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General exposures to prescription medications by race/ethnicity in a population-based sample: Results from the Boston Area Community Health Survey

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Abstract

Purpose—Few recent U.S. studies have examined population-based patterns in prescription drug use and even fewer have considered detailed patterns by race/ethnicity. In a representative community sample, our objectives were to determine the most commonly-used prescription drug classes, and to describe their use by age, gender, and race/ethnicity.

Methods—Cross-sectional epidemiologic study of 5503 (1767 black, 1877 Hispanic, 1859 white) community-dwelling participants aged 30–79 in the Boston Area Community Health Survey (2002–2005). Using medication information collected from an in-home interview and medication inventory, the prevalence of use of a therapeutic class (95% confidence interval [95% CI]) in the past month was estimated by gender, age group, and race/ethnicity. Estimates were weighted inversely to the probability of sampling for generalizability to Boston, MA.

Results—The therapeutic class containing selective serotonin reuptake inhibitor/serotonin norepinephrine reuptake inhibitor (SSRI/SNRI) antidepressants was most commonly used (14.6%), followed by statins (13.9%), beta-adrenergic blockers (10.6%) and angiotensin-converting enzyme inhibitors (10.5%). Within all age groups and both genders, black participants were substantially less likely than white to use SSRI/SNRI antidepressants (e.g., black men: 6.0% [95% CI: 3.9%–8.1%]; white men: 15.0% [95% CI: 10.2%–19.4%]). Other race/ethnic differences were observed: for example, black women were significantly less likely than other groups to use benzodiazepines (e.g. black: 2.6% [95% CI: 1.2%–3.9%]; Hispanic: 9.4% [95% CI: 5.8%–13.0%]).

Conclusions—Race/ethnic differences in use of prescription therapeutic classes were observed in our community sample. Examining therapeutic classes rather than individual drugs resulted in a different distribution of common exposures compared to other surveys.

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GC, DK, JK, VK, CL, and JM have nothing to declare. SH is a former employee of and former consultant to GlaxoSmithKline but has no equity interest in GlaxoSmithKline. We attest that this manuscript or any part of it is not under consideration for publication elsewhere.

Keywords

pharmacoepidemiology; minority health; prescription drugs

Introduction and objectives

Prescription drug sales have increased rapidly in the U.S. in recent years,^{1, 2} with sales of \$291 billion in 2008.³ Despite this staggering expenditure, there are surprisingly few estimates in the published literature estimating use at the level of the individual, with respect to what drugs are taken and by whom. Recent publications on the prevalence of medication use in community-dwelling persons using population-representative samples have helped fill this information gap.^{4, 5} However, these publications do not present prevalence of use of medications by race and ethnicity, which may be important in monitoring treatment patterns of chronic conditions and the potential for adverse events. For example, classes of antihypertensives used in the U.S. are known to vary by race.⁶

Having collected comprehensive medication information as part of a population-based study of urologic symptoms conducted among community-dwelling men and women (in which minorities were oversampled), we had an opportunity to study drug utilization in a racially and ethnically diverse group of men and women of a broad age range (30–79). Our objectives in this analysis were to describe general exposures to prescription medications in a population-based sample. Specifically, our analysis sought 1) to determine what therapeutic classes were used most often in our sample, and 2) to further describe the distribution by race/ethnicity, age and gender.

Materials and Methods

Study design and data collection

The Boston Area Community Health (BACH) Survey is supported by the U.S. National Institutes of Health (National Institute of Diabetes and Digestive and Kidney Diseases) and is a population-based, epidemiologic cohort study conducted among 5,503 men and women aged 30 to 79 residing in Boston, Massachusetts. A multistage, stratified cluster sampling design was used to recruit approximately equal numbers of persons in pre-specified groups defined according to age (30 to 39, 40 to 49, 50 to 59, 60 to 79), race and ethnic groups (black, Hispanic, white) and gender. This analysis used baseline data collected April 2002 to June 2005 during a two-hour, in-person interview conducted by a trained, bilingual interviewer after acquisition of written informed consent. Interviews for 63.3% of eligible persons at baseline were completed, with a resulting study population of 2301 men and 3202 women comprised of 1767 black participants, 1877 Hispanic participants and 1859 white participants. All protocols and procedures were approved by New England Research Institutes' Institutional Review Board. Further details of the study design and procedures are available.⁷

