

OBJECTIVE

To measure the association between **area-level social determinants of health (SDH)** and **dental service utilization** among a subset of pediatric Medicaid beneficiaries.

BACKGROUND

- Early childhood caries is a highly prevalent, yet preventable disease influenced by a variety of biological and environmental factors.¹⁻³
- Increasing evidence supports the influence of area-level factors on disease experience, healthcare utilization, and health outcomes.⁴⁻⁶
- Incorporating geographic social determinants of health (SDH) into existing caries risk assessments could help capture social risk factors that influence health status and care delivery.⁷
- Such information could support and inform collaborative efforts by providers, payors, and social services to improve quality of care, outcomes, and costs.⁸

METHODS

- Partners for Kids dental claims served as our primary data source. We included children ages 0-5 who had an oral health service claim in 2017. We then conducted a **5-year retrospective claims analysis** from 2017-2021.
- Visit-level utilization data were collected for each subject. Utilization outcomes were defined using CDT and CPT codes. Visit-types of interest included:
 - **preventive visits** (D1000-D1999),
 - **caries treatment visits** (D2000-D3999 and D7111, D7140, D7210),
 - **dental general anesthesia (GA) visits** (D9420 or CPT 41899), and
 - **dental emergency department (ED) visits** (using a facility flag within the claim)
- Subjects' home addresses were geocoded and joined to census tracts, allowing for linkage to the Ohio Children's Opportunity Index, a neighborhood-level measure of child opportunity.⁹
- Analysis included descriptive statistics and bivariate comparisons of area-level SDH for each outcome.

RESULTS

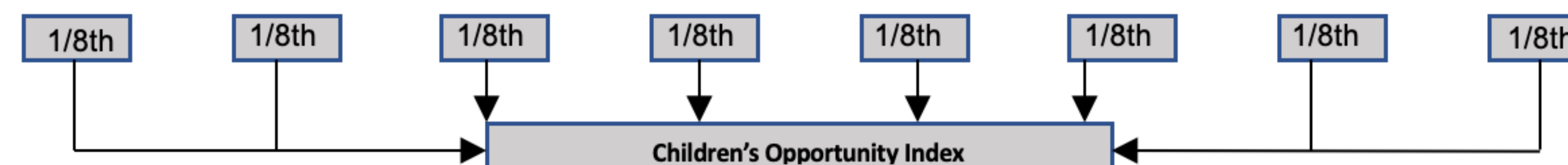
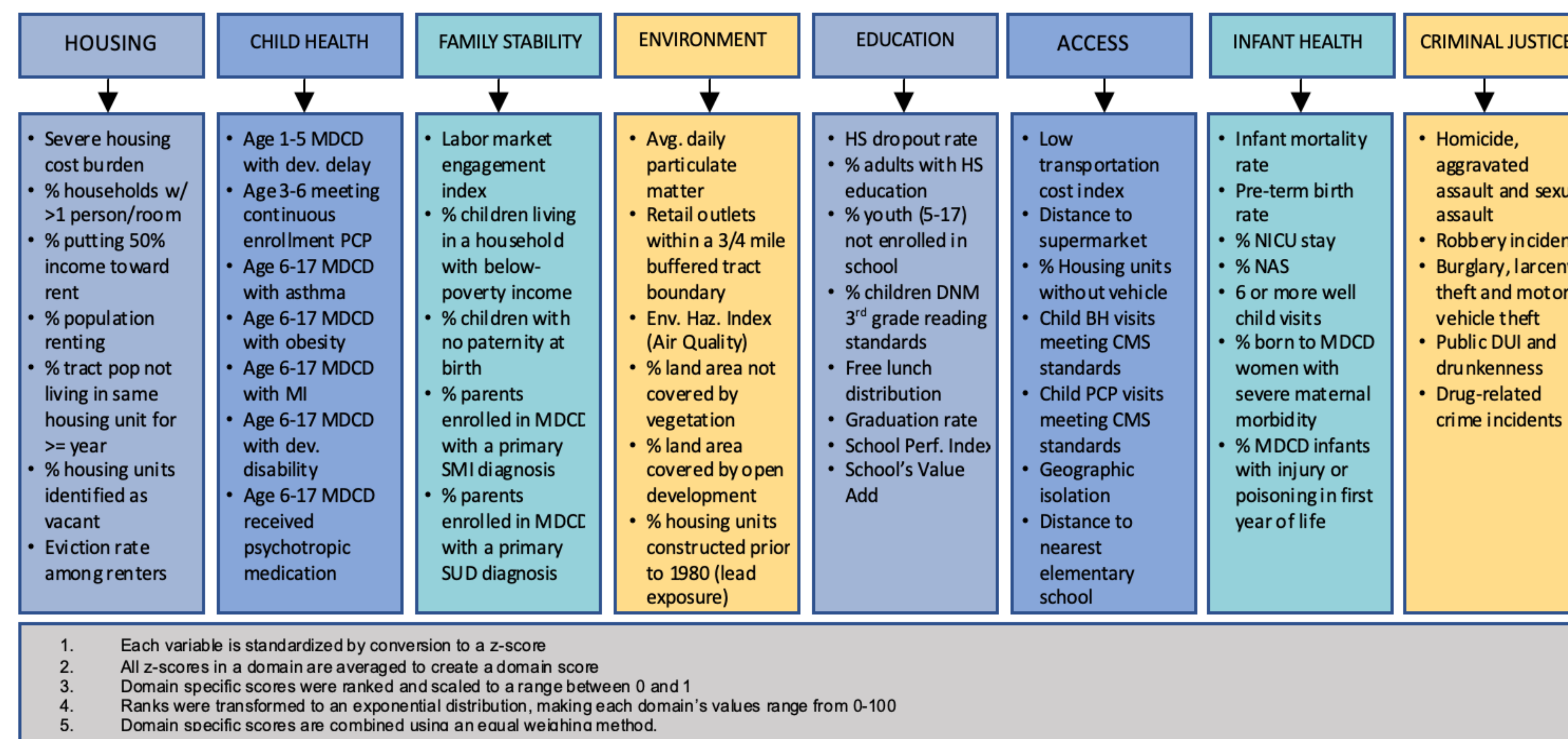


