Title: Racial and Socioeconomic Disparities in Surgical Outcomes for Obstructive Sleep Apnea: A Scoping Review

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Introduction

- Surgical outcomes and access to care are not equally distributed.
- Documented racial disparities include:
- Residual disease after adenotonsillectomy
- Utilization of hypoglossal nerve stimulation
- Socioeconomic barriers further limit access to surgical therapy.
- In pediatric OSA, disparities in outcomes, complications, and healthcare utilization are well documented.
- Understanding these inequities is critical to guide treatment strategies and future research.

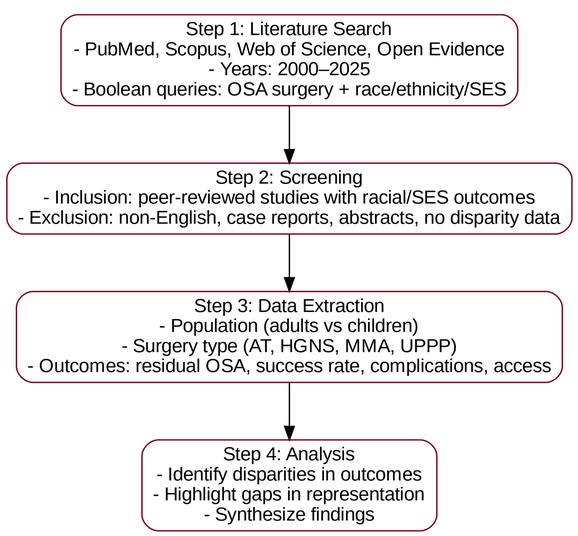
Objective

- Synthesize evidence on racial and socioeconomic disparities in surgical outcomes for OSA.
- Highlight where disparities are most pronounced (children vs adults, outcomes vs access).
- Identify gaps in representation and directions for future research.

Methods

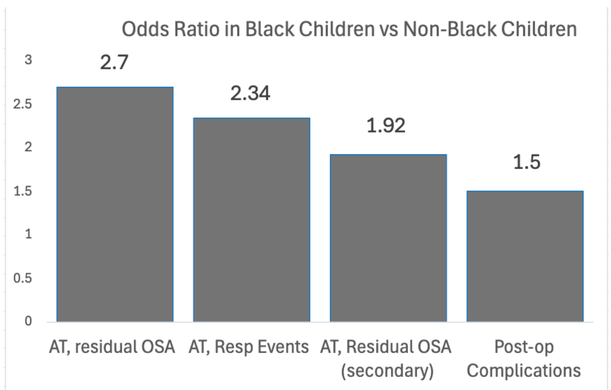
Scoping Review (2000–2025)

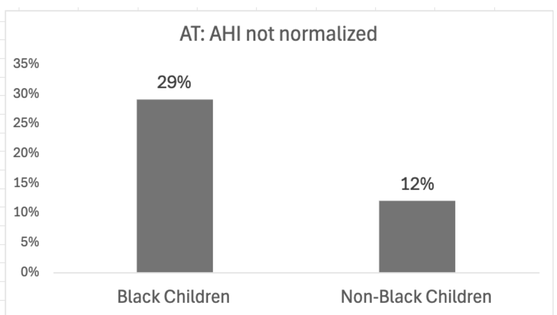
- Literature search in PubMed, Scopus, Web of Science, and Open Evidence.
- Inclusion: peer-reviewed studies reporting OSA surgical outcomes by race/ethnicity or socioeconomic status.

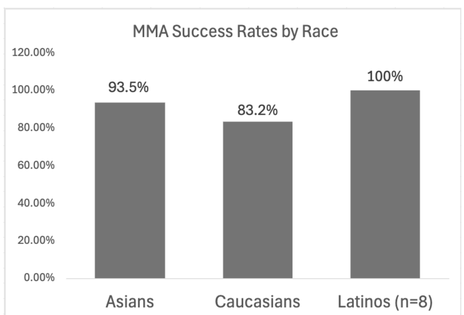


Results

Surgery	Population	Outcome Disparity	Stat Value(s)	Ref
Maxillomandibular Advancement (MMA)	Adults	Asians had higher success and improvement vs Caucasians; Latinos 100% success but very small sample	Success: Asians 93.5% vs Caucasians 83.2% vs Latinos 100% (n=8); AHI reduction: –42.7 vs –39.6 vs –21.2; significant, no *p* reported	5
Adenotonsillectomy (AT) – Residual OSA	Children	Black children had higher residual OSA, especially if non-obese	OR 2.7 vs non-Black; non-obese OR 4.9 (95% CI, $p<0.05$); obese: NS	6
AT – Efficacy & Complications	Children	Black children less likely to normalize AHI; higher postop complications and ER visits	AHI not normalized: 29% vs 12% non-Black; 50% ↑ respiratory complications; ↑ ER visits (significant)	4
AT – Postop Respiratory Events	Children	Black race = independent risk factor for respiratory events; Hispanic/Asian fewer events	OR 2.34 (95% CI 1.53–3.58), $p<0.001$; Hispanic $p<0.001$; Asian $p=0.04$	2
AT – Residual OSA (secondary)	Children	Black children more likely to have residual OSA	OR 1.92 (95% CI 1.04–3.55), $p=0.037$	1
AT – Comorbidities & SES	Children	Black children: more comorbidities (obesity, asthma, sickle cell); higher costs, longer stays; higher Medicaid coverage	OR 1.5 for complications (95% CI 1.3–1.8); Medicaid: 67% Black, 64% Hispanic vs 35% White ($p<0.001$); ↑ charges/stays ($p<0.05$)	3
Hypoglossal Nerve Stimulation (HGNS/UAS)	Adults	Outcomes equal across races, but non-White patients underrepresented (<5%)	Response rate: 65.4% vs 65.4%; Post-treatment AHI $p=0.9$	7







Discussion

- **Children (AT):** Black children have higher residual OSA & complication rates → multifactorial (asthma, obesity, sickle cell, follow-up barriers, SES).
- **Adults (HGNS/UPPP):** Outcomes equivalent once treated, but Black/non-White patients underrepresented → disparities in referral, candidacy, access.
- **Adults (MMA):** Asians show higher success (craniofacial anatomy, selection); no data on Black adults → critical representation gap.
- **Socioeconomic factors:** Black/Hispanic children more likely Medicaid-insured, longer hospital stays, higher charges → SES compounds disparities.
- **Representation gaps:** Minority patients consistently underrepresented in sleep surgery trials → limits generalizability, perpetuates inequities.

Takeaway: Disparities in OSA surgical outcomes are not explained by biology but reflect systemic inequities in comorbidities, access, and representation. Addressing these factors is essential for equitable ENT care.

Future Directions

- **Evidence gaps:** Limited data on Black adults in MMA and other surgical cohorts; Hispanic/Latino and SES outcomes also understudied.
- **Next steps:**
  - Increase racial/ethnic representation in sleep surgery trials.
  - Address structural and socioeconomic barriers to surgical care.
  - Develop culturally tailored interventions and equity-focused health policies.
  - Conduct longitudinal studies to evaluate long-term outcomes across diverse populations.

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