Title: The role of socioeconomic status in the presentation and treatment outcomes of idiopathic scoliosis in pediatric populations

Introduction:
There is conflicting data regarding the role of socioeconomic status (SES) in the outcomes of pediatric patients with scoliosis. This study aims to identify whether differences exist between patients of different socioeconomic groups.

Methods:
Patients with idiopathic scoliosis at our institution between 2002 and 2022 were prospectively collected and retrospectively reviewed. Patients were assigned an Area Deprivation Index score based on ZIP code and then split into “extremely disadvantaged”, “disadvantaged”, “moderately advantaged”, and “advantaged”. Patients were also stratified into “brace only”, “brace to spinal fusion surgery”, and “spinal fusion without brace” groups. The Kruskal-Wallis rank sum test was used to determine a difference in age at presentation, index major Cobb angle, bracing duration, BMI, and various post brace outcomes.

Results:
Patients within the advantaged and moderately advantaged groups who were only braced had a larger index major Cobb angle than patients in the disadvantaged or extremely disadvantaged groups ($p < 0.001$) . Similarly, patients within the advantaged and moderately advantaged groups who were braced and progressed to surgery had a larger index major Cobb angles ($p = 0.009$). However, there was no difference in duration of bracing before surgery. In patients who were not braced prior to surgery, there was no difference between major Cobb angle or SES quartiles. Patients in the “disadvantaged” quartile were less likely to mature out of their brace than patients in the “advantaged” quartile and more likely to require surgery.

Conclusion:
Patients in more affluent areas are more likely to have a greater index major Cobb angle than their lower SES counterparts. However, patients in more disadvantaged areas are less likely to mature out of their braces, raising concern for worse outcomes despite early intervention.