

Overactive Bladder in the United States Long-Term Care Setting Is Associated With Significant Burden and Increased Healthcare Resource Utilization and Costs: A Retrospective Database Study

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OBJECTIVES

- An estimated 30 million Americans aged ≥40 years are affected by bothersome symptoms of overactive bladder (OAB)¹
- In a real-world analysis of Medicare patients, patients with OAB tended to be older (79 vs 77 years), were more likely to be female (71% vs 62%), and reported higher rates of functional impairment in activities of daily living and physical functioning limitations compared with patients without OAB²
- The prevalence of OAB and/or urinary incontinence (UI) in long-term residents of nursing homes ≥65 years of age exceeds 70%³
 - Among nursing home residents treated for OAB alone or OAB and UI, approximately 78% received anticholinergic treatment⁴
 - Many of these patients also had concomitant moderate or severe cognitive impairment and/or severe mobility impairment (79%)⁴
- The overall objective of this study was to compare healthcare resource utilization (HCRU) and costs for patients with and without OAB in the long-term care (LTC) setting in the United States

METHODS

- A retrospective cohort analysis was conducted using claims from IQVIA's LTC pharmacy data linked to IQVIA's Integrated Data Warehouse from the time period of May 1, 2012 to May 31, 2019
 - The Integrated Data Warehouse includes professional fee claims, prescription claims, and a hospital charge data master
- **OAB vs non-OAB cohort matching:** Adult patients with ≥2 non-same day OAB or UI medication prescriptions in the LTC database were propensity score matched to patients without an OAB medication in LTC
 - Other inclusion criteria were:
 - Continuous eligibility for ≥12 months immediately preceding the index date and ≥12 months immediately following the index date
 - As a proxy for continuous eligibility, patients were required to have ≥1 diagnosis claim and ≥1 prescription claim or ≥1 LTC claim during the pre- and post-index periods
 - Patients in both cohorts were linked to the LTC, diagnosis, and prescription databases and further pared down based on type of claims, pharmacy stability (defined as consistent reporting of data from the most frequent pharmacy visited by the patient and ≥80% coverage rate for each month in the 12-month pre- and post-index periods), age (≥18 years included), and data quality
- **OAB treated vs OAB untreated cohorts:** Patients were divided into treated (receiving ≥1 prescription for an OAB medication) and untreated (patients with an OAB diagnosis and no prescriptions for OAB medications) cohorts
- Differences in baseline demographic and clinical characteristics used for propensity score matching were examined using standardized differences
 - Significance was demonstrated by standardized mean difference (SMD) ≥0.1
- HCRU and costs adjusted cost ratios for the OAB vs non-OAB cohorts and for the OAB treated and OAB untreated cohorts over the one-year follow-up period were estimated using a generalized estimating equation model

RESULTS

OAB vs Non-OAB Cohorts

- After attrition, the OAB cohort had 159,785 patients; the non-OAB cohort sample size was 212,616 and was then matched to the OAB cohort
- The matched OAB and non-OAB cohorts were relatively well balanced in terms of most demographic characteristics except sex (which was expected, as the majority of OAB patients are women) and year of index date (**Table 1**)
 - The mean age was similar between the two cohorts (OAB, 75.3 years; non-OAB, 74.7 years)