Medications

Use of prescription, over-the-counter and supplements and alternative medications were captured using both self-report and direct observation/recording of medication labels by the interviewer. In the first process, participants were asked as part of the interview if they had taken any prescription drugs in the last 4 weeks for 14 indications. An example is, "In the last four weeks, have you been taking any medications for cholesterol or fats in your blood?" with an accompanying list of brand-name examples of relevant drugs. In the second process, participants were asked to gather containers for all medications used in the past 4

weeks. Medication labels and/or responses were corrected for spelling errors and coded using the Slone Drug Dictionary,⁸ which links medications to their components and classifies them using a modification of the American Hospital Formulary Service Drug Pharmacologic Therapeutic Classification System.⁹ In-home drug inventory collection methods have been found to correspond well with external pharmacy records,¹⁰ and self-reported drug exposures are more accurately recalled with a prompt by indication.¹¹ Because our objective was to identify broad patterns of prescription medication use rather than use of individual drugs of interest, we considered drug use by therapeutic class, with each exposure to a unique class counted once. We then identified the twenty-five most commonly-used medication classes by estimating prevalence of every class across the entire sample, and provided detailed prevalence estimates by race, gender and age for the 15 most commonly-used medication classes among both genders (16 are displayed in some tables as one of the top classes was only used by women).

Covariates

Race/ethnic groups were self-identified and classified using the Office of Management and Budget categories and were considered in order to measure health disparities.¹² We examined two measures related to poverty and social class. A socioeconomic status (SES) variable was constructed as a function of standardized income and education variables for the Northeastern U.S. and reclassified into low, middle and high.¹³ Based on an approximation of the 2003 U.S. Census poverty thresholds,¹⁴ poverty status was estimated using household size and income thresholds as follows: household sizes of: 1–2 persons with incomes of <\$10,000 annually; 3–6 with incomes of <\$20,000 annually; 7–8 earning <\$30,000 annually, and household sizes of 9–11 earning <\$40,000 were defined as living in poverty; households of the same size earning more were defined as not impoverished. Depressive symptoms were considered present among participants with at least five of eight symptoms on the abridged Center for Epidemiologic Studies Depression Scale.¹⁵ Other comorbidities were based on the query, “Have you ever been told by a health care provider that you have or had...?” Body mass index (BMI) was calculated from interviewer-measured weight and height (normal <25, overweight 25–29.9, and obese >30 kg/m²). Self-reported health status was measured using the Medical Outcomes Study 12-item Short Form Survey (SF-12); participants reporting “fair” or “poor” health (combined) were compared with those rating their health “good”/“very good”/“excellent” (combined).¹⁶

Statistical analysis and subpopulations

Due to the sampling design, all prevalence estimates were weighted inversely proportional to the probability of being selected. Analyses were conducted using 9.0.1 of SUDAAN.^{17, 18} Missing data were replaced by plausible values using multiple imputation;¹⁹ less than 1% of data were missing for most variables. For income, 3%, 4% and 11% were missing for white, black and Hispanic subjects, respectively. Medication variables were not imputed. To test differences in stratified analyses in Tables 1 and 3–4, a chi-square test was performed for categorical covariates and a Wald-type F test from linear regression for continuous variables. Age-standardization of prevalence estimates in Table 2 was performed using the mean study population age (48.4 y), and 95% confidence intervals (95% CI) were estimated. Age-specific prevalence estimates were also calculated.

Results

The mean age of our sample was 48.4, with Hispanic participants younger compared to black and white participants (Table 1). Minorities (black and Hispanic) were much more likely to be impoverished compared to whites; 35.3% of Hispanic men and 55.6% of Hispanic women were impoverished, as were 26.8% of black men and 35.0% of black

women compared to 8.6% and 14.1% of white men and women, respectively. The distribution of SES followed a similar pattern. We observed the highest prevalence of having no health insurance among Hispanic men (30.8%), followed by Hispanic women (19.3%). Black participants had the highest levels of hypertension and coronary heart disease (CHD) or CHD risk equivalent, while Hispanics and whites were similar to each other on these variables. Black participants were the most likely of the three groups to have BMI in the obese range (38.8% men; 53.4% women), while Hispanic participants were the most likely to self-report fair or poor health (30.1% men; 37.4% women). The prevalence of depressive symptoms was higher among women than men, and was much higher among minority women compared to white women. Over a third (36.2%) of Hispanic women and nearly a quarter (24.8%) of black women reported depressive symptoms.