FIGURE 1. Ohio Children's Opportunity Index (COI) Affects and Domains⁹

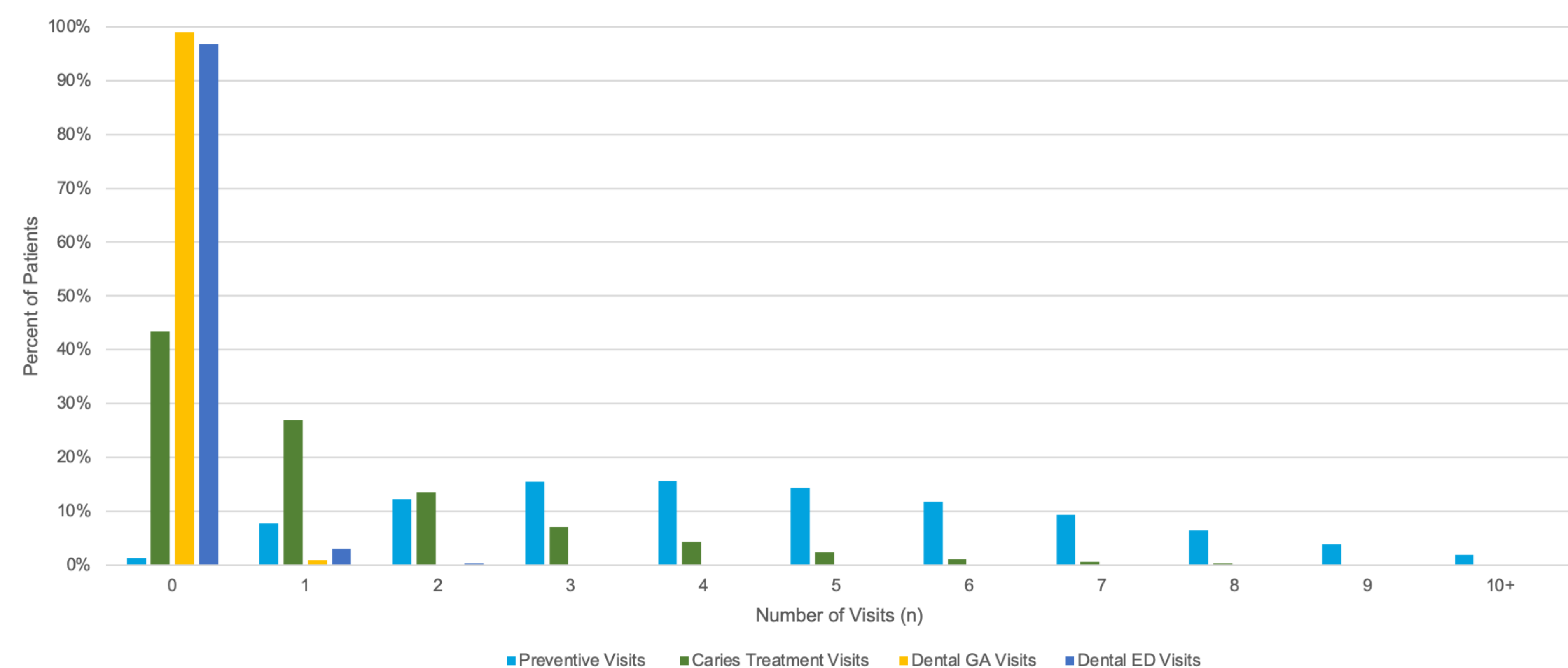


FIGURE 2. Dental Visit Utilization Summary (number of visits per category)

