Emergency Room Utilization Among Multiple Sclerosis Patients Treated with Disease-Modifying Therapy in a Real-World Hybrid Claims Database

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CHRONOS

HPR117

Background

Multiple Sclerosis (MS) is a chronic inflammatory demyelinating disease of the central nervous system. MS prevalence is highest in North America and European countries and affects 2.8 million people worldwide.[1] Disease modifying therapies (DMTs) are associated with lower health care resources utilization (HCRU)[2] but little is known about newly initiating DMT patients and HCRU by race/ethnicity.

Objective

- To compare rates of emergency room (ER) visits among MS patients treated with DMTs by race/ethnicity.
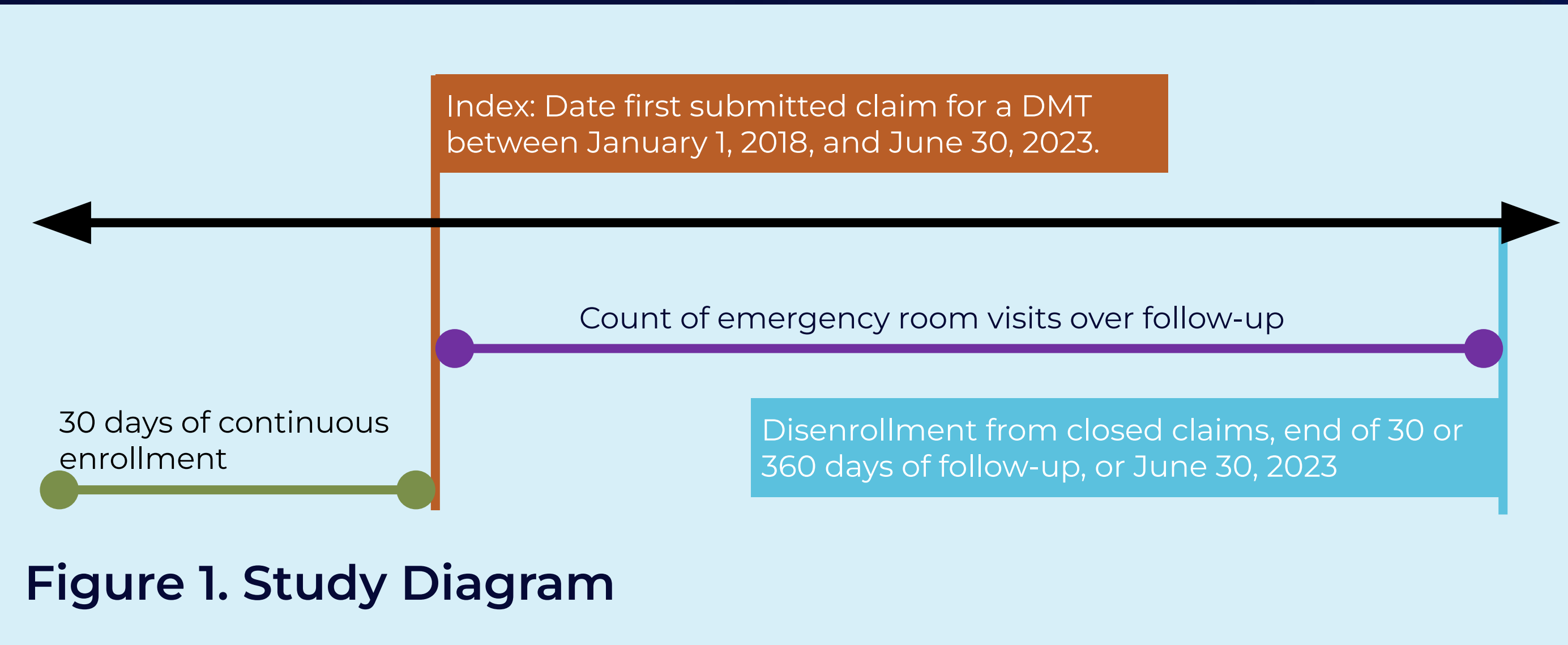- Examine ER visits at 30-days and 360-days after initiation DMT.

Index: Date first submitted claim for a DMT between January 1, 2018, and June 30, 2023.

