Sentiment analysis of digital conversations related to myasthenia gravis by race/ethnicity

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Introduction

- Myasthenia gravis (MG) is a rare autoimmune neuromuscular disorder characterized by muscle weakness and fatigue, which imposes profound patient burden¹
- Although 41% of the US population identify as non-White,² minority populations tend to be under-represented in MG research; as a consequence, little is known regarding racial and ethnic distribution of disease and patient perspectives on their journeys with MG
- Compared to White patients, non-White patients have been shown to have more severe outcomes,³ higher rates of ocular manifestations,⁴ significantly higher rates of complications after hospitalization, and were less likely to receive intravenous immunoglobulin and plasmapheresis⁵

Objective

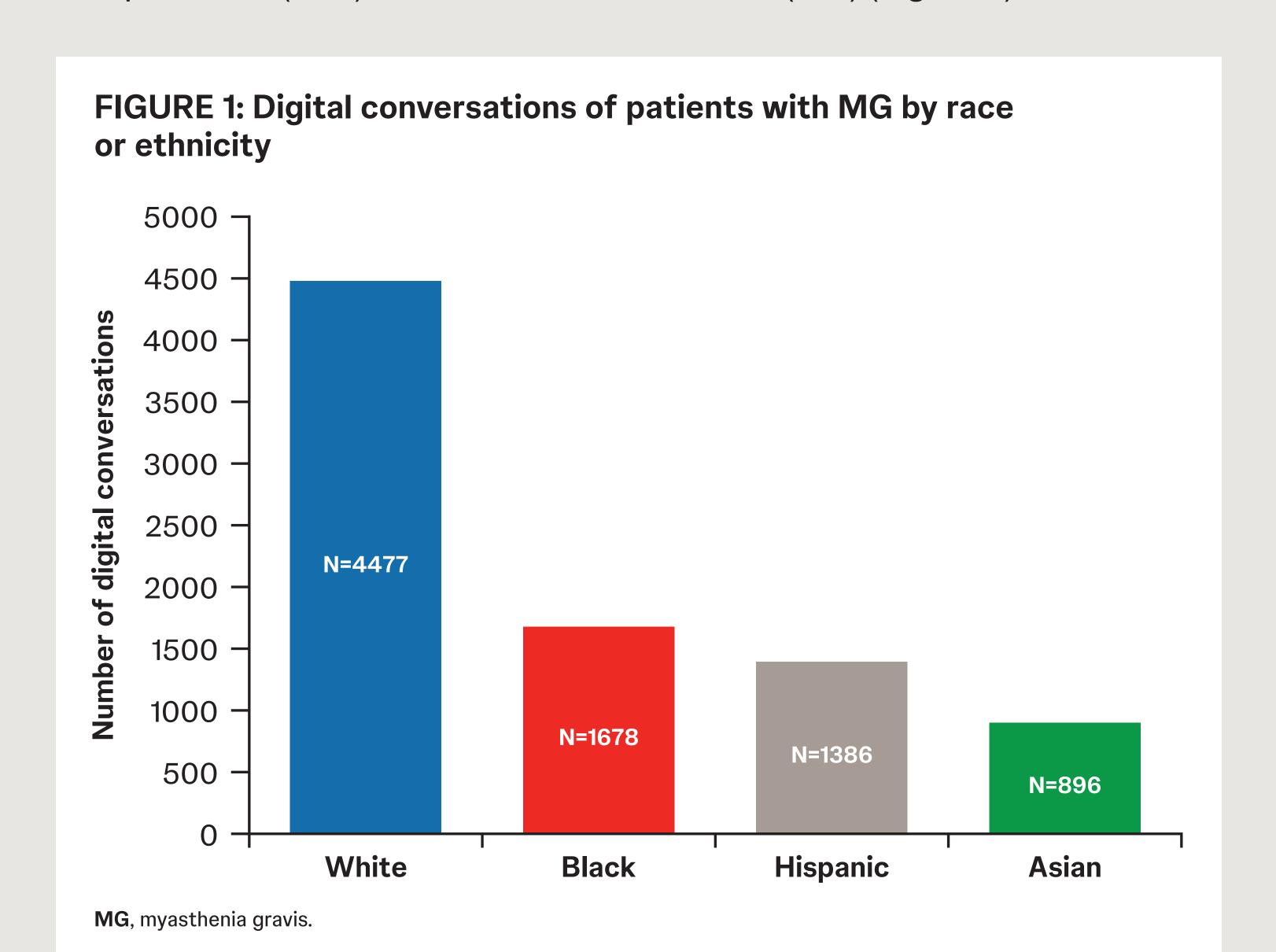
• To describe sentiments and their drivers, and treatment barriers related to MG among different racial and ethnic patient groups

