Letters

RESEARCH LETTER

Adult Utilization of Psychiatric Drugs and Differences by Sex, Age, and Race

Limited public information is available about the extent of the use of psychiatric drugs among the US adult population. The Substance Abuse and Mental Health Services Administration used the Survey on Drug Use and Health to estimate that 11.5% of adults reported taking prescription medication for "problems with emotions, nerves, or mental health" in 2011.[1(p92)] However, the survey excerpt does not provide information on which specific medications were more commonly used or on estimated duration of use. We sought to characterize adult use of psychiatric drugs in the United States using publicly available, nationally representative data and explore differences by sex, age, and race/ethnicity.

Methods | We used the 2013 Medical Expenditure Panel Survey[2] to calculate percentages of the adult population aged 18 to 85 years using 3 classes of psychiatric drugs: (1) antidepressants; (2) anxiolytics, sedatives, and hypnotics; and (3) antipsychotics. Our psychiatric drug categories followed the survey's Multum Lexicon therapeutic class scheme,[3] except that we included all benzodiazepines as anxiolytics, sedatives, and hypnotics, including those classified as anticonvulsants. Population percentages and 95% CIs were calculated from the survey's multistage probability design, with 357 432 unweighted prescription records from a sample of 37 421 individuals. Long-term use was defined as 3 or more prescriptions filled in 2013 or a prescription started in 2011 or earlier. Logistic regression was used to compute odds ratios (ORs) to investigate differences by subcategories of sex, race/ethnicity, and age. The government survey data were publicly available and deidentified, and therefore institutional review board approval was not required.

Results | Overall, 16.7% (95% CI, 15.9%-17.5%) of 242 million US adults reported filling 1 or more prescriptions for psychiatric drugs in 2013, including 12.0% (95% CI, 11.3%-12.7%) reporting antidepressants; 8.3% (95% CI, 7.7%-8.9%) filling prescriptions for anxiolytics, sedatives, and hypnotics; and 1.6% (95% CI, 1.4%-1.8%) taking antipsychotics. **Table 1** highlights differences by sex, age, and race/ethnicity. Large differences were found in race/ethnicity, with 20.8% of white adults reporting use vs 8.7% of Hispanic adults (OR, 3.1; 95% CI, 2.7-3.5). Rates for blacks and Asian adults were also lower than those for white adults, but not statistically significantly different from Hispanic adults. Use of psychiatric drugs also increased with age with 25.1% of adults aged 60 to 85 years compared with 9.0% of those aged 18 to 39 years (OR, 3.4; 95% CI 3.0-3.9). Women were more likely than men to report taking psychiatric drugs (OR, 2.0; 95% CI, 1.8-2.2). For antipsychotics, there was little variation in exposure by any demographic subgroup. The 10 most frequently used psychiatric drugs are shown in **Table 2**.

Most psychiatric drug use reported by adults was long term, with 84.3% (95% CI, 82.9%-85.7%) having filled 3 or more prescriptions in 2013 or indicating that they had started taking the drug during 2011 or earlier. Differences in long-term use among the 3 drug classes were small. The long-term users filled a mean (SE) of 9.8 (0.19) prescriptions for psychiatric drugs during 2013.

Discussion | These data show 1 of 6 US adults reported taking psychiatric drugs at least once during 2013, but with 2- to 3-fold differences by race/ethnicity, age, and sex. Moreover, use may have been underestimated because prescriptions were self-

Table 1. US Adult Population Exposed to Psychiatric Drugs[a]

Demographic Characteristic	Use of Psychiatric Drug by Class, % (95% CI)			
	Any[b]	Antidepressants	Anxiolytics, Sedatives, and Hypnotics	Antipsychotics
All	16.7 (15.9-17.5)	12.0 (11.3-12.7)	8.3 (7.7-8.9)	1.6 (1.4-1.8)
Sex				
Male	11.9 (11.1-12.7)	7.7 (7.0-8.4)	6.1 (5.4-6.8)	1.5 (1.2-1.8)
Female	21.2 (20.0-22.4)	15.9 (14.8-17.0)	10.3 (9.5-11.1)	1.7 (1.4-2.0)
Age, y				
18-39	9.0 (8.0-10.0)	6.6 (5.8-7.4)	4.0 (3.4-4.6)	1.3 (1.0-1.6)
40-59	18.8 (17.6-20.0)	13.7 (12.7-14.7)	9.2 (8.2-10.2)	2.1 (1.7-2.4)
60-85	25.1 (23.5-26.7)	17.3 (15.8-18.8)	13.2 (11.9-14.5)	1.4 (1.1-1.8)
Race/ethnicity				
White[c]	20.8 (19.8-21.8)	15.0 (14.1-15.9)	10.1 (9.3-10.9)	1.7 (1.4-1.9)
Black	9.7 (8.8-10.6)	6.2 (5.4-7.0)	4.7 (4.1-5.3)	1.9 (1.4-2.4)
Hispanic	8.7 (7.9-9.5)	5.7 (5.0-6.4)	5.0 (4.4-5.6)	1.3 (1.0-1.7)
Asian	4.8 (3.6-6.0)	3.1 (2.1-4.1)	2.3 (1.6-3.0)	0.7 (0.2-1.2)

[a] Includes 40.4 million adults aged 18 to 85 years who reported exposure in the 2013 Medical Expenditure Panel Survey.