Figure 1 presents the most commonly-used prescription drug classes by prevalence in the BACH sample. Twenty-five therapeutic classes were used by at least ~2% of our study population. Nine of the 25 classes were antihypertensive or cardiovascular medications (including statins) while four were psychiatric medications, three were for diabetes, two were for pain, and seven were for a variety of other indications. Only four therapeutic classes were used by more than 10% of participants. The most commonly-used class in our study population was the antidepressant class containing selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, and other antidepressants (e.g. bupropion, trazadone, and nefazodone but excluding tetracyclic, tricyclic or MAO inhibitor-type antidepressants, hereinafter: SSRI/SNRI/Misc), used by 14.6% of our population. These were followed closely in prevalence by statins (13.9%), beta-blockers (10.6%) and angiotensin-converting enzyme (ACE) inhibitors (10.5%). Thiazide diuretics and calcium channel blockers were the next most commonly-used antihypertensives (7.8% and 6.2%, respectively). Synthetic corticosteroids (including inhaled and intranasal steroids) and proton pump inhibitors were used by approximately 8%. The broad class of estrogens (including ethinyl estradiol and conjugated estrogens) was used by 5.4% of the BACH sample (among women, the prevalence was 10.4%). Medications for pain (narcotic analgesics and prescription NSAIDs) were used by 5.6% and 4.0% of our study population, while benzodiazepines were also commonly used (5.6%). Biguanide, sulfonylurea and insulin for diabetes were used by 4.3%, 3.5% and 2.7%, respectively, while ~2.5% of our study population took atypical antipsychotics and tricyclic antidepressants.

Table 2 presents age-adjusted prevalence estimates and 95% CIs for the top 15 medications (16 among women) stratified by race/ethnicity, and gender. There were significant race/ethnic differences in the use of SSRI/SNRI/Misc. antidepressants, with differences especially marked comparing black to white men (black: 6.0%, 95% CI: 3.9%–8.1%; white 15.0%, 95% CI: 10.5%–19.4%) and black to white women (black: 10.3%, 95% CI: 7.8%–12.8%), white: 21.0%, 95% CI: 17.4%–24.6%), while Hispanic men and women had intermediate prevalence. Among men, use of ACE inhibitors, thiazide diuretics, and calcium channel blockers was highest among black participants, with intermediate prevalence among Hispanics and the lowest among whites. Alternatively, for statins and beta-adrenergic blockers, use was highest among white and Hispanic men, respectively. NSAID use including COX-2 inhibitors was lowest among black men. Considering women, ACE inhibitors, thiazide diuretics and calcium channel blockers showed a substantially greater prevalence of use among black compared to white women (with Hispanics intermediate), while statin use was not very different across race/ethnic groups. There was a lower prevalence of use of corticosteroids among Hispanic women, while Hispanic women were most likely of the three groups to use proton pump inhibitors, benzodiazepines, biguanide, and NSAIDs. There was a marked race/ethnic difference in use of benzodiazepines, with use by black women significantly lower 2.6%, 95% CI: 1.2%–3.9%) compared to both Hispanic

(9.4%, 95% CI: 5.8%–13.0%) and white women (8.6%, 95% CI: 6.3%–11.0%). Finally, white women were significantly more likely than either minority group to take estrogens.

Tables 3 and 4 present prevalence estimates stratified by race/ethnicity and age group among men and women. Among men, statins were the most widely-used medication class; nearly 40% of white men aged 65 and older used a statin (Table 3). The prevalence of use of cardiovascular/antihypertensive drugs was markedly higher among men 65 and older compared to younger groups, and this was observed for all race/ethnic groups. Use of SSRI/SNRI/Misc. antidepressants among men was consistently highest among white participants across age groups, while for those under age 65, black men had generally the highest use of cardiovascular medications (except for statins and beta blockers). Black/white differences were especially marked for thiazide diuretics among those 45–64 and calcium channel blockers and thyroid medications among those 65 and older. Hispanic men had highest use of NSAIDs in all age groups except <45.

Among women, overall use of SSRI/SNRI/Misc. antidepressants was higher than men; 25% of white women aged 45–64 were users, and in all age groups, white women had significantly higher use than minority women (Table 4). Hispanics were closer to black women than white in prevalence of use. As with men, we observed the prevalence of use of cardiovascular/antihypertensive drugs increased greatly for all race/ethnic groups comparing those 65 and older to younger ages. There was a general pattern of black women having the highest use of various antihypertensives in most age groups; race/ethnic differences were especially pronounced for black vs. white comparisons in use of calcium channel blockers in both older age groups, and thiazide diuretics at ages 45–64. There was a substantially lower prevalence of use of benzodiazepines among black women compared to women of other race/ethnic groups across all ages. The use of estrogens among white women was markedly higher than minorities in the age groups <65, while thyroid medication use was highest among white women of at every age. As with men, the use of prescription NSAIDs was highest among Hispanic women in the two older age groups.