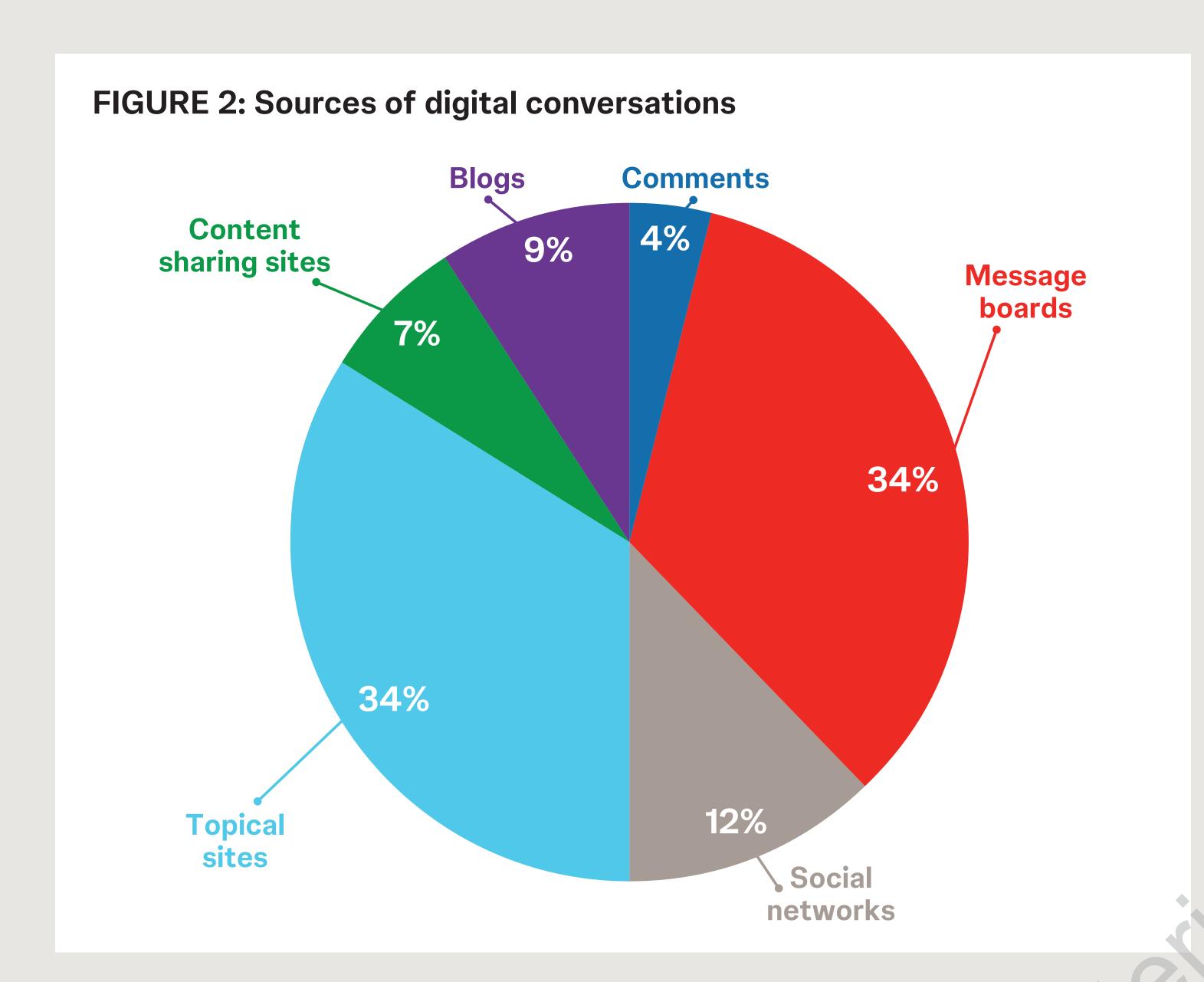
Methods

- Advanced search, data extraction, and artificial intelligence-powered tools were used to harvest, mine, and structure open-source digital conversations among US adults who engaged in conversations about MG over a 12-month period (August 2022 to August 2023)
- Digital conversations were limited to those originating from US Internet Protocol addresses in English
- Sources of conversations included message boards, topical sites, social networks, content sharing sites, blogs, and comments (Figure 1)
- The most frequent categories of conversation topics were identified
