

The Effect of Race and Ethnicity on Patient-Reported Outcomes after Posterior Spinal Fusion for Adolescent Idiopathic Scoliosis

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INTRODUCTION: There is a paucity of literature evaluating differences in the presentation and treatment of adolescent idiopathic scoliosis (AIS) patients across different racial/ethnic backgrounds, with a few studies reporting slightly higher preoperative curve magnitude in Black vs. White patients. However, no studies examine surgical outcomes or patient-reported outcome measures (PROMs) across different races/ethnicities. We hypothesize that race and ethnicity will play a role in the preoperative curve size as well as surgical outcomes and PROMs for AIS patients undergoing posterior spinal fusion (PSF).

METHODS: A total of 2,861 AIS patients with minimum 2-year follow up after PSF between 2010-2018 were identified. Patients self-identified as Asian (n=148), Black (n=351), Hispanic (n=385), or White (n=1977). Scoliosis Research Society 22r outcome measures (SRS-22r) were collected at each visit. Repeated measures analysis of variance (RM ANOVA) was performed on patients with complete preoperative and 2 year postoperative data (n=2,861). Generalized linear mixed model (GLMM) was performed on all patients with at least preoperative data (n=4,071) to examine changes in PROM over time.

RESULTS: Black patients had a lower 2-year follow-up rate compared to Asian/White patients (61% vs. 76%/72%, p<0.001). Mean preoperative thoracic Cobb was larger in Black vs. Hispanic patients (55° vs. 50°, p<0.001), but 2-year postoperative thoracic and lumbar Cobb was similar among all groups. There were significantly less improvements in postoperative scores for Pain (Black), Self-Image (Black), and Function (Asian) for patients with complete data (p<0.05). However, differences were all less than the minimum detectable measurement differences. There were no differences in pre- and postoperative SRS-22r scores for all races/ethnicities. There were no differences in complication rates among all groups.

DISCUSSION AND CONCLUSION: Minor differences in preoperative curve magnitude (<5°) were discovered between groups, but all had similar 2-year radiographic outcomes. While Black patients had less improvement in pain and self-image scores, these differences were less than the detectable measurement difference. When incorporating all data on all available patients (GLMM, n=4,071), no differences in PROMs were identified across all groups supporting the finding that race/ethnicity did not play a significant role in the presentation, surgical outcomes, and/or patient-reported outcome measures of AIS patients undergoing PSF.

	RM ANOVA	GLMM
Asian (n)	148	193
Black (n)	351	572
Hispanic (n)	385	571
White (n)	1977	2735
Total (n)	2861	4071
RM ANOVA: repeated measures analysis of variance		
GLMM: generalized linear mixed model		

	Preop Thoracic Cobb	Preop Lumbar Cobb	2yr Primary Cobb	% correction of primary curve
Asian (n=146)	51.6°	39.9°	19°	65%
Black (n=344)	55.4°	40°	19.8°	65%
Hispanic (n=385)	49.7°	39.9°	20.2°	62%
White (n=1978)	53.1°	40.4°	20.3°	63%
Total (n=2862)	52.8°	40.2°	20.2°	63%
P value	<0.001	0.9	0.2	0.01