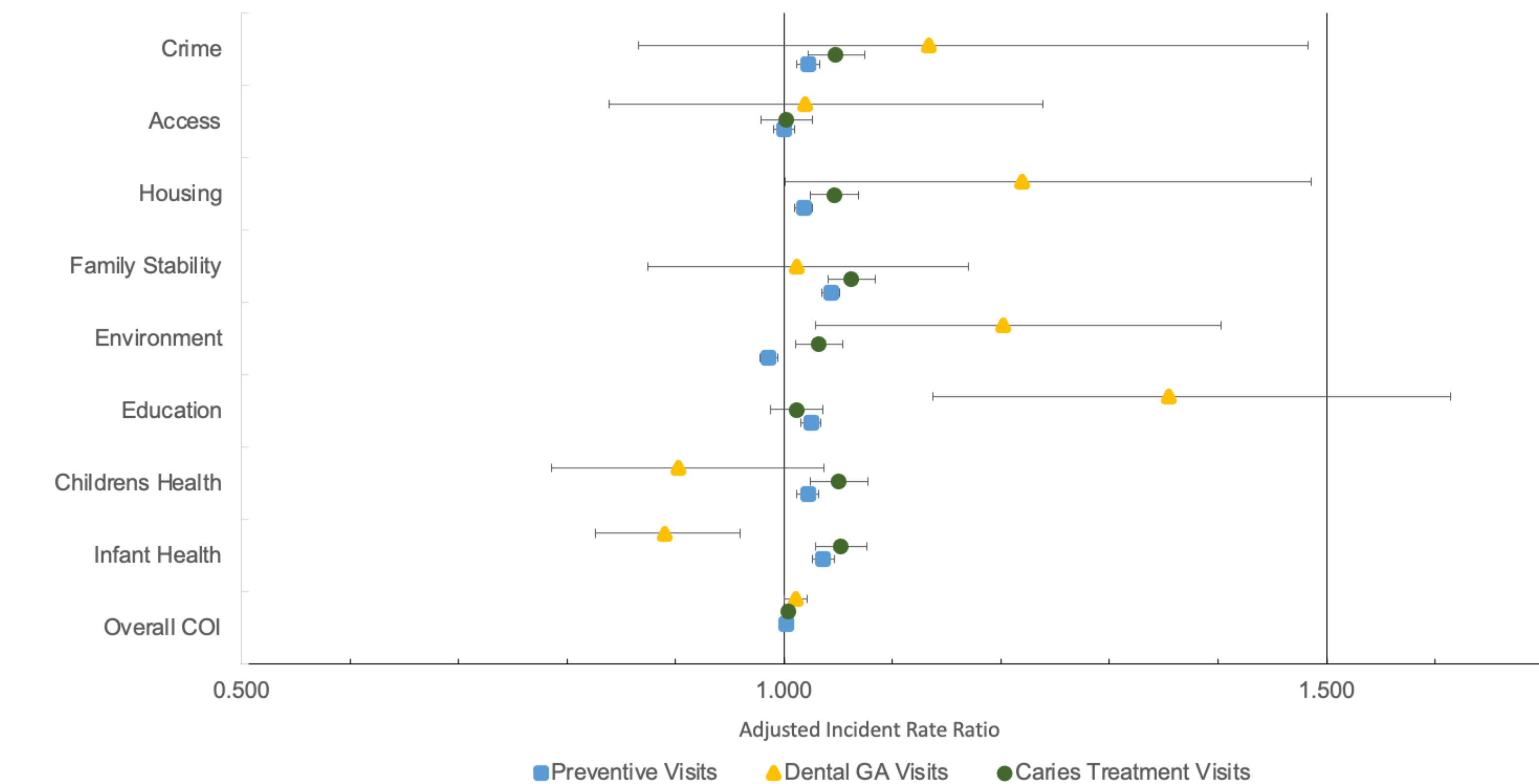


FIGURE 3. Poisson Regression Adjusted Incident Rate Ratios (95% CI) for Dental Utilization Based on Neighborhood Opportunity

DISCUSSION

- Area-level SDH indicators can predict dental utilization outcomes.
- Aggregate measures of opportunity should be interpreted cautiously, as they can mask important relationships between subdomains and outcomes.
- Most subdomains were positively associated with preventive and caries treatment visits; however, some were negatively associated.
- The relationship between neighborhood opportunity and dental GA is notably different. **Child and Infant health** were **negatively associated with dental GA** use. As these measures improved, the likelihood of dental GA decreased.

CONCLUSION

Receipt of dental treatment was related to neighborhood quality. Children with preventive, caries-treatment, and dental GA visits were more likely to live in higher opportunity neighborhoods. Future efforts should investigate the mechanisms by which area-level factors influence dental access and utilization.

REFERENCES



The authors would like to acknowledge Jodee McDaniel for her help with the IRB and DUA processes.