- Conversations were categorized as positive, negative, or neutral via natural language processing (sentiment analysis), with the most frequent drivers of each sentiment identified
- All results are descriptive

Results

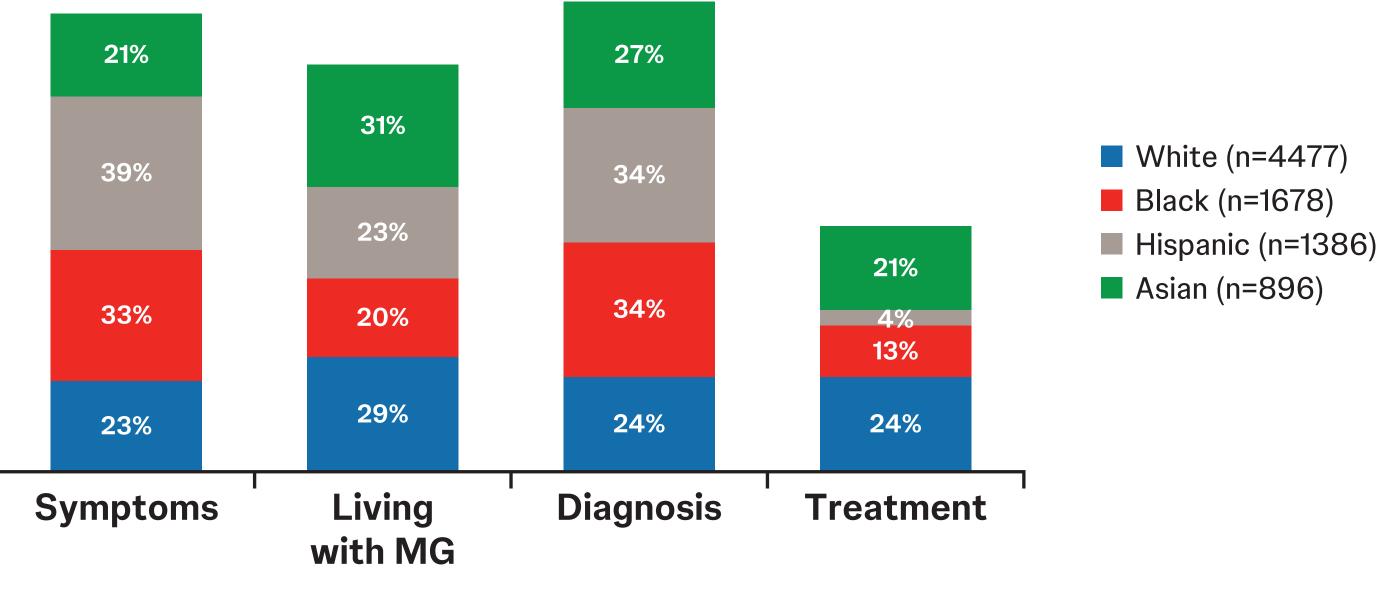
- A total of 13,163 digital conversations about MG were identified; this analysis includes the 8437 conversations where patients self-identified their race or ethnicity as Asian (n=896), Black (n=1678), Hispanic (n=1386), or White (n=4477) (**Figure 1**)
- Conversations about MG predominantly took place on message boards and topical sites (68%) rather than social networks (12%) (**Figure 2**)





