Social Determinants of Symptom Severity and Healthcare-Seeking in Acute Rhinosinusitis

Rishika Singh[1], Dr. Daniel Merenstein[1]

1. Georgetown University, School of Health Human Science Departnment

Introduction

- Acute rhinosinusitis (ARS) affects approximately 20 million Americans annually and is a common reason for outpatient healthcare visits.
- Social determinants of health including income, insurance, education, employment, race, and ethnicity may influence access to care and when patients seek medical evaluation.
- Prior studies have identified socioeconomic disparities in rhinologic care, but less is known about whether these factors influence symptom severity or timing of presentation in uncomplicated ARS.

Research Question

Are socioeconomic and demographic factors associated with delayed healthcare-seeking behavior and greater symptom severity among patients presenting with acute rhinosinusitis?

Methods

- Retrospective secondary analysis of the NOSES randomized clinical trial
- Adults aged 18-75 years presenting with ARS to primary care, urgent care, or student health clinics across six U.S. Practice-Based Research Networks
- n = 1,632 participants

Predictors

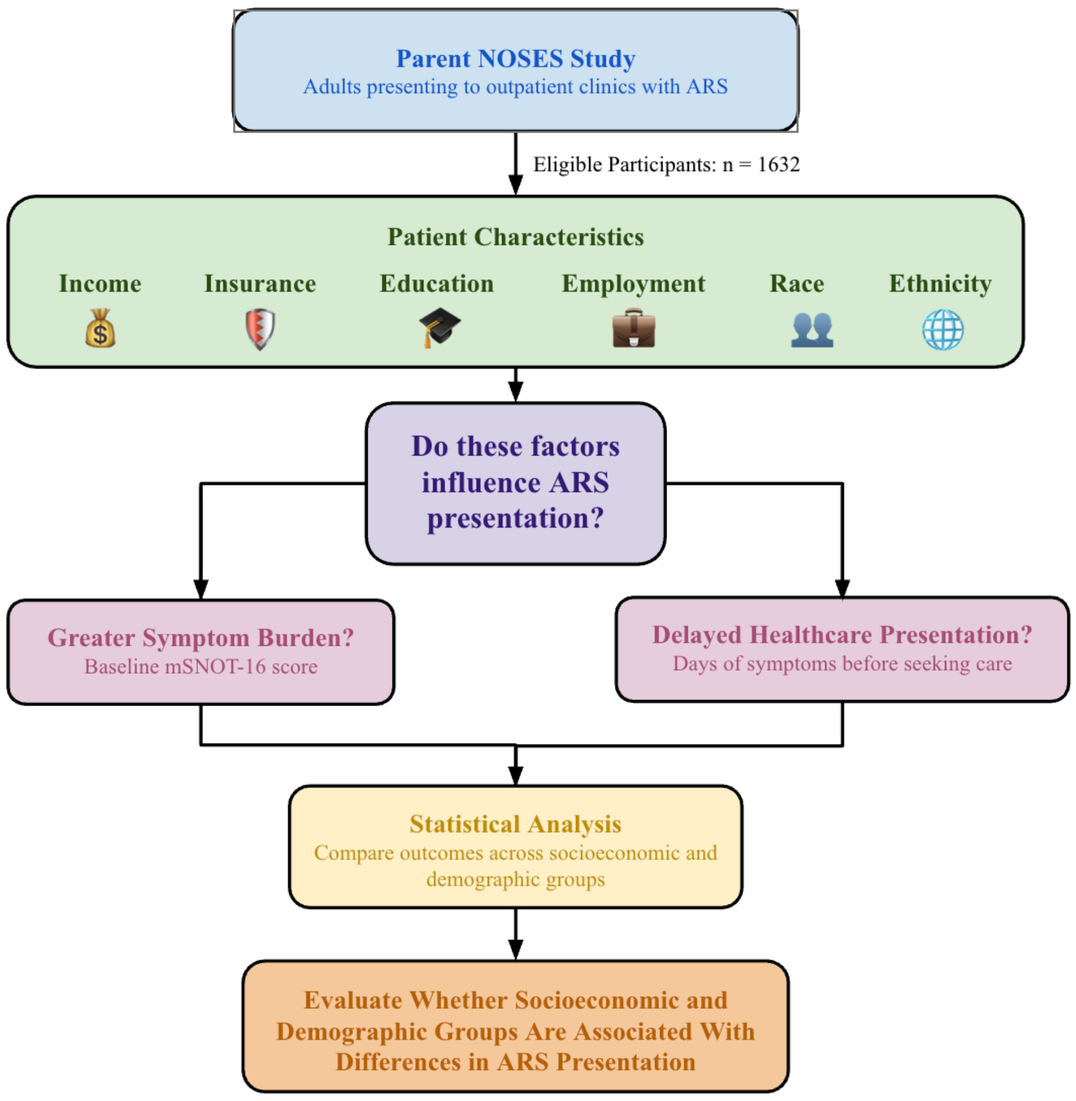
- Annual household income
- Educational attainment
- Health insurance status/type
- Employment status
- Race
- Ethnicity