Discussion

In our population-based study of a community-dwelling population representative of Boston, MA, we estimated the prevalence of use of prescription drugs considering commonly-used therapeutic classes, stratified by race/ethnicity and age group, in order to fill a gap in the descriptive literature. The most common drug classes in the BACH sample were SSRI/SNRI/Misc. antidepressants, followed by statins, beta adrenergic blockers, ACE inhibitors, and synthetic corticosteroids. The use of medication classes in a population-based study is of scientific interest to understand broad exposures by race/ethnicity that could be used to understand future or current patterns in disease outcomes or adverse events. For example, that black women have a lower uptake of estrogen-containing hormone therapy has been put forth as a theoretical explanation for the observation that breast cancer incidence rates are not currently falling as rapidly among blacks compared to whites.^{20, 21} Our work confirms that white women were most likely of the three groups to use estrogen-containing products, and provides additional data for Hispanic women.

Comparisons with prior studies are complicated by different time windows of drug exposure, individual drugs vs. therapeutic classes, and different years of data collection compared to our survey (2002–2005). The National Social Life, Health and Aging Project (NSHAP) estimated the prevalence of daily or weekly use of specific medications among those aged 57–84 years. However, thirteen of the 18 most popular prescription medications in NSHAP were also found in the 20 most popular classes in BACH, but no antidepressants, antipsychotics or benzodiazepines appeared among the top 20 medications in NSHAP.⁵ A

potential explanation is that ten antidepressants are included in our SSRI/SNRI/Misc. class and when this broad category was created, the prevalence of use increases dramatically compared to use of an individual drug. The Slone Survey is a population-based telephone survey of medication use conducted annually 2004–2006 but used a 7-day reference period, had a sample of younger median age, and reported specific medications. Still, we note similarities. In the 2004 and 2005 Slone Surveys, 17 and 16 of the top 20 prescription drugs used by adults, respectively, were members of classes that were among the 20 most common in BACH.²² Antidepressants (SSRIs) did not appear in the top 20 prescription drugs reported by Slone until later years of their survey (2005–2006), however.^{23, 24} There may be reporting differences considering self-report of antidepressants by telephone (Slone) vs. interviewer-recording of container labels (NSHAP) and BACH, which used a combination of both methods.

Compared to NHANES (1999–2002), our SSRIs/SNRIs/Misc. prevalence (14.6%) was higher. In NHANES, overall prevalence of use in the past month in this nationally representative sample was 8.1%, considering all types of antidepressants.²⁵ However, our race and gender patterns (approximately twice the use in whites vs. black participants and higher use among women vs. men) were similar to NHANES. In comparing our results to analyses that have considered therapeutic classes, we note four of the five top therapeutic classes in BACH are contained in the top five classes compiled in national figures on the overall number of dispensed prescriptions in the U.S. (where the rank order in 2004 was antidepressants, lipid regulators, codeine, ACE inhibitors, and beta blockers).²⁶

As the prevalence of depressive symptoms was highest among minorities compared to whites in our study, the race/ethnic difference we observed suggests a depression treatment disparity, consistent with past research on this topic,²⁷ or race/ethnic differences in treatment preferences as documented in other studies.^{28, 29} Our findings that black participants were more likely to use thiazide diuretics are similar to those of the Medical Expenditure Panel Survey for 2003, in which non-Hispanic blacks were more likely than any other race/ethnicity group to use diuretics (considering any type).³⁰ The observed black/white disparity for diuretics and calcium channel blockers may reflect the influence of the ALLHAT trial results on preferred prescribing of these classes for black populations.³¹ Finally, we noted that the decreased prevalence of use of benzodiazepines among blacks vs. whites were similar to findings in the 2002 Medicare Beneficiaries Survey, although the magnitude of difference noted in our study was greater.³²