Count of emergency room visits over follow-up

30 days of continuous enrollment

Disenrollment from closed claims, end of 30 or 360 days of follow-up, or June 30, 2023

Figure 1. Study Diagram

87,780 patients diagnosed with sarcoidosis between January 1, 2018, and June 30, 2023

Exclude patients without one month of continuous enrollment

77,006 patients

Require patients have at least one treatment in the closed or open claims data
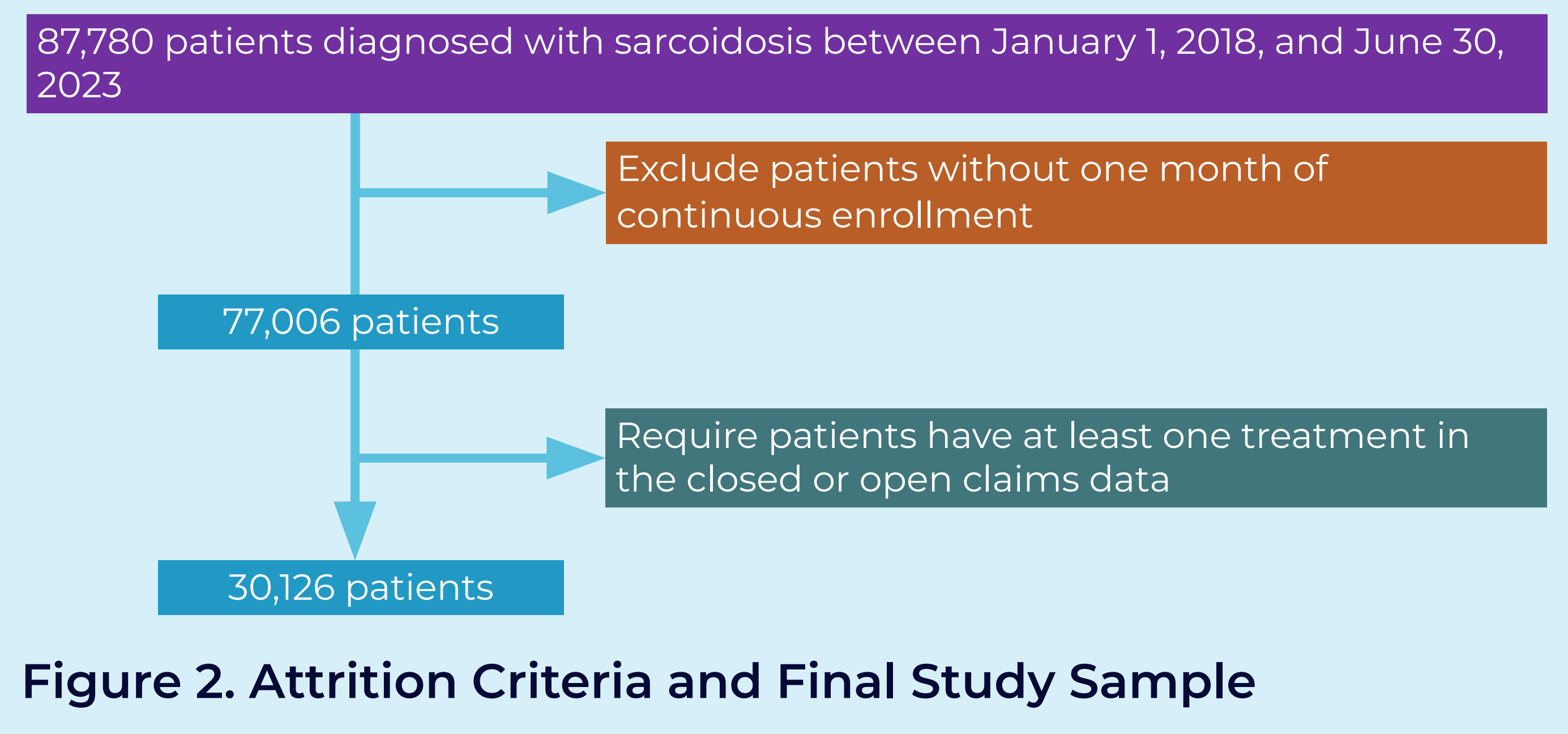
30,126 patients

Figure 2. Attrition Criteria and Final Study Sample

References
1. Walton C., et al. Rising prevalence of multiple sclerosis worldwide: Insights from the Atlas of MS, third edition. Mult Scler. 2020 Dec;26(14):1816-1821.
2. Sanchirico M., et al. Treatment Patterns, Healthcare Resource Utilization, and Costs Among Medicare Patients with Multiple Sclerosis in Relation to Disease-Modifying Therapy and Corticosteroid Treatment. Neurol Ther. 2019 Jun;8(1):121-133

Methods

Newly diagnosed adult MS patients (ICD-10-CM: G35) initiating DMT (index) between January 1, 2018, and June 30, 2023, were identified in CHRONOS, a linked open claims, closed claims, and social determinants of health database. Patients had at least one MS diagnosis and 30-days of continuous enrollment before the first DMT submitted on a claim in the closed or open claims data (Figure 1).