- Diagnosis was mentioned in 34% of conversations by Black and Hispanic patients, compared to 27% and 24% of conversations by Asian and White patients, respectively (Figure 3)
- Hispanic patient conversations discussed symptoms (39%) more often than any of the other groups (Asian, 21%; Black, 33%; White, 23%) (**Figure 3**)



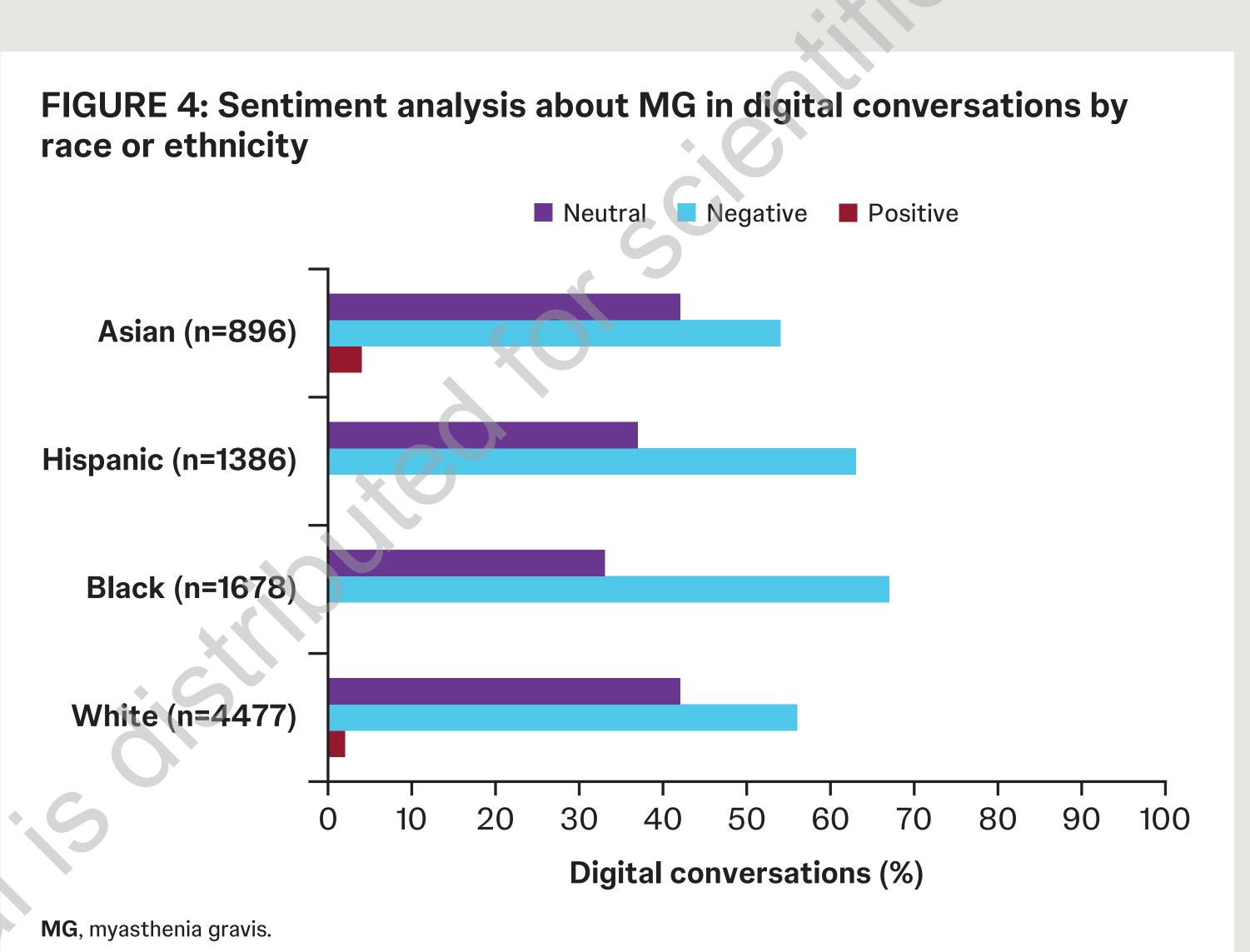


Patient sentiments about MG in digital conversations by race or ethnicity

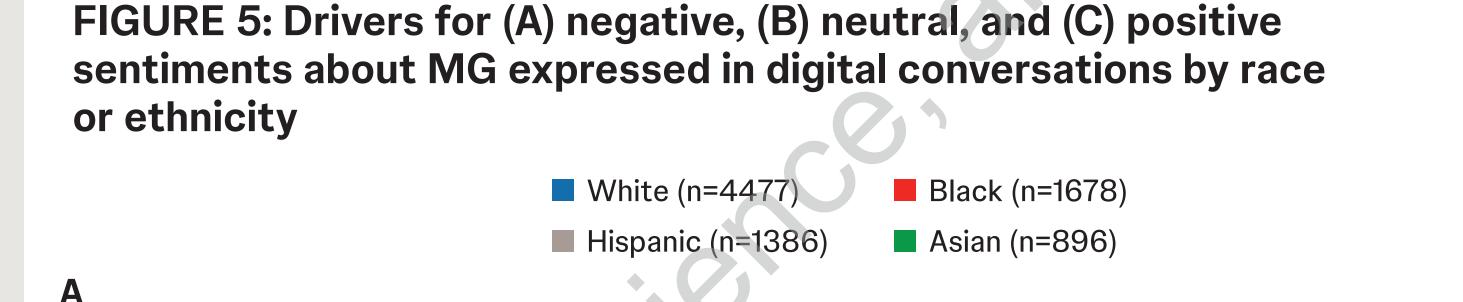
Data are percentage of digital conversations.