Strengths of our study include the comprehensive collection of medication exposures, race/ethnic and socioeconomic diversity of our study population, and a broad age range. Because our study was set in the community and not based in medical care, we had the ability to capture those outside the health care system giving a truer picture of population-based exposure patterns. The generalizability of the BACH study population to the U.S. population is known. Medicare coverage and health insurance coverage in BACH were similar to the National Health and Nutrition Examination Survey, National Health Interview Survey and Behavioral Risk Factor Surveillance Survey, as were the distributions of common co-morbidities (except asthma, more common in BACH).^{7, 33} Unique results emerged when we considered drugs by therapeutic class. For example, because there were ten SSRI/SNRI/Misc. antidepressants contained in our therapeutic class, estimating their individual prevalence would have missed the broad pattern of use. The longitudinal design of the BACH Survey will allow for future comparisons of changes in drug use over time when the second wave of data collection (2008–2010) is complete. The time periods of data collection in our study will allow comparison of medication use before and after the implementation of mandatory health insurance in Massachusetts on July 1, 2007.³⁴ There are also limitations to our study. A study of medication use in a single urban area reflects local characteristics in

medical care, and specific prescribing practices within Boston medical care may not be generalizable, although we noted health insurance coverage at baseline was similar to estimates from national surveys. Our study contained only those race/ethnic minorities present in Boston. We had missing data on income affecting some of our socioeconomic measures and considered health insurance status but did not specifically know the proportion of our sample with prescription drug coverage. However, our 'trouble paying for health care, medications' variable suggested minorities were most likely to struggle to pay for medications.

Our results give new estimates by race/ethnicity for commonly-used therapeutic medication classes in a population-based sample not set in medical care. Our study may be useful in the future in understanding broad therapeutic exposures by age and race/ethnicity and the potential for adverse events across diverse populations in the U.S.

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Key points

1. The prevalence of broad exposures to prescription drug classes in populations not set in medical care is of scientific interest and provides a 'real world' picture of drug use.
2. We estimated the prevalence of the most popular prescription drug classes in a diverse population representative of Boston MA, with further aims to describe use of classes by race/ethnicity, gender, and age.
3. We found antidepressants (including SSRI/SNRI and other antidepressants), statins, and beta-blockers, respectively, were most commonly-used in our population, with race/ethnic differences present for antidepressants (black participants had lower prevalence of use than white).
4. The use of drug classes rather than individual drugs revealed unique findings compared to other drug use surveys.

Figure 1.

Top 25 prescription medication classes used in past 4 weeks, by weighted prevalence of use, among men and women in the Boston Area Community Health Survey, 2002–2005, N=5503.

*SSRI/SNRI/Miscellaneous antidepressant class includes selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, and other antidepressants (e.g. bupropion, trazadone, and nefazodone but excluding tetracyclic, tricyclic or MAO inhibitor–type antidepressants).

†In the BACH sample, there were no men using drugs in the estrogen or progestin (gonane type) class. The weighted prevalence of use of the estrogen class (which included conjugated estrogens and ethinyl estradiol) among women was 10.4%, use of progestins (gonane type) among women was 3.9%.

‡Miscellaneous anticonvulsants included primidone, carbamazepine, divalproex, gabapentin, topiramate, tiagabine, oxcarbazepine, levetiracetam.

TABLE 1

Study sample demographic, socioeconomic, and medical characteristics by sex and race/ethnicity group among participants in the Boston Area Community Health Survey (N=5,503).

Variable	Mean (Standard Error) or Percent*					
	Overall (N=5503)	Men (N=2666)		Women (N=2837)		
		Black (N=700)	Hispanic (N=766)	White (N=835)	Black (N=1067)	Hispanic (N=1111)
		White (N=1024)				
Mean age ^{††}	48.4 (0.4)	47.7 (0.7)	44.2 (0.5)	48.3 (0.7)	48.3 (0.6)	45.3 (0.7)
Living in poverty ^{§††}	21.5	26.8	35.3	8.6	35.0	55.6
Socioeconomic Status ^{††}						
Low	27.7	37.3	58.7	11.8	44.1	63.3
Middle	47.1	52.8	30.2	51.6	46.8	30.9
High	25.2	9.9	11.1	36.6	9.1	5.8
Health insurance ^{††}						
Private	64.1	56.3	42.9	76.7	47.1	29.4
Public only	24.0	27.3	26.3	12.6	44.1	51.3
None	11.9	16.3	30.8	10.7	8.8	19.3
Reporting trouble paying for health care, medications ^{††}	17.7	24.0	21.1	13.1	24.0	21.6
Hypertension ^{††}	27.3	36.0	25.2	22.4	36.6	24.6
Coronary heart disease or risk equivalent ^{†††}	17.2	23.4	14.6	16.0	20.9	15.0
High cholesterol	28.4	27.3	30.6	28.4	27.4	24.3
Depressive symptoms [†]	17.2	16.6	16.9	12.3	24.8	36.2
Body mass index ^{††}						
<25	30.1	27.4	26.4	26.3	18.7	24.4
25–29.9	34.4	33.8	42.0	43.3	27.9	32.5
30+	35.5	38.8	31.6	30.4	53.4	43.1

