



Racial disparities in acute care utilization outcomes in myasthenia gravis

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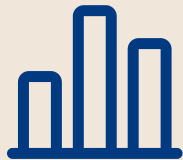
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Background and objective

While **health disparities** have a clear and significant impact on patient outcomes, its impact in MG is **understudied**



Social and economic inequalities are primary drivers of health outcomes¹



However, evidence supporting the impact of social determinants of health (SDOH) on outcomes in MG is limited^{2,3}



Study objective



To investigate the association between SDOH and acute care utilization among patients newly diagnosed with MG in the US

Study design



Database

Optum's de-identified Market Clarity Data (linked EHR + claims captures >72 million lives from 2007 to 2021)



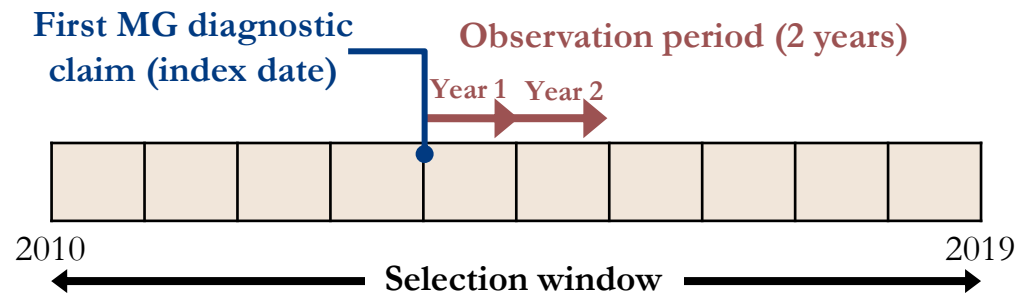
Inclusion criteria

- New MG diagnosis between 2010 and 2019
- At least 2 MG diagnostic claims, with earliest used as index date (Lee et al., 2022)
- Age ≥ 18 on index date
- Continuous coverage for the 2-year observation period (no coverage gap >1 month)



Analysis methodology

- Descriptive statistics to compare patient characteristics by racial/ethnic subgroups
- Multivariable logistic regression models to assess the association between acute care utilization and covariates including*:
 - Race/ethnicity
 - Insurance type
 - Comorbidities/Charlson Comorbidity Index
 - Obesity/overweight
 - Exacerbation at index
 - Outpatient visits



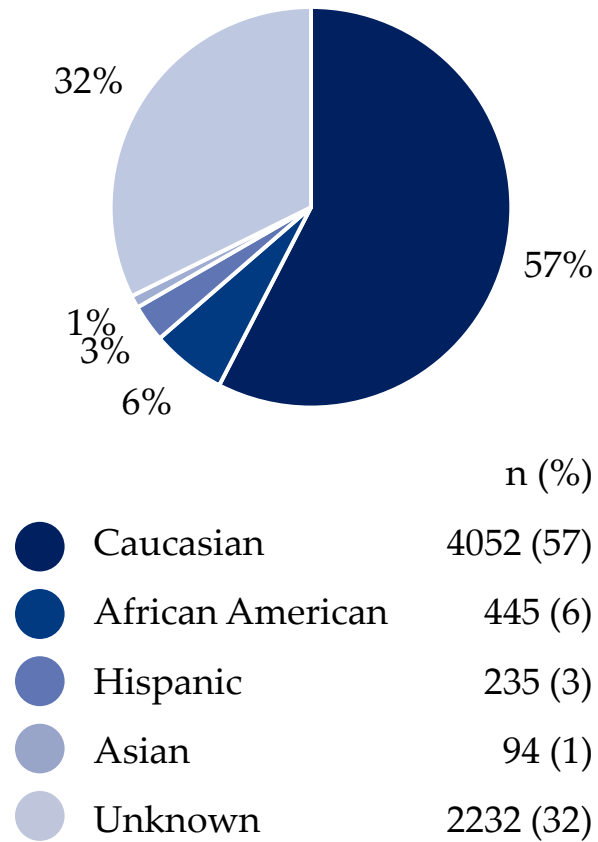
Outcomes

- **Independent association** between covariates and MG-associated (1) ED visits and (2) hospitalizations in Year 1 and Year 2 following index date

*In addition to the listed covariates, the following parameters were assessed: age, gender, and selected common MG comorbidities. ED, emergency department; EHR, electronic health records; MG, myasthenia gravis. Lee I, et al. *Muscle Nerve*. Jun 2022;65(6):676-682.