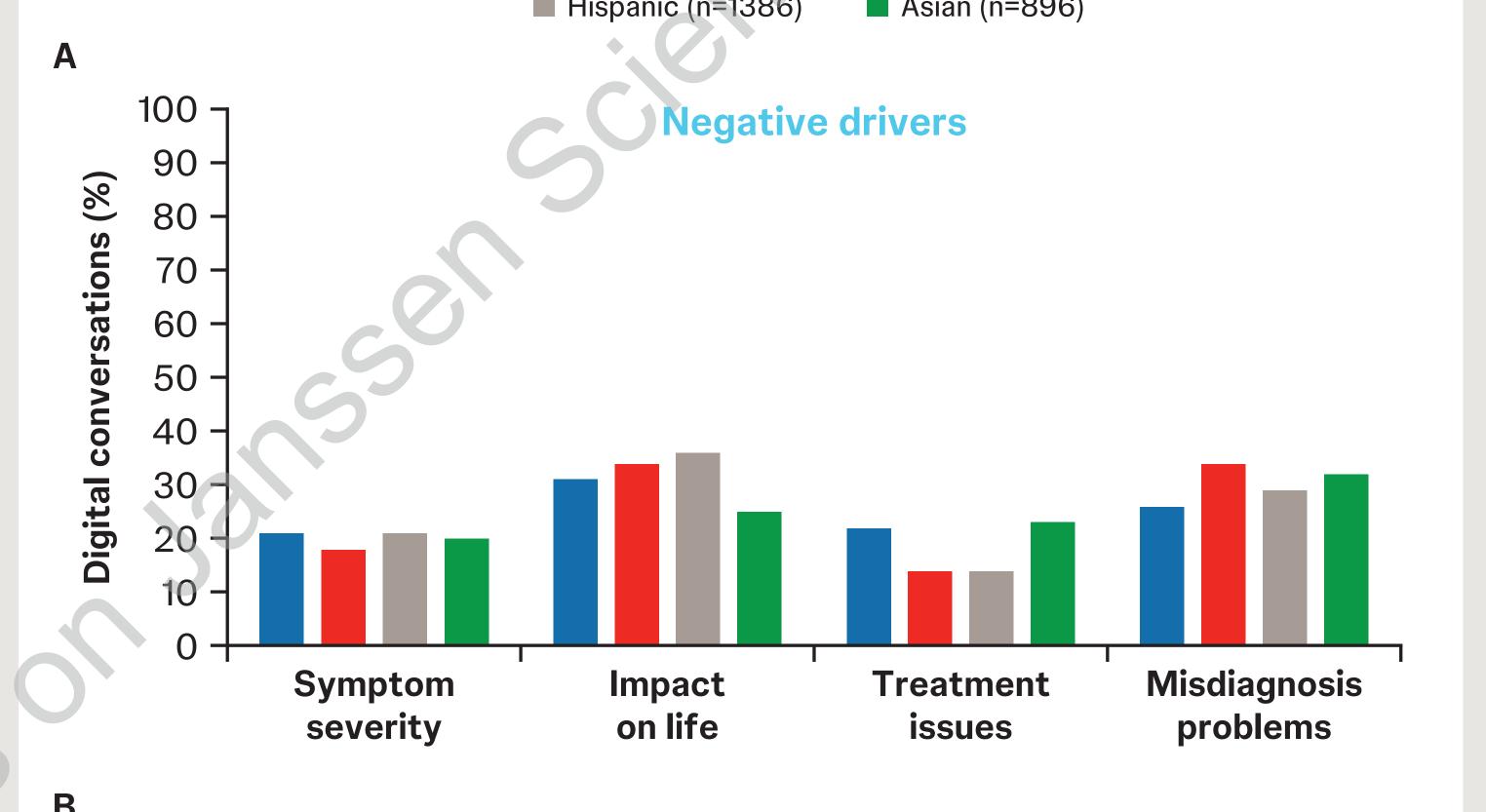
MG, myasthenia gravis.