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Variable	Mean (Standard Error) or Percent *						
	Overall	Men			Women		
		Black (N=700)	Hispanic (N=766)	White (N=835)	Black (N=1067)	Hispanic (N=1111)	White (N=1024)
Poor/fair self-reported health ^{††}	16.5	18.5	30.1	10.4	22.1	37.4	11.0

* Estimates weighted inversely to the probability of selection. Percents shown are column percents.

‡ Overall p<0.05 for race comparison among men.

§ Overall p<0.05 for race comparison among women.

¶ Based on an approximation of the 2003 U.S. Census poverty thresholds: household sizes of 1–2 persons with household incomes of <\$10,000 annually, household sizes of 3–6 with household incomes of <\$20,000 annually, household sizes of 7–8 making <\$30,000 annually, and household sizes of 9–11 making <\$40,000 annually were defined as living in poverty. Data were missing for 16 participants.

¶ Self-report of healthcare provider diagnosis of any of the following: myocardial infarction, angina, intermittent claudication, aortic aneurysm, stroke, transient ischemic attack, or type II diabetes, or a history of coronary artery bypass or graft surgery. Data were missing for five participants.

TABLE 2

Prescription medication classes by overall prevalence of use (top 16), and age-adjusted prevalence (95% confidence interval) by sex and race/ethnicity in the Boston Area Community Health Survey (N=5,503).

% Prevalence * (95% Confidence Interval)							
	Overall	Men			Women		
Medication class	N=5503	Black (N =700)	Hispanic (N = 766)	White (N = 835)	Black (N = 1067)	Hispanic (N = 1111)	White (N = 1024)
SSRI/SNRI/Misc. Antidepressants †	14.6 (12.9, 16.4)	6.0 (3.9, 8.1)	8.0 (5.2, 10.8)	15.0 (10.5, 19.4)	10.3 (7.8, 12.8)	14.1 (10.1, 18.1)	21.0 (17.4, 24.6)
Statins	13.9 (12.4, 15.6)	7.9 (5.4, 10.4)	8.0 (5.7, 10.2)	11.8 (8.9, 14.7)	9.7 (7.5, 12.0)	6.7 (4.6, 8.8)	8.8 (6.5, 11.1)
Beta-adrenergic blockers	10.6 (9.4, 11.8)	7.5 (5.0, 9.9)	9.3 (6.1, 12.4)	5.2 (3.4, 7.0)	9.2 (6.6, 11.7)	6.9 (5.0, 8.7)	6.1 (4.3, 8.0)
ACE inhibitors	10.5 (9.3, 11.8)	10.5 (7.6, 13.4)	8.2 (5.4, 10.9)	6.5 (4.5, 8.6)	9.2 (7.2, 11.2)	8.9 (6.5, 11.4)	4.4 (3.0, 5.7)
Synthetic corticosteroids	8.5 (7.4, 9.7)	5.3 (3.5, 7.2)	4.6 (2.5, 6.7)	5.6 (3.8, 7.5)	11.7 (8.5, 14.9)	6.1 (4.2, 8.0)	10.9 (8.4, 13.4)
Proton pump inhibitors	8.3 (7.2, 9.7)	6.6 (4.4, 8.9)	6.3 (3.8, 8.8)	6.7 (3.7, 9.7)	8.9 (6.8, 11.0)	11.3 (7.7, 14.9)	6.6 (4.8, 8.4)
Thiazide diuretics	7.8 (6.8, 8.8)	8.7 (5.6, 11.8)	3.8 (2.2, 5.3)	2.3 (1.4, 3.1)	13.7 (10.4, 17.0)	7.5 (5.4, 9.6)	4.6 (3.3, 6.0)
B-receptor stimulant bronchodilators	6.3 (5.3, 7.3)	5.5 (3.4, 7.6)	4.0 (2.0, 6.1)	4.5 (2.2, 6.8)	8.6 (5.9, 11.2)	5.5 (3.8, 7.2)	7.2 (5.3, 9.1)
Calcium channel blockers	6.2 (5.4, 7.2)	6.8 (4.2, 9.3)	3.7 (2.3, 5.1)	2.4 (1.3, 3.5)	7.6 (5.5, 9.7)	5.4 (3.3, 7.6)	3.2 (1.8, 4.6)
Benzodiazepines	5.6 (4.6, 6.8)	2.4 (0.8, 4.0)	3.0 (1.6, 4.5)	4.1 (2.3, 6.0)	2.6 (1.2, 3.9)	9.4 (5.8, 13.0)	8.6 (6.3, 11.0)
Narcotic analgesics	5.6 (4.7, 6.8)	5.9 (3.6, 8.2)	4.6 (2.3, 7.0)	3.6 (1.1, 6.1)	7.1 (5.0, 9.2)	4.7 (3.0, 6.3)	6.5 (4.3, 8.7)
Estrogens ‡	5.4 (4.6, 6.4)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	5.9 (3.8, 8.0)	5.2 (3.2, 7.1)	13.8 (10.8, 16.8)
Thyroid agents	4.7 (3.9, 5.6)	1.0 (0.6, 1.9)	0.6 (0.0, 1.3)	1.9 (0.5, 3.2)	4.1 (2.2, 6.0)	5.3 (3.4, 7.2)	7.9 (5.5, 10.2)
Biguanide	4.3 (3.6, 5.2)	4.4 (2.4, 6.3)	5.0 (3.1, 7.0)	2.3 (1.2, 3.4)	4.9 (3.3, 6.5)	7.4 (4.5, 10.4)	2.6 (1.0, 4.3)

