Safe, supportive neighborhoods: Are they associated with childhood oral health?

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Background

The National Institutes of Dental and Craniofacial Research (NIDCR) recently released its seminal report, "Oral Health in America," in December 2021. It chronicles the significant achievements that have advanced oral health for the last 20 years but challenges remain. There has been limited examination on how community-level supports may influence oral health indicators. In contrast to experiences), which typically describe household or personal-level trauma, positive childhood experiences (PCEs) describe primarily community -level supports that improve the social and emotional development of children and potentially moderate, mitigate, or prevent a child's exposure to ACEs. **There has been limited examination of how community-level supports may influence oral health metrics among children.** The purpose of our study is to examine the association between two types of community-level positive childhood experiences and oral healthcare and oral health outcomes among children ages 6 to 17 years of age.

"Children with exposure to higher numbers of ACEs are less likely to have preventive dental visits in the previous year and more likely to have tooth decay." (Crouch et al, 2019)

Methods

Study Design: The The Healthy Outcomes Positive Experiences (HOPE) framework was used to inform our study. The HOPE framework categorizes PCEs into the following: [1] nurturing, supportive relationships, [2] living in safe, stable environments, [3] constructive social engagement opportunities, and [4] learning social and emotional competencies.

Data Source: This study uses a cross-sectional data set from the 2018–2019 National Survey of Children's Health. Two oral health metrics were used:

1. *Preventive dental care*, measured as one or more preventive dental visits in the past 12 months, and
2. *Tooth decay*, measured as tooth decay or cavities in the last 12 months. To quantify living in safe, stable, equitable environments, questions on residing in a safe and supportive neighborhood were used.

Data Analysis: Descriptive statistics and bivariate analyses were used to calculate frequencies, proportions, and unadjusted associations for each variable (n = 40,290). To examine the association between PCEs and oral health indicators, multivariable logistic regression models were used. SAS statistical software, version 9.3, was used for all analyses.

Key Findings

Figure 1. Characteristics of respondents to the 2018–2019 National Survey of Children's Health, in total and stratified by preventive dental care and tooth decay, *n* = 40,290.

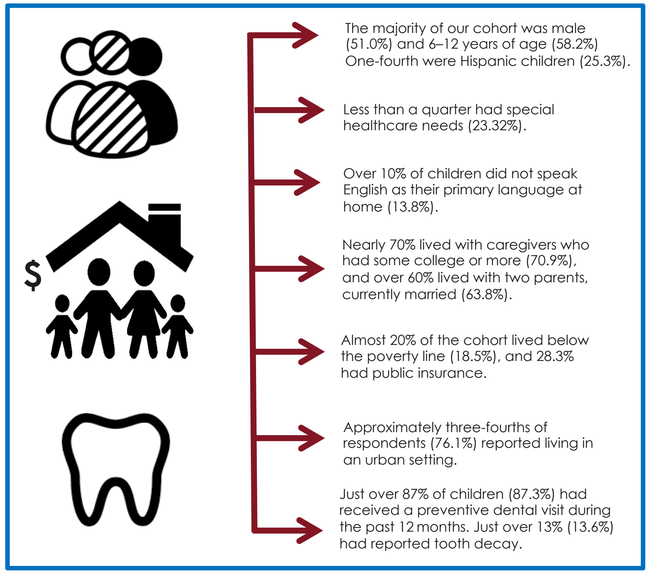

Table 1. Positive Childhood Experiences (PCEs) reported by respondents to the 2018–2019 National Survey of Children's Health, in total and stratified by preventive dental visit and tooth decay, *n = 40,290*. **Note: Bold indicates statistically significant value (p < 0.05).*

PCE Type	All (%)	Child had preventative dental visit (%)	Child did not have preventative dental visit (%)	P-value	Child had tooth decay (%)	Child did not have tooth decay (%)	P-Value
Safe neighborhood [a]	64.9	65.8	34.2	**<0.0001**	56.2	43.8	**0.0001**
Does not reside in a safe neighborhood	35.1	34.2	65.8		43.8	56.2	
Supportive neighborhood [b]	55.9	57.6	42.4	**<0.0001**	46.7	53.3	**<0.0001**
Does not reside in a supportive neighborhood	44.1	42.4	57.6		53.3	46.7	

Table 2. Adjusted odds ratios and 95% Wald confidence intervals predicting that child had a preventive dental visit, by supportive neighborhood, among respondents to 2018–2019 National Survey of Children's Health, *n = 40,290*.

Model 2 (*Preventive Dental Visit*)	
Variable	**PE | 95% CI**
PCE	
Did not experience supportive environment	**1.41 | 1.21-1.65**
Supportive neighborhood	Referent
Characteristics of the child	
Race/Ethnicity	
White, Non-Hispanic	Referent
Black, Non-Hispanic	0.72 | 0.58-0.89
Hispanic	0.98 | 0.77-1.25
Other, Non-Hispanic	0.75 | 0.61-0.92
Sex	
Male	Referent
Female	1.16 | 0.99-1.35
Age	
6-12 years old	Referent
13-17 years old	**0.82 | 0.70-0.96**
Special healthcare needs	
Yes	1.08 | 0.90-1.30
Primary Language	
Not English	0.81 | 0.62-1.07
Characteristics of caregiver/household	
Education	
High school diploma or less	**0.59 | 0.49-0.71**
Some college or more	Referent
Health Insurance	
Public	1.02 | 0.80-1.29
Private	Referent
Public and Private	1.04 | 0.67-1.62
Not insured/unspecified	**0.36 | 0.28-0.47**
Geographic Residence	
Rural	0.90 | 0.73-1.10
Urban	Referent
Residence suppressed	1.09 | 0.95-1.26
Family Structure	
2 parents, currently married	Referent
2 parents, not currently married	0.81 | 0.60-1.09
Single parent	0.92 | 0.76-1.11
Other	0.65 | 0.46-0.91
FPL	
0%-99% FPL	**0.35 | 0.27-0.46**
100%-199% FPL	**0.38 | 0.30-0.48**
200%-399% FPL	**0.44 | 0.36-0.54**
Greater than or = 400% FPL	Referent

Discussion

- This study examines how community context may influence oral health metrics, by examining the association between safe neighborhoods and supportive neighborhoods and oral health outcomes among a national cohort of children.
- This study confirms that children residing in a supportive neighborhood were more likely to have a preventive dental visit. Also, the study confirms that children who resided in a safe neighborhood and supportive neighborhood were less likely to have tooth decay.
- This study elevates the value of neighborhood and community context as influencers of oral health status. Interventions that are based within neighborhoods or communities may be highly effective for children.
- **Study Strengths→** Utilization of the most recent nationally representative database of children's health; the first study to examine the association of PCEs and oral health indicators.
- **Study Limitations→** Self-reporting of the data by the caregiver, the timing, duration, and frequency of PCEs are unknown within this dataset.

Conclusions

- The findings highlight the role of social structures, such as safe and supportive neighborhoods, in enhancing and strengthening community level interventions that support PCEs