Incidence rate ratios (IRRs) and 95% confidence intervals (CIs) are reported from Poisson regression models, adjusting for baseline demographics, comorbidities, and HCRU, and were weighted to account for censoring over follow-up. The model compared rates of ER visits between White (reference), Black, Hispanic, and Asian patients over 30 and 360 days of follow-up.

All study variables were defined by NDC, CPT, HCPCS, and ICD-10-CM codes.

Results

MS patients initiating DMT (n = 3,599) were 41.1 (SD: 11.1) years old, on average, at index and 72.5% female. Patients were 78.7% White, 10.9% Black, 9.1% Hispanic, and 1.3% Asian (Figure 3).

The maximum number of ER visits in the first 30 days, across and racial/ethnic groups, was 2. Over 360 days, Black patients had the highest average number of ER visits with 1.1 (SD: 1.3) (Figure 4).

Over the 30 days after index, Black [IRR: 1.4 (1.1-1.9)] and Hispanic [IRR: 1.1 (0.8-1.5)] patients were more likely and Asian [IRR: 0.3 (0.1-1.3)] patients less likely than White patients to visit an ER (Figure 5).

Over the 360 days after index, Black [IRR: 1.4 (1.2-1.5)] and Hispanic [IRR: 1.1 (1.0-1.3)] patients were more likely and Asian [IRR: 0.7 (0.5-0.9)] patients less likely than White patients to visit an ER (Figure 5).
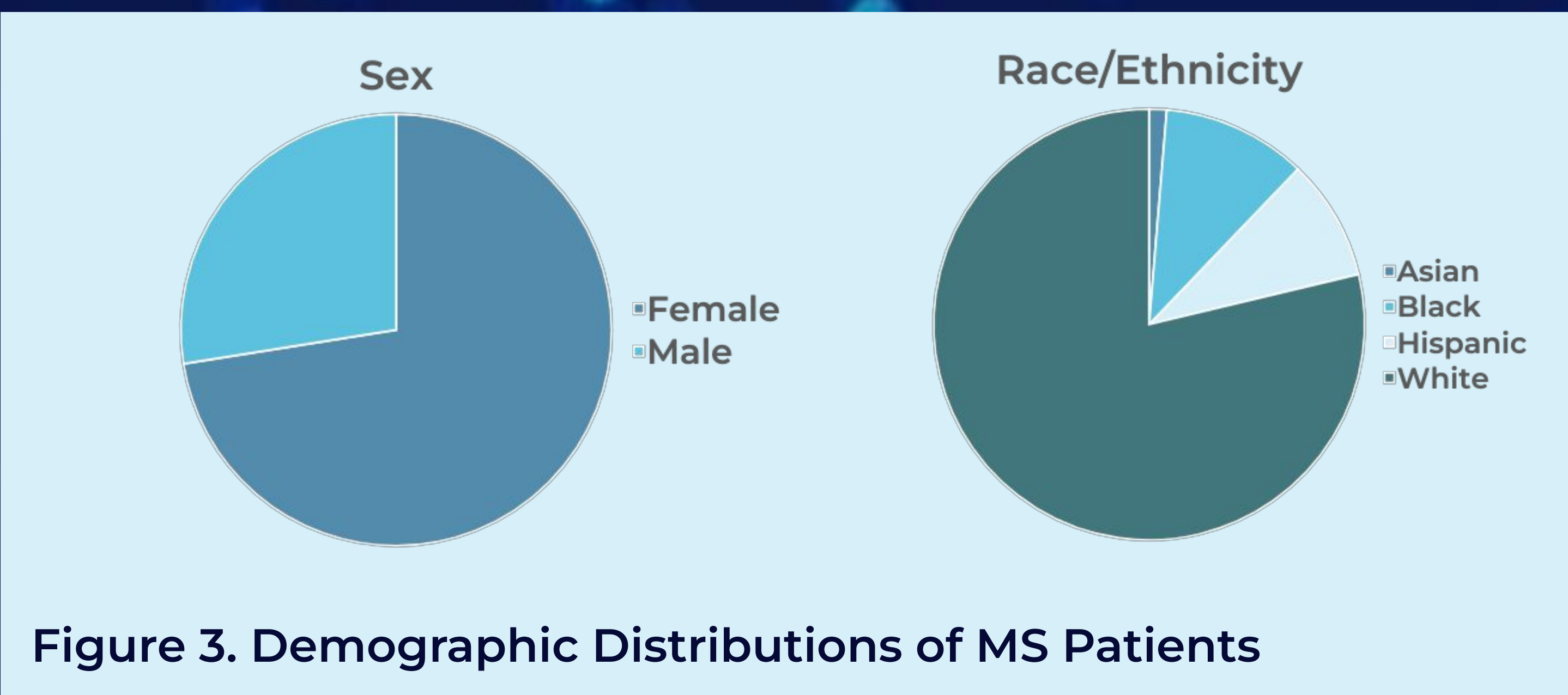