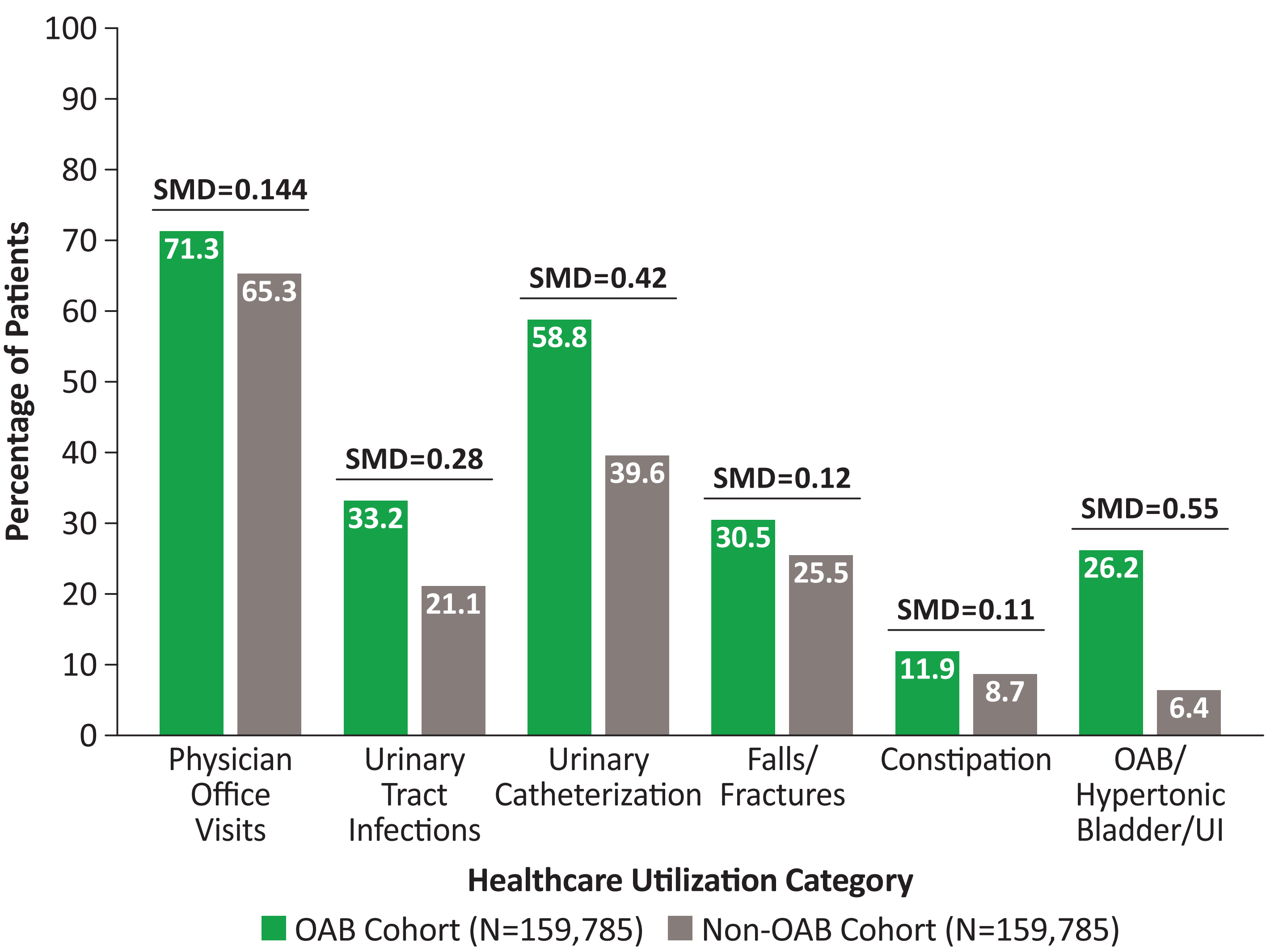
Table 1. Baseline Demographic and Clinical Characteristics Post-Match for the OAB and Non-OAB Cohorts

Characteristic		OAB Cohort (N=159,785)	Non-OAB Cohort (N=159,785)	Standardized Mean Differences
Age, y	Mean	75.3	74.7	0.05
	SD	12.6	12.6	
	Median	80.0	79.0	
Age Group, n (%)	18–34 years	2187 (1.4)	1578 (1.0)	0.09
	35–44 years	2859 (1.8)	2659 (1.7)	
	45–54 years	7192 (4.5)	8453 (5.3)	
	55–64 years	15,426 (9.7)	18,998 (11.9)	
	65+ years	132,121 (82.7)	128,097 (80.2)	
Sex, n (%)	Male	41,606 (26.0)	53,120 (33.2)	−0.16 ^a
	Female	118,179 (74.0)	106,665 (66.8)	
Year of Index Date, n (%)	2013	26,973 (16.9)	16,766 (10.5)	0.20 ^a
	2014	28,911 (18.1)	28,543 (17.9)	
	2015	30,936 (19.4)	34,013 (21.3)	
	2016	32,063 (20.1)	36,632 (22.9)	
	2017	30,810 (19.3)	34,260 (21.4)	
	2018	10,092 (6.3)	9571 (6.0)	
Charlson Comorbidity Index ^b	0	40,547 (25.4)	40,002 (25.0)	0.03
	1	32,629 (20.4)	32,693 (20.5)	
	2	28,956 (18.1)	27,556 (17.3)	
	≥3	57,653 (36.1)	59,534 (37.3)	
Comorbid conditions of interest (>20% both cohorts)	Hypertension	92,715 (58.0)	92,246 (57.7)	0.01
	Peripheral vascular disease	64,503 (40.4)	64,784 (40.5)	−0.004
	Osteoarthritis	52,119 (32.6)	43,571 (27.3)	0.12 ^a
	Arthralgia	48,311 (30.2)	41,224 (25.8)	0.10
	Back pain	41,123 (25.7)	35,546 (22.3)	0.08
	Cerebrovascular disease	34,096 (21.3)	32,222 (20.2)	0.03