Primary Outcome: Symptom severity at presentation, measured using the modified Sino-Nasal Outcome Test-16 (mSNOT-16)
Secondary Outcome: Symptom duration at presentation, measured as the number of days elapsed between symptom onset and enrollment

Statistical Analysis

- Group means compared across socioeconomic and demographic categories
- ANOVA used for variables with multiple categories
- Significant comparisons evaluated using Bonferroni-adjusted post hoc tests
- Statistical significance: $p < 0.05$

Hypothesis: Patients with lower household incomes, public or no health insurance, lower levels of educational attainment, unemployment or underemployment, and racial or ethnic minority backgrounds will experience longer delays between symptom onset and medical evaluation.



Results

- Baseline symptom severity was generally similar across socioeconomic groups, with no consistent relationship with income or insurance (Figure 1).
- Asian participants had significantly lower baseline mSNOT-16 scores than:
  - Black participants ($p = 0.026$)
  - White participants ($p < 0.001$)
  - Other race participants ($p < 0.001$)
- Symptom duration before presentation did not differ consistently across traditional socioeconomic indicators (Figure 2).
- Black participants presented approximately 1.5 days earlier than White participants ($p = 0.014$).
- Participants reporting more than one race presented approximately 2.3 days later than White participants ($p = 0.001$).

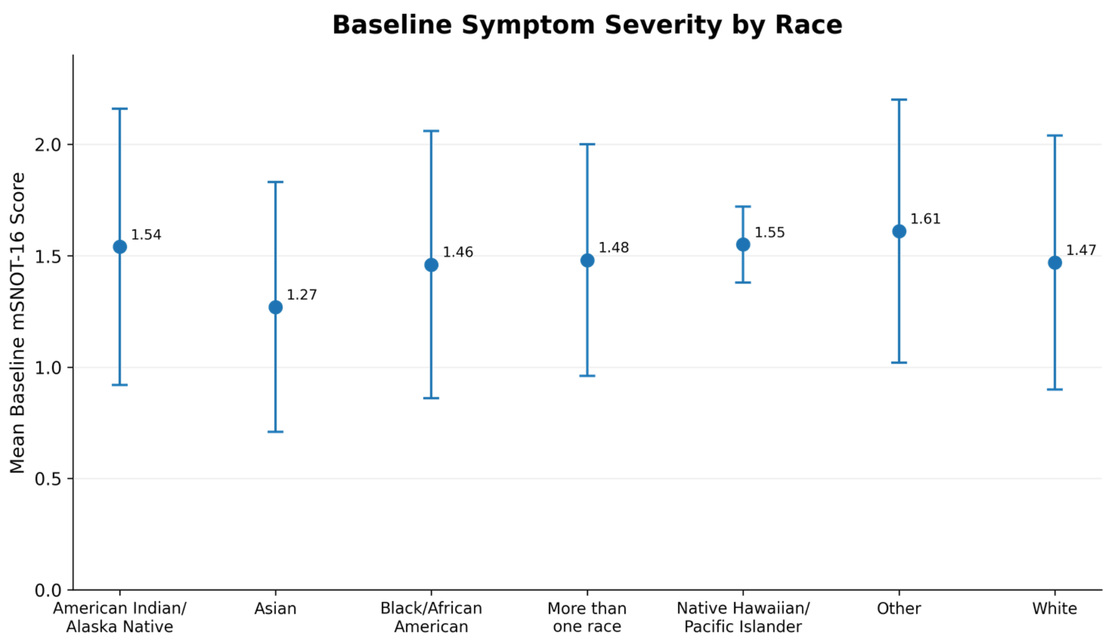


Figure 1.