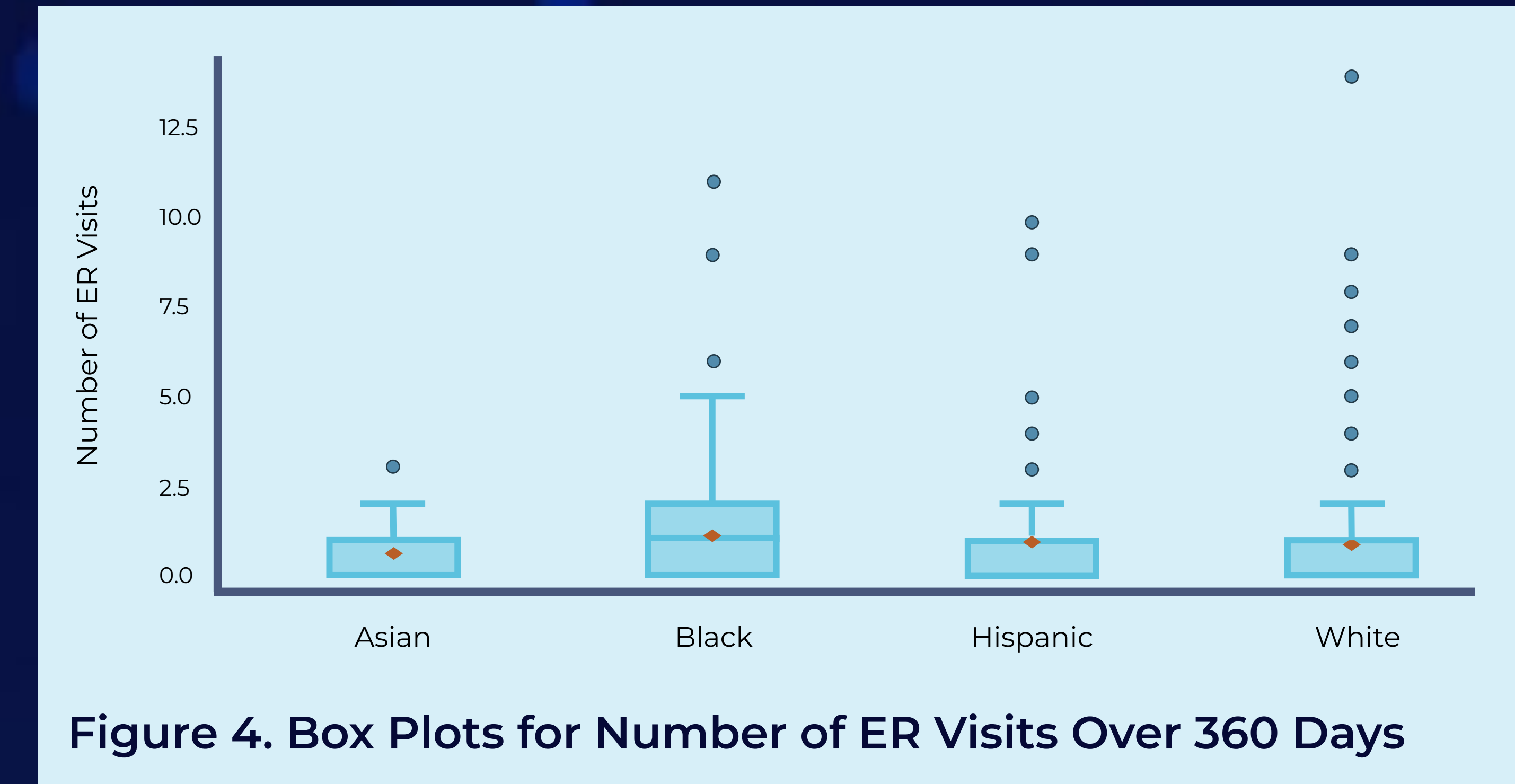
Figure 3. Demographic Distributions of MS Patients