^aSignificant standardized mean differences (≥0.1). ^bThe Charlson Comorbidity Index can be used to predict the risk of a patient's mortality based on their comorbid conditions and age; the higher the score, the higher the risk. OAB, overactive bladder; SD, standard deviation.

- Differences were observed between the OAB and non-OAB cohorts with respect to select baseline clinical characteristics regarding comorbid conditions of interest and medications of interest
 - Multiple sclerosis (2.1% vs 0.6%; SMD=0.13), neurogenic detrusor overactivity (6.2% vs 0.3%; SMD=0.34), and osteoarthritis (32.6% vs 27.3%; SMD=0.12) were more frequent in the OAB cohort vs the non-OAB cohort
 - Overall use of medications that are substrates of CYP2D6 was significantly greater in the OAB vs the non-OAB cohort (73.8% vs 67.3%; SMD=0.14), including those that are known to cause QTc prolongation (38.5% vs 28.7%; SMD=0.21)
 - Use of antidepressants was significantly greater in the OAB vs the non-OAB cohort (54.3% vs 45.7%; SMD=0.17)
- Patients in the OAB cohort had a significantly higher utilization of physician office and disease-specific outpatient visits during the 12-month post-index period (**Figure 1**)

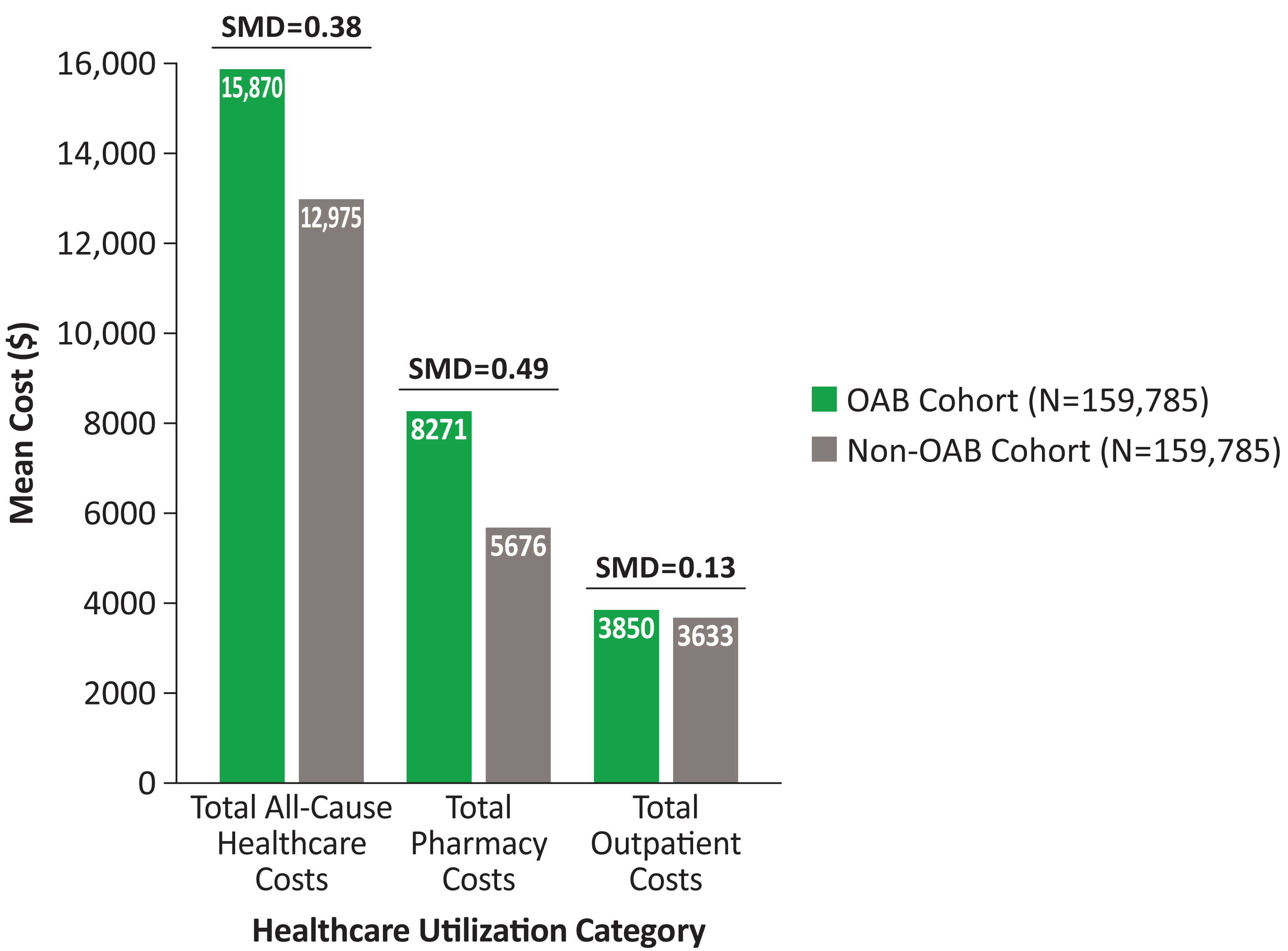
Figure 1. Significant Differences in Disease-related Outpatient Visits Among the OAB and Non-OAB Cohorts