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% Prevalence * (95% Confidence Interval)						
Overall		Men		Women		
Medication class	N=5503	Black (N = 700)	Hispanic (N = 766)	White (N = 835)	Black (N = 1067)	Hispanic (N = 1111)
						White (N = 1024)
Misc. anticonvulsants [§]	4.0 (3.3, 5.0)	2.7 (1.2, 4.2)	2.0 (0.9, 3.1)	4.6 (2.8, 6.3)	4.9 (2.8, 7.1)	1.4 (0.6, 2.3)
NSAID including COX-2 inhibitors	4.0 (3.2, 5.1)	1.6 (0.7, 2.6)	4.0 (1.6, 6.3)	4.0 (1.1, 6.9)	2.9 (1.9, 4.0)	6.3 (4.3, 8.4)

* Estimates weighted inversely to the probability of selection and age-adjusted within gender.

[†] Includes selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, bupropion, trazadone, and nefazodone but excludes tetracyclic, tricyclic and MAO-type antidepressants.

[‡] The prevalence of estrogen use among women overall was 10.4% (8.7, 12.4). This class includes conjugated estrogens and ethinyl estradiol.

[§] Miscellaneous anticonvulsants included primidone, carbamazepine, divalproex, gabapentin, topiramate, tiagabine, oxcarbazepine, levetiracetam.

TABLE 3

Prevalence (%) of use of prescription medication classes by age group and race/ethnicity among male participants in the Boston Area Community Health Survey (N = 2,301).

Medication class	Overall	Aged <45				Men 45–64				65+			
		Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White
N	2,301	273	381	312	335	307	371	92	78	152			
SSRI/SNRI/Misc. Antidepressants [†]	11.9	5.2	5.1	14.1	6.5	13.9	17.1 [‡]	8.3	5.4	13.6			
Statins	14.2	2.6	2.7	5.0	15.5	15.3	23.1	31.0	29.7	39.9			
Beta-adrenergic blockers	10.2	3.2	2.5	1.7	13.5	16.6	11.3	41.5	50.5	31.5			
ACE inhibitors	11.8	4.3	3.8	1.4	19.2	14.8	13.9	44.5	29.3	36.4			
Synthetic corticosteroids	5.7	2.8	2.2	4.2	5.9	8.7	8.4	17.4	4.8	6.9			
Proton pump inhibitors	7.5	3.9	4.6	5.6	9.9	6.4	6.4	13.7	18.1	18.5			
Thiazide diuretics	5.4	3.1	1.8	0.4	16.2	5.0	4.4 [‡]	25.2	18.2	11.0			
Beta-receptor stimulant bronchodilators	4.8	2.6	3.1	4.7	6.4	5.4	4.4	16.5	4.3	5.3 [‡]			
Calcium channel blockers	5.8	3.5	0.6	0.4	10.8	7.3	6.1	36.0	23.7	13.7 [‡]			
Benzodiazepines	3.7	1.3	1.1	3.3	2.8	6.3	6.8	6.8	4.5	2.0			
Narcotic analgesics	4.5	3.1	3.2	3.6	7.7	7.3	3.2 [‡]	13.5	3.2	6.1			
Thyroid agents	2.0	0.0	0.2	1.1	2.7	1.6	2.3	1.7	0.5	8.2 [‡]			
Biguanide	4.0	2.0	1.1	0.4	9.0	13.0	6.1	7.4	5.2	5.7			
Misc. anticonvulsants [§]	4.0	2.4	1.7	3.9	2.8	2.3	5.5	4.9	1.6	6.5			
NSAIDs including COX-2 inhibitors	3.4	0.8	0.7	4.7	1.9	8.9	3.0	4.6	9.4	4.5			