Sex: Female, Male

Race/Ethnicity: Asian, Black, Hispanic, White

Figure 4. Box Plots for Number of ER Visits Over 360 Days
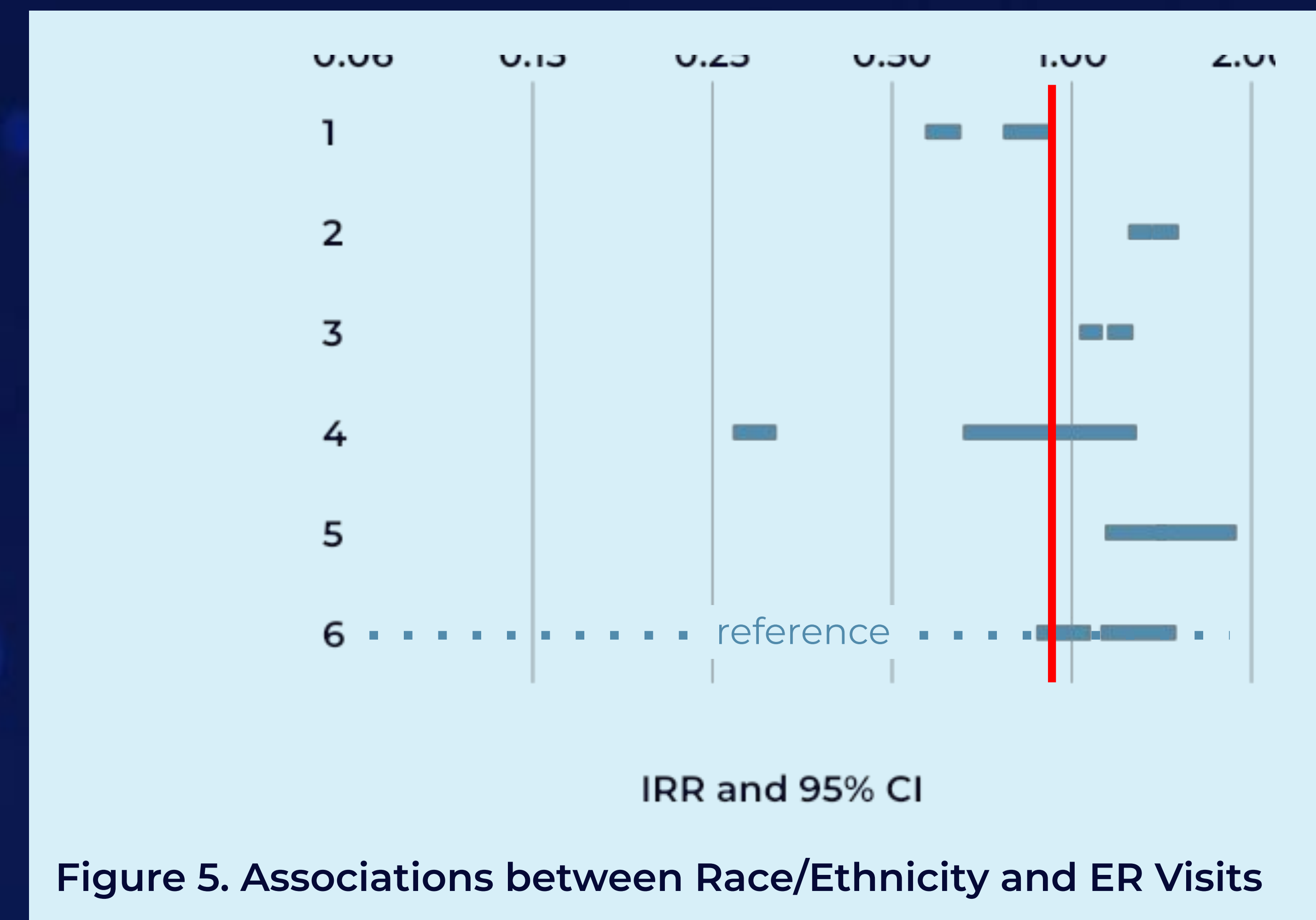

IRR and 95% CI

reference

Figure 5. Associations between Race/Ethnicity and ER Visits

Conclusions

The current analysis of MS patients treated with a DMT in a real-world database found rates of ER visits over the first year after treatment initiation were highest in Black and Hispanic patients. Further analysis exploring potential causes for more frequent ER visits in these populations, such as uncontrolled comorbid conditions, is warranted to identify areas of intervention for clinicians and reduce disparities.

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