All categories $p<0.0001$ (SMD ≥ 0.1) for OAB vs non-OAB cohorts. OAB, overactive bladder; SMD, standardized mean difference; UI, urinary incontinence.

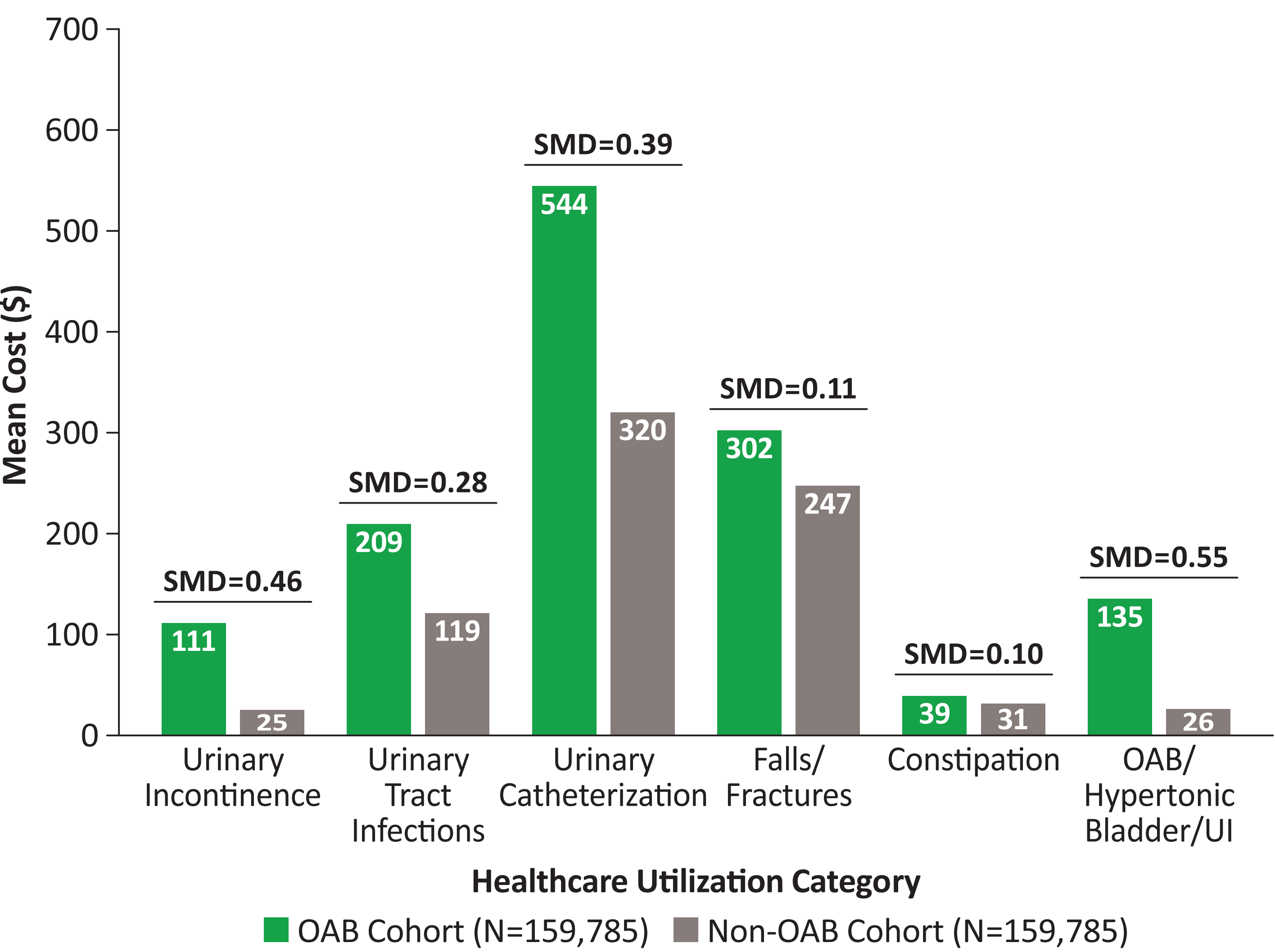
- Mean total all-cause healthcare and pharmacy costs were significantly higher (\$15,870 vs \$12,975 and \$8271 vs \$5676; SMD ≥ 0.1 ; $p<0.0001$) for the OAB vs the non-OAB cohorts, respectively (**Figure 2**)