* Estimates weighted inversely to the probability of selection. Percents shown are column percents.

[†] Includes selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, bupropion, trazadone, and nefazodone but excludes tetracyclic, tricyclic and MAO-type antidepressants.

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[‡]Overall $p<0.05$ for race/ethnic difference within age group.

[§]Miscellaneous anticonvulsants included primidone, carbamazepine, divalproex, gabapentin, topiramate, tiagabine, oxcarbazepine, levetiracetam.

TABLE 4

Prevalence (%) of use of prescription medication classes by age group and race/ethnicity among female participants in the Boston Area Community Health Survey (N=3202).

Medication class	Overall	Aged <45				Women 45-64				65+		
		Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic	White	Black	Hispanic
N	3,202	407	515	306	473	477	502	187	119	216		
SSRI/SNRI/Misc. Antidepressants [†]	17.1	7.5	12.6	18.4 [‡]	14.4	16.6	25.0 [‡]	7.2	10.3	20.8 [‡]		
Statins	13.7	0.8	0.7	1.2	21.1	16.0	20.9	34.6	25.8	34.5		
Beta-adrenergic blockers	10.9	2.6	1.0	1.8	15.5	16.1	12.6	37.8	23.0	27.5		
ACE inhibitors	9.3	1.1	1.9	0.9	18.9	17.7	9.7 [‡]	29.6	30.9	18.9		
Synthetic corticosteroids	11.0	7.9	4.1	6.1	16.2	7.4	15.9 [‡]	12.5	10.8	15.8		
Proton pump inhibitors	9.1	2.7	5.5	2.8	14.5	19.4	12.9	20.0	15.4	11.2		
Thiazide diuretics	9.9	4.0	2.7	1.4	25.1	13.8	6.8 [‡]	29.6	19.7	20.8		
Beta-receptor stimulant bronchodilators	7.6	6.8	3.4	3.9	11.0	8.5	11.0	7.5	6.8	8.8		
Calcium channel blockers	6.6	2.7	0.9	1.7	11.2	10.8	5.2 [‡]	29.2	20.2	13.0 [‡]		
Benzodiazepines	7.3	1.4	6.4	5.4 [‡]	4.4	12.2	11.7 [‡]	1.6	14.0	13.7 [‡]		
Narcotic analgesics	6.7	2.1	3.0	6.2	11.7	7.5	7.7	10.6	3.2	7.1		
Estrogens [§]	10.4	5.8	6.3	16.5 [‡]	6.5	3.8	15.0 [‡]	5.8	6.9	5.5		
Thyroid agents	7.1	2.7	3.0	3.9	4.2	6.8	11.7 [‡]	10.9	12.4	15.2		
Biguanide	4.6	0.4	3.6	2.1	9.7	12.4	3.6 [‡]	10.9	13.2	6.2		
Misc. anticonvulsants [§]	4.1	4.8	0.9	5.7 [‡]	5.6	2.9	3.1	3.3	0.5	3.7		
NSAIDs including COX-2 inhibitors	4.5	0.7	2.3	2.0	2.8	9.0	6.1 [‡]	15.9	22.5	7.6		

* Estimates weighted inversely to the probability of selection. Percents shown are column percents.

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⁷Includes selective serotonin reuptake inhibitors, serotonin norepinephrine reuptake inhibitors, bupropion, trazadone, and nefazodone but excludes tetracyclic, tricyclic and MAO-type antidepressants.

[‡]Overall $p < 0.05$ for race/ethnic difference within age group.

[§]Miscellaneous anticonvulsants included primidone, carbamazepine, divalproex, gabapentin, topiramate, tiagabine, oxcarbazepine, levetiracetam.