Baseline patient characteristics

Self-identified racial/ethnic subgroups among eligible population (N=7058)



Age



- Patients identifying as **African American** were on average >10 years younger than Caucasian patients (52.7 [SD: 15.4] vs. 63.6 [SD: 14.7] years; overall mean: 62.0 [SD: 15.2] years)

Insurance



- Patients identifying as **African American** had the highest proportion of Medicaid users (17%, vs. overall mean of 5% [range: 3%–17%]) across subgroups

Comorbidities/obesity



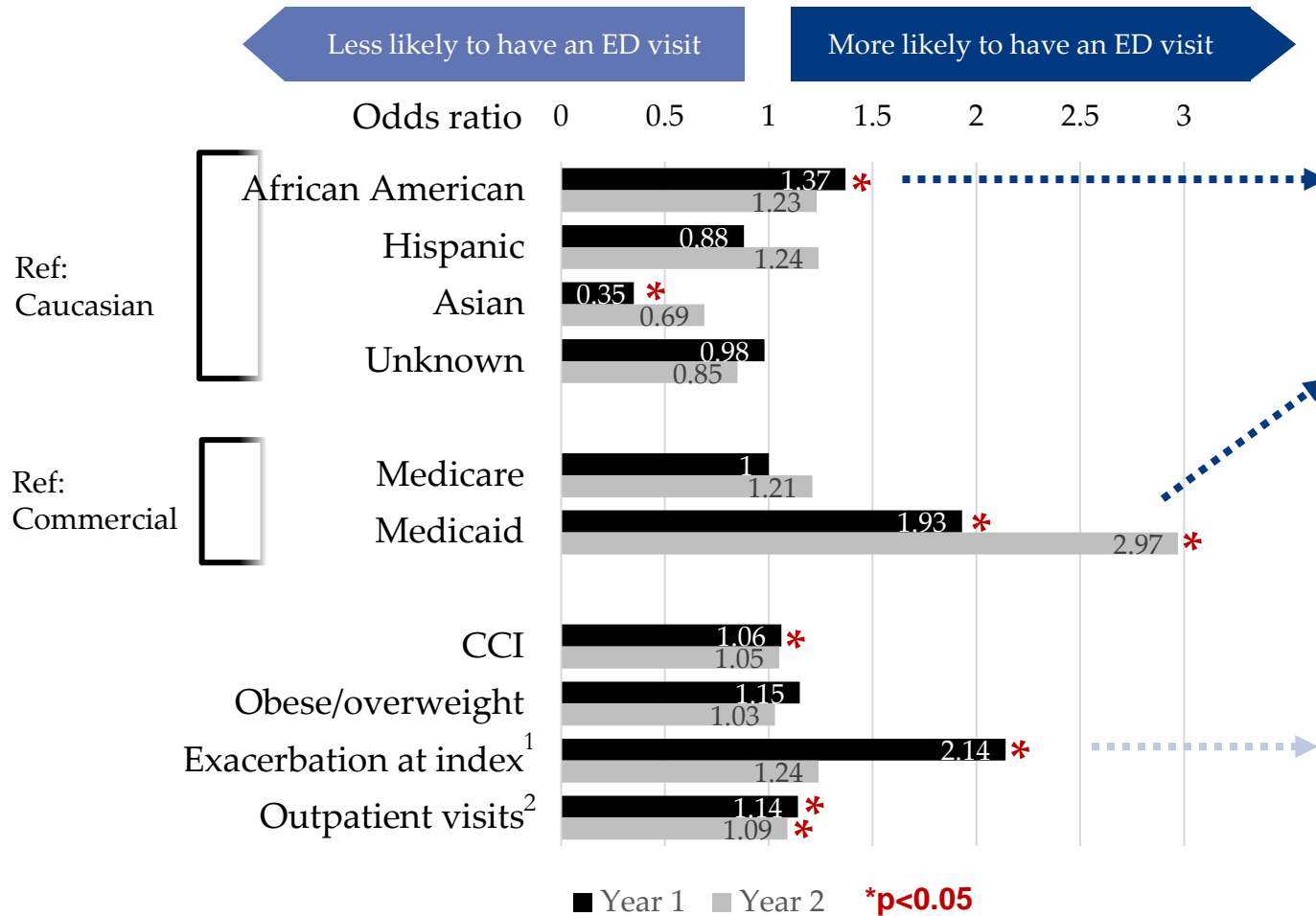
- Mean CCI and obesity rates were not significantly varied across subgroups
- However, given the younger age of the patients identifying as African American, this suggests a more severe comorbidity burden for this population