Figure 2A. Healthcare Costs During the 12-Month Post-Index Period for the OAB and Non-OAB Cohorts With Breakdown by Outpatient Visit Type



All categories $p<0.0001$ (SMD ≥ 0.1) for OAB vs non-OAB cohorts. Note: All major cost categories were assessed; inpatient costs were assessed but are not presented. OAB, overactive bladder; SMD, standardized mean difference.

Figure 2B. Outpatient Costs Related to Disease-Specific Visits During the 12-Month Post-Index Period for the OAB and Non-OAB Cohorts



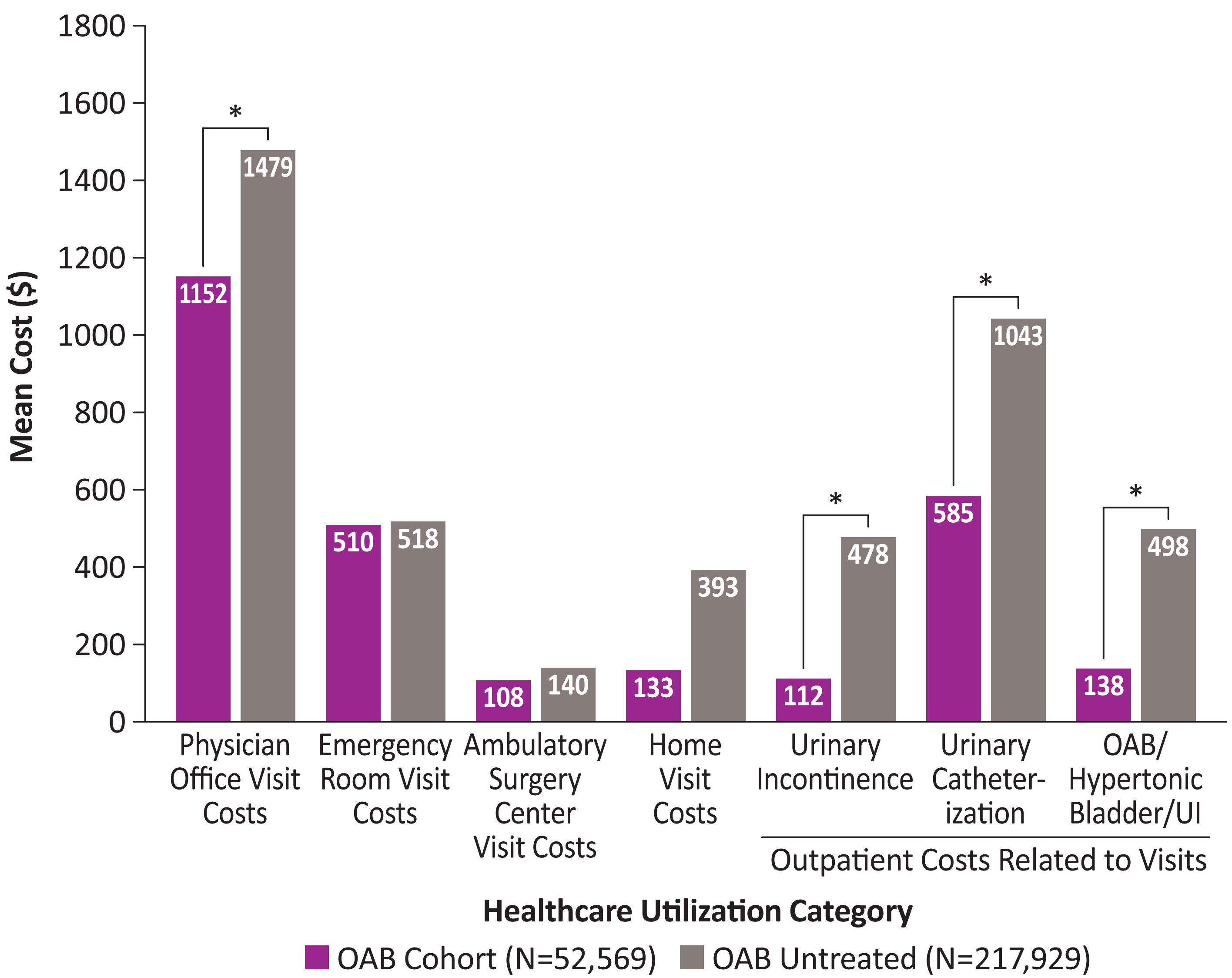
SMD ≥ 0.1 indicates significant difference. OAB, overactive bladder; SMD, standardized mean difference; UI, urinary incontinence.

- Adjusted analyses demonstrated 17% higher total costs in the OAB vs the non-OAB cohort (cost ratio: 1.17, 95% confidence interval (CI), 1.154–1.184; $p<0.0001$)

OAB Treated vs OAB Untreated Cohorts

- Among OAB newly treated patients, there were 52,569 treated and 217,929 untreated patients
- A higher percentage of OAB untreated patients had physician office visits due to UI (treated, 22.8%; untreated, 97.7%), urinary catheterization; (treated, 60.3%; untreated, 99.3%) or falls/fractures (treated, 28.7%; untreated, 21.6%)
- Significant differences were observed between the OAB treated and OAB untreated cohorts with respect to mean costs for several components of total outpatient costs (**Figure 3**)