[b] Persons may be exposed to multiple psychiatric drug classes.

[c] Includes races/ethnicities designated "other."

Table 2. Persons Reporting Prescriptions for 10 Leading Psychiatric Drugs[a]

Rank	Drug Name (Brand Name)	Mechanism of Action	Reported Use, No. of Persons (in Thousands)	Prescriptions per Person, No.
1	Sertraline hydrochlolride (Zoloft)	SSRI antidepressant	6223	5.8
2	Citalopram hydrobromide (Celexa)	SSRI antidepressant	5403	5.6
3	Alprazolam (Xanax)	Benzodiazepine	5259	4.9
4	Zolpidem tartrate (Ambien)	Hypnotic	4865	5.0
5	Fluoxetine hydrochloride (Prozac)	SSRI antidepressant	4259	5.5
6	Trazodone hydrochloride (Desyrel)	SARI antidepressant	4166	5.6
7	Clonazepam (Klonopin)	Benzodiazepine	3273	6.3
8	Lorazepam (Ativan)	Benzodiazepine	3165	4.9
9	Escitalopram oxalate (Lexapro)	SSRI antidepressant	3065	5.5
10	Duloxetine hydrochloride (Cymbalta)	SNRI antidepressant	2709	5.7

Abbreviations: SARI, serotonin antagonist reputake inhibitor; SNRI, serotonin norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor.

[a] Includes 40.4 million adults aged 18 to 85 years who reported exposure in the 2013 Medical Expenditure Panel Survey.

reported, and our estimates of long-term use were limited to a single survey year.

Among adults reporting taking psychiatric drugs, more than 8 of 10 reported long-term use. Prescribing information for the leading antidepressants includes limited information about appropriate duration of treatment. However, benzodiazepines have warnings about drug dependence, tolerance, withdrawal, and rebound symptoms.[4] In a previous study,[5] we found most patients were long-term users of the hypnotic zopidem tartrate despite recommendations for short-term use, and many were combining it with other central nervous system depressants despite warnings. Safe use of psychiatric drugs could be improved by increasing emphasis on prescribing these agents at the lowest effective dose and systematically reassessing the need for continued use.

Thomas J. Moore, AB
Donald R. Mattison, MD, MS

Author Affiliations: Institute for Safe Medication Practices, Alexandria, Virginia (Moore); Risk Sciences International, Ottawa, Ontario, Canada (Mattison).

Corresponding Author: Thomas J. Moore, AB, Institute for Safe Medication Practices, 101 N Columbus St, Ste 410, Alexandria, VA 22314 (tmoore@ismp.org).

Published Online: December 12, 2016. doi:10.1001/jamainternmed.2016.7507

Author Contributions: Mr Moore had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Study concept and design: Both authors.
Acquisition, analysis, or interpretation of data: Both authors.
Drafting of the manuscript: Moore.
Critical revision of the manuscript for important intellectual content: Mattison.
Statistical analysis: Both authors.

Conflict of Interest Disclosures: None reported.

1. Substance Abuse and Mental Health Services Administration. *Behavioral Health, United States, 2012*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2013.

2. Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey data overview. https://meps.ahrq.gov/mepsweb/data_stats/data_overview.jsp. Published August 26, 2009. Accessed August 2, 2016.

3. Agency for Healthcare Research and Quality. Medical Expenditure Panel Survey MEPS HC-160A: 2013 prescribed medicines. https://meps.ahrq.gov/data_stats/download_data/pufs/h160a/h160adoc.shtml. Published August 2015. Accessed August 2, 2016.

4. Xanax (Alprazolam) [package insert]. New York, NY: Pharmacia & Upjohn Co; 2013.

5. Moore TJ, Furberg CD, Mattison DR, Cohen MR; Institute for Safe Medication Practices. QuarterWatch 2014 Quarter 2: New Safety Perspectives. http://www.ismp.org/QuarterWatch/pdfs/2014Q2.pdf. Published May 6, 2015. Accessed October 2, 2016.