Exacerbations at index



- Patients identifying as **Hispanic** had the highest proportion of exacerbations at index (17%, vs. overall mean of 12% [range: 11%–17%]) across subgroups

ED visits associated with MG diagnostic code



Patients identifying as **African American** were **37%** more likely to have an ED visit in Year 1 compared with patients identifying as Caucasian

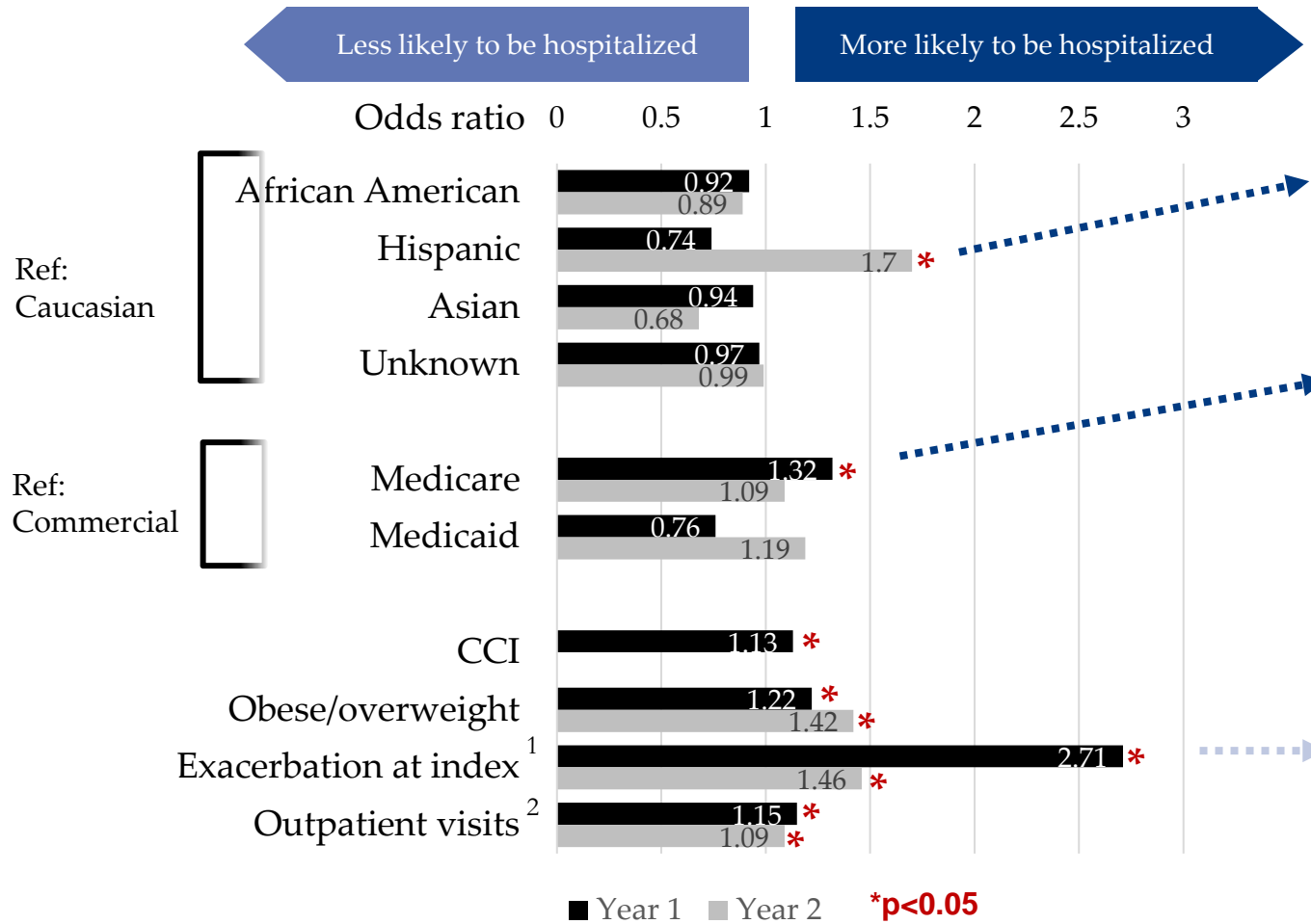
Patients using **Medicaid** were nearly **2-fold** or **3-fold** more likely to have an ED visit compared with commercial insurance users (Years 1 and 2, respectively)