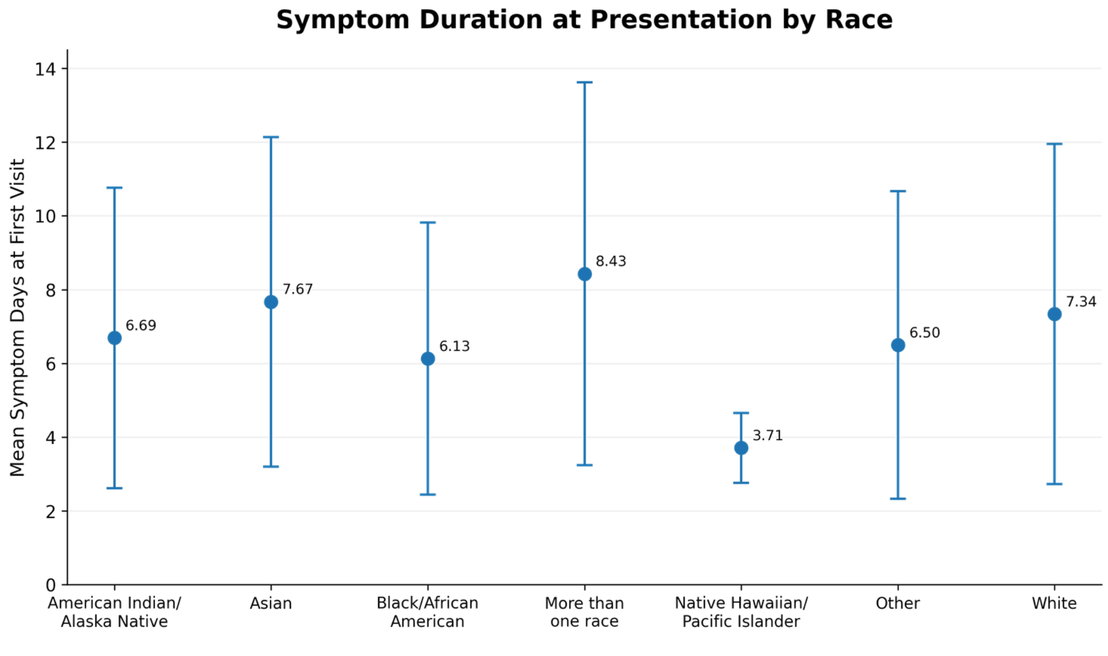


Figure 2.

Discussion

- Contrary to original hypothesis, lower socioeconomic status was not consistently associated with greater symptom severity or delayed presentation
- Differences in ARS presentation were more apparent across racial and ethnic groups than across traditional socioeconomic measures.
- Lower mSNOT-16 scores among Asian and Hispanic participants may reflect differences in symptom perception, symptom profiles, self-management, or reporting rather than differences in overall disease burden.
- Differences in mSNOT-16 scores may reflect variation in the types of ARS symptoms experienced or emphasized, rather than differences in overall disease burden.
- Cultural factors, symptom perception, healthcare expectations, health literacy, and access-related factors not captured in the NOSES dataset may contribute to these patterns.

Limitations

- Several demographic subgroups had small sample sizes, limiting precision.
- Outpatient recruitment may underrepresent patients who rely on emergency departments or do not seek medical care.
- Available socioeconomic variables did not capture factors such as transportation, healthcare availability, health literacy, housing stability, or caregiving responsibilities.

Conclusion

- Traditional socioeconomic indicators were not consistently associated with symptom severity or delayed presentation among adults with ARS.
- Although select differences were observed across racial and ethnic groups, no consistent demographic pattern emerged across outcomes.
- Future research should include direct measures of healthcare access, health literacy, and cultural context to better understand factors influencing when and how patients seek care.

Acknowledgements

Thank you to Dr. Merenstein for his invaluable mentorship throughout the research process as well as the NOSES research team who contributed to the NOSES study. A special thank you to the Georgetown University Center and Colleen Dougherty for her dedicated guidance and leadership throughout the program.

Logos for Your Use!

LAIDLAW SCHOLARS

Blue background only to provide contrast!

GEORGETOWN UNIVERSITY
Center for Research & Fellowships

GEORGETOWN UNIVERSITY
Center for Research & Fellowships

GEORGETOWN UNIVERSITY
Center for Research & Fellowships

GEORGETOWN UNIVERSITY
Center for Research & Fellowships

GEORGETOWN UNIVERSITY
Center for Research & Fellowships

GEORGETOWN UNIVERSITY
Center for Research & Fellowships