 unweighted)	15.3	20.1	19.8	21.0	23.9	1.07	1.03 - 1.11	<0.001
Clinical indication								
Major depressive disorder	16.2	15.1	21.0	22.9	24.8	0.93	0.76 - 1.15	0.512
Other psychiatric disorders	15.4	20.2	16.5	21.8	26.1	0.93	0.83 - 1.03	0.144
Off-label use	9.7	16.7	19.2	26.1	28.4	1.07	0.94 - 1.22	0.283
Age (years)								
65 - 74	15.5	17.7	19.1	21.5	26.2	1.09	1.04 - 1.14	<0.001
75 - 84	15.0	23.3	20.8	19.9	21.0	1.07	1.02 - 1.12	0.006
85+	15.2	21.4	19.9	21.5	22.0	1.02	0.95 - 1.10	0.538
Gender								
Female	15.2	21.3	18.7	20.8	24.0	1.07	1.03 - 1.12	<0.001
Male	15.3	17.5	22.2	21.4	23.6	1.08	1.02 - 1.14	0.012
Race/ethnicity								
Non-Hispanic White	14.9	20.2	19.9	21.5	23.6	1.09	1.05 - 1.13	<0.001
Non-Hispanic Black	16.1	22.8	14.0	16.9	30.2	1.06	0.93 - 1.19	0.422
Hispanic	16.7	19.1	20.3	19.1	24.8	1.05	0.95 - 1.17	0.348
Other ^{a)}	22.9	14.1	26.8	19.2	17.1	0.85	0.71 - 1.03	0.100
Physician specialty								
Primary care	14.9	22.5	19.9	20.5	22.3	1.06	1.01 - 1.12	0.017
Psychiatry	17.7	13.6	16.0	23.3	29.5	0.93	0.80 - 1.07	0.283
Other ^{b)}	15.3	18.6	20.5	21.0	24.7	1.08	1.02 - 1.13	0.004
New prescriptions								
All visits (n=1,053 unweighted)	20.4	20.7	16.0	17.4	25.4	1.01	0.91 - 1.11	0.900
Clinical indication								
Major depressive disorder	15.1	7.1	24.3	31.6	22.0	1.05	0.78 - 1.42	0.726
Other psychiatric disorders	20.1	15.6	10.6	19.2	34.5	1.00	0.80 - 1.23	0.970
Off-label use	20.8	17.1	14.3	18.2	29.7	0.92	0.73 - 1.16	0.479
Age (years)								
65 - 74	19.0	22.5	16.6	19.2	22.7	0.97	0.87 - 1.08	0.577
75 - 84	20.8	19.4	12.1	15.6	32.1	1.12	0.92 - 1.35	0.250
85+	26.5	17.1	27.3	14.9	14.3	0.83	0.69 - 1.01	0.066
Gender								
Female	18.6	21.5	14.5	17.0	28.2	1.06	0.93 - 1.19	0.411
Male	25.0	18.7	19.3	18.4	18.5	0.90	0.79 - 1.03	0.121
Race/ethnicity								

	Years (%)					Trend (2006-2015)		
	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015	OR	95% CI	P-value
Non-Hispanic White	20.6	22.3	17.9	19.1	20.1	0.96	0.89 - 1.04	0.363
Non-Hispanic Black	23.4	19.6	17.1	9.3	30.6	0.96	0.62 - 1.48	0.851
Hispanic	18.4	11.4	6.7	19.7	43.8	1.30	0.86 - 1.96	0.216
Other ^{a)}	18.2	18.8	7.5	2.1	53.4	1.14	0.59 - 2.17	0.700
Physician specialty								
Primary care	22.5	19.3	14.1	17.2	26.9	1.03	0.90 - 1.17	0.706
Psychiatry	12.5	13.4	18.1	21.5	34.6	1.06	0.86 - 1.31	0.584
Other ^{b)}	18.1	24.8	19.1	17.0	21.0	0.96	0.84 - 1.09	0.521

^{a)} Note: includes Asians, American Indian/Alaska Natives (AIANs), Native Hawaiian or Other Pacific Islanders (NHOPI), or multiple racial/ethnic groups;

^{b)} includes general surgery, obstetrics/gynecology, orthopedic surgery, cardiovascular diseases, dermatology, urology, neurology, ophthalmology, otolaryngology, and others.