Other findings:

- 6% increased likelihood of an ED visit per unit increase in CCI in Year 1
- More than twice as likely to have an ED visit in Year 1 if the patient had an exacerbation at index
- Patients with outpatient visits were more likely to experience an ED visit in both Year 1 and Year 2

1. Exacerbation at index refers to the presence of an ICD-9/10 code at index denoting MG with exacerbation. 2. Outpatient visits refers to the presence of any outpatient visit claims during the follow-up period. CCI, Charlson Comorbidity Index; ED, emergency department. Other parameters including age, gender and selected common MG comorbidities were assessed but are not shown on this graph.

Hospitalizations associated with MG diagnostic code



Patients identifying as **Hispanic** were **70%** more likely to have a hospitalization event in Year 2 compared with patients identifying as Caucasian

Patients using **Medicare** were **32%** more likely to have a hospitalization event in Year 1 compared with commercial insurance users

Other findings:

- 13% increased likelihood of hospitalization per unit increase in CCI in Year 1
- Patients who were obese/overweight at baseline were more likely to experience hospitalization in both Year 1 and Year 2
- 2.7-fold more likely to have a hospitalization event in Year 1 if the patient had an exacerbation at index
- Patients with outpatient visits were more likely to experience a hospitalization event in both Year 1 and Year 2

1. Exacerbation at index refers to the presence of an ICD-9/10 code at index denoting MG with exacerbation. 2. Outpatient visits refers to the presence of any outpatient visit claims during the follow-up period. CCI, Charlson Comorbidity Index. Other parameters including age, gender and selected common MG comorbidities were assessed but are not shown on this graph.

Conclusions and future steps



Our preliminary results suggest a **significant impact of SDOH-related barriers in MG management**



Key takeaways

- Several key subgroups were significantly more likely to utilize MG-specific acute care during the first 2 years following diagnosis:
 - **African American and Hispanic**
 - **Medicaid and Medicare users**
- CCI, obesity, exacerbation at index, and outpatient visits, which suggest **poorly controlled disease and/or high comorbidity burden**, were also associated with increased acute care utilization
- These results provide a first step into examining the impact of health disparities on outcomes in MG; additional studies and improved data collection are critical to corroborate our results



Key limitations

- Insurance claims databases systematically exclude the uninsured, which historically includes many patients of color
- As race/ethnicity data was missing for >30% of eligible patients, additional studies are needed to address data gaps



Implications and future steps

- Targeted support (e.g., patient support programs) should be made increasingly accessible for high-risk individuals to **better manage their MG, especially at or soon after diagnosis**



Thank you!

Detailed baseline patient characteristics (1/2)