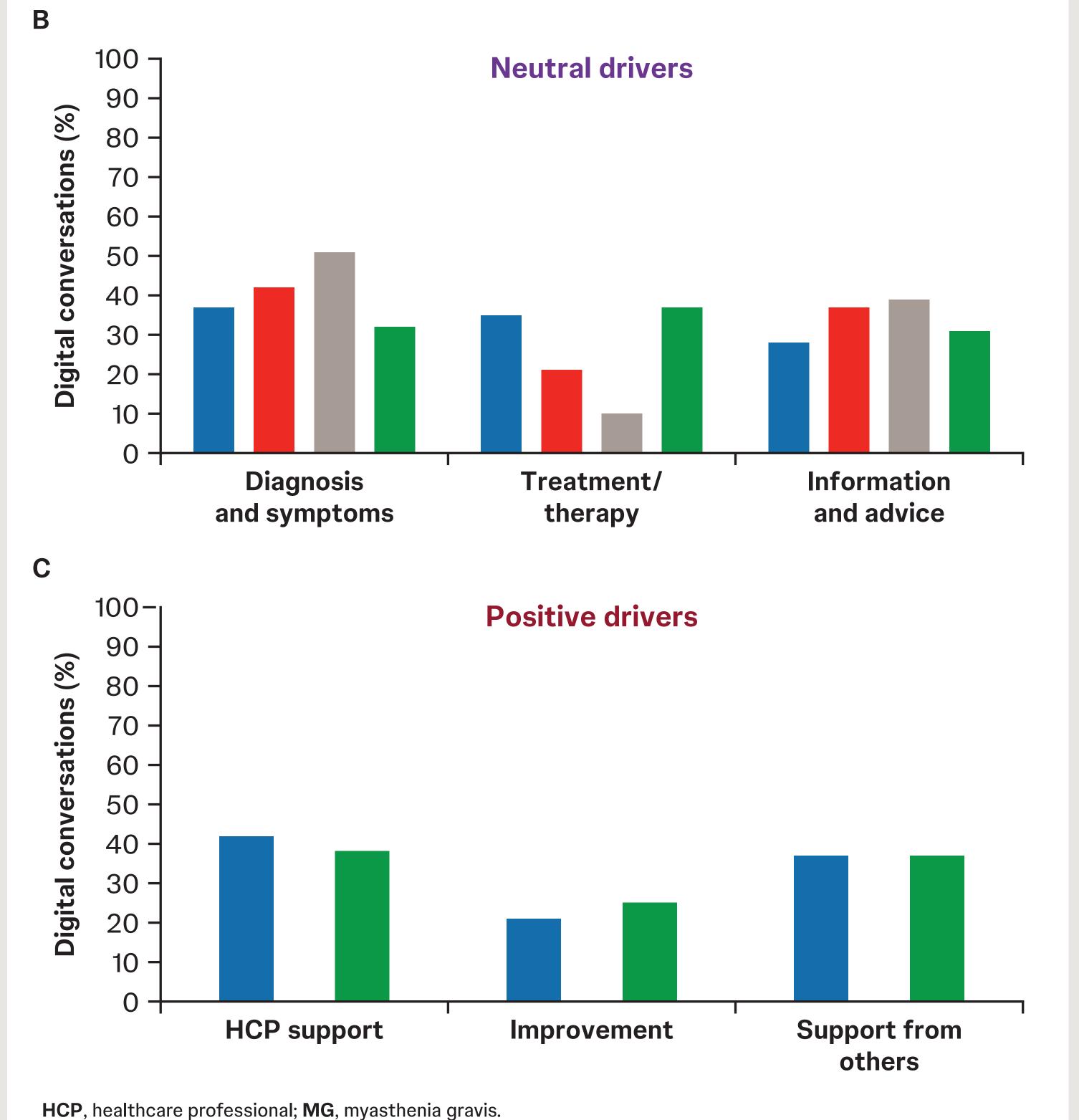
• The majority (60%) of digital conversations expressed negative sentiments about MG: Black and Hispanic patient conversations were negative 67% and 63% of the time, respectively, Asian patients 54% of the time, and White patients 56% of the time (**Figure 4**)



• Impact on life and misdiagnosis problems were the dominant drivers of negative sentiments for all groups (Figure 5A)