 - Mean total all-cause healthcare costs and total pharmacy costs were significantly higher and total outpatient costs were significant lower for the OAB treated vs OAB untreated patients

Figure 3. Outpatient Costs During the 12-month Post-Index Period for the OAB Treated and OAB Untreated Cohorts



* $p<0.0001$. OAB, overactive bladder; UI, urinary incontinence.

- Adjusted analyses showed that OAB treated patients incurred 23% lower nonpharmacy costs than OAB untreated patients during the 12-month post-index period (cost ratio: 0.77, 95% CI, 0.760–0.784)

CONCLUSIONS

- OAB is associated with significant disease and economic burden in the United States LTC setting, indicating a need for better treatment management
- This study showed that patients with OAB had significantly higher HCRU and all-cause healthcare costs compared with matched patients without OAB during a 12-month period
- Also, a significantly higher proportion of OAB untreated vs treated patients had outpatient visits related to urinary condition during the 12-month period
- Overall, treatment of OAB was associated with lower nonpharmacy HCRU and costs

References **1.** Coyne KS et al. *Urology*. 2011;77(5):1081-1087. **2.** Ganz ML et al. *Curr Med Res Opin*. 2016;32(12):1997-2005. **3.** Gorina Y et al. Prevalence of incontinence among older Americans. National Center for Health Statistics. *Vital Health Stat* 3(36). 2014. **4.** Zarowitz BJ et al. *J Am Geriatr Soc*. 2015;63(11):2298-2307.

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