	Overall n=7058	Non-Hispanic Caucasian n=4052 (57%)	Non-Hispanic African American n=445 (6%)	Hispanic n=235 (3%)	Asian n=94 (1%)	Unknown n=2232 (32%)	P-Value [‡]
Age, years							
Mean (SD)	61.93(15.26)	63.56(14.7)	52.72(15.42)	56.5(16.91)	56.43(15.4)	61.62(15.22)	< 0.0001
Gender, n (%)							
Female	3,644(52)	2,015(50)	294(66)	142(60)	55(59)	1,138(51)	< 0.0001
Male	3,413(48)	2,036(50)	151(34)	93(40)	39(41)	1,094(49)	
Region, n (%)							
Midwest	2,629(37)	1,791(44)	187(42)	47(20)	28(30)	576(26)	< 0.0001
Northeast	1,694(24)	716(18)	87(20)	47(20)	28(30)	816(37)	
Other/Unknown	292(4)	148(4)	14(3)	10(4)	2(2)	118(5)	
South	1,830(26)	1,073(26)	150(34)	109(46)	17(18)	481(22)	
West	613(9)	324(8)	7(2)	22(9)	19(20)	241(11)	
Insurance status, n (%)							
Commercial	3,322(47)	1,920(47)	209(47)	112(48)	52(55)	1,029(46)	< 0.0001
Medicare	2,349(33)	1,450(36)	93(21)	72(31)	24(26)	710(32)	
Medicaid	365(5)	105(3)	74(17)	25(11)	9(10)	152(7)	
Multiple/Unknown ¹	1,022(14)	577(14)	69(16)	26(11)	9(10)	341(15)	
Exacerbation Diagnosis At Index, n (%)	834(12)	474(12)	50(11)	40(17)	14(15)	256(11)	0.12
Inpatient diagnosis, n (%)	605(9)	354(9)	40(9)	21(9)	5(5)	185(8)	0.78

*Includes commercial and Medicaid; commercial and Medicare; Medicare and Medicaid; and commercial, Medicare, and Medicaid. ‡P-value was calculated via the t-test for continuous variables and chi-square test for categorical.

Detailed baseline patient characteristics (2/2)

	Overall n=7058	Non-Hispanic Caucasian n=4052 (57%)	Non-Hispanic African American n=445 (6%)	Hispanic n=235 (3%)	Asian n=94 (1%)	Unknown n=2232 (32%)	P-Value [‡]
CCI, mean (SD)	1.33 (1.82)	1.33 (1.76)	1.25 (1.78)	1.38 (2.02)	1.13 (1.55)	1.37 (1.91)	
0	3,082 (44)	1,749 (43)	212 (48)	108 (46)	46 (49)	967 (43)	0.71
1-2	2,708 (38)	1,574 (39)	155 (35)	85 (36)	34 (36)	860 (39)	
3-4	827 (12)	483 (12)	51 (11)	22 (9)	9 (10)	262 (12)	
≥5	441 (6)	246 (6)	27 (6)	20 (9)	5 (5)	143 (6)	
Baseline MG comorbidities, n (%)							
Hypertension	3,450 (49)	2,027 (50)	210 (47)	116 (49)	38 (40)	1,059 (47)	0.13
Hyperlipidemia	2,847 (40)	1,697 (42)	120 (27)	105 (45)	32 (34)	893 (40)	< 0.0001
Diabetes	1,866 (26)	1,051 (26)	116 (26)	66 (28)	21 (22)	612 (27)	0.59
Thyroid-related disorders	1,411 (20)	853 (21)	70 (16)	43 (18)	19 (20)	426 (19)	0.05
GERD	1,209 (17)	735 (18)	53 (12)	51 (22)	13 (14)	357 (16)	< 0.0001
Anxiety	827 (12)	508 (13)	49 (11)	33 (14)	11 (12)	226 (10)	0.05
Autoimmune	437 (6)	264 (7)	25 (6)	18 (8)	9 (10)	121 (5)	0.2
Depression	861 (12)	522 (13)	41 (9)	37 (16)	12 (13)	249 (11)	0.03
Sleep disorder	984 (14)	596 (15)	48 (11)	38 (16)	14 (15)	288 (13)	0.07
Coronary artery disease	924 (13)	571 (14)	26 (6)	22 (9)	11 (12)	294 (13)	0.47
Other MG-associated conditions, n (%) *							
Thymoma	630 (9)	337 (8)	50 (11)	25 (11)	15 (16)	203 (9)	0.02
Baseline obesity/overweight, n (%)	1,200 (17)	695 (17)	81 (18)	49 (21)	8 (9)	367 (16)	0.08

*During 2 years observation period from the index date. ‡P-value was calculated via the t-test for continuous variables and chi-square test for categorical.

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