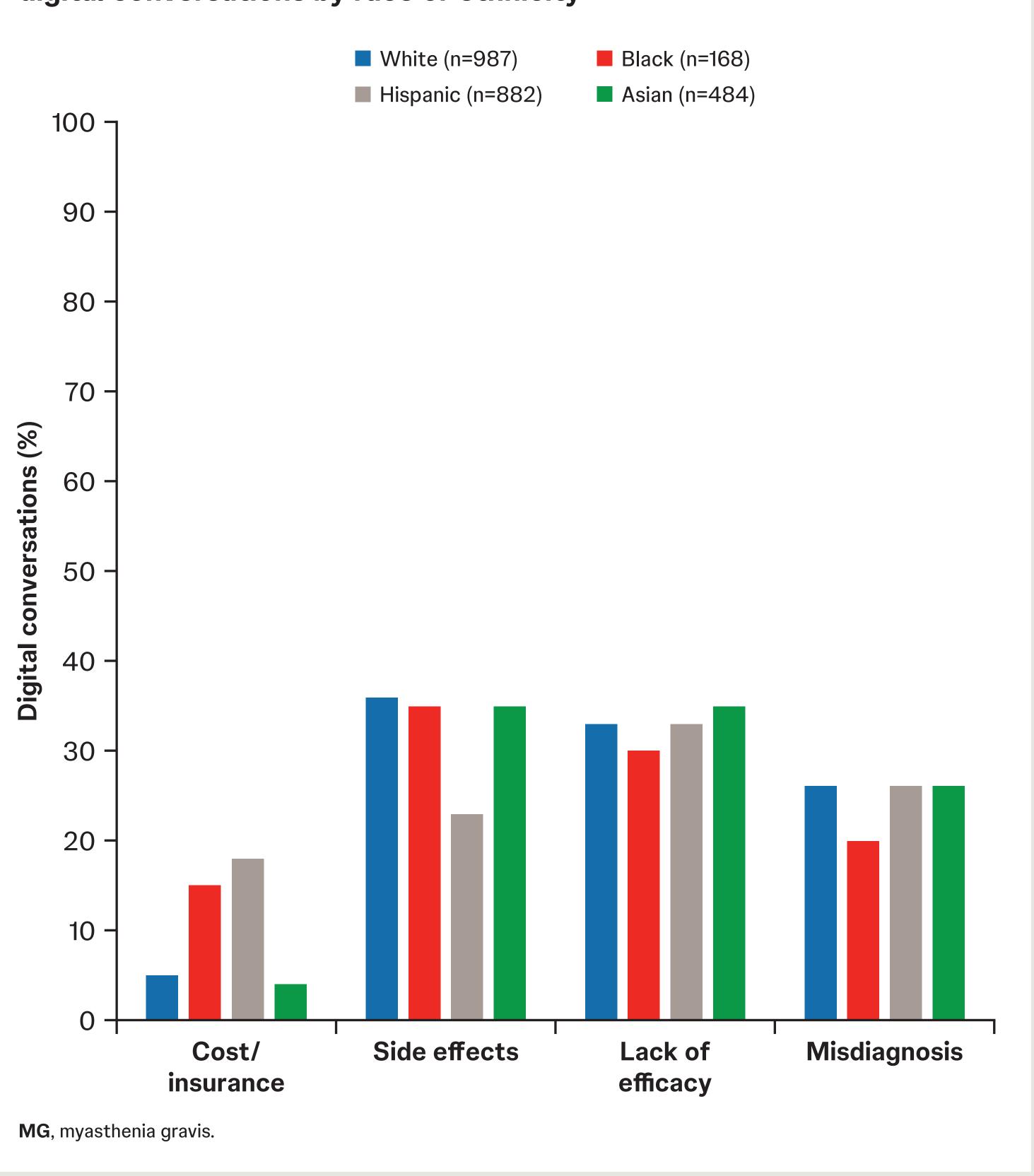
• Factors driving neutral feelings were comparable among groups for diagnosis and symptoms and information and advice. Black and Hispanic patients cited treatment/therapy less frequently than Asian and White patients (21% and 10% vs 37% and 35% of conversations) (**Figure 5B**)

 Factors driving the limited positive conversations among Asian and White patients were healthcare provider support (38% and 42% of conversations, respectively) and support from others (both 37%). No positive conversations were noted for Black and Hispanic patients (Figure 5C)

Barriers to treatment

- Among conversations discussing barriers to treatment (Figure 6):
- Most discussed overall were lack of efficacy (33% of conversations) and side effects (32%)
- Cost/insurance was more commonly discussed as a barrier to treatment among Black (15% of conversations) and Hispanic (18%) patients compared to Asian (4%) and White (5%) patients

FIGURE 6: Treatment barriers among patients with MG identified in digital conversations by race or ethnicity



Key takeaway



These racial and ethnic differences highlight the need for more awareness of MG in diverse patient groups, to enable more individualized approaches to the treatment and management of MG

Conclusions



The majority of conversations within all racial or ethnic groups reflected a negative sentiment



Black and Hispanic patients were more likely to cite cost as a barrier to treatment than Asian and White patients



There continues to be a need for new, effective treatments that enhance symptom control with fewer and more manageable side effects

Acknowledgments

AUTOANTIBODY: MG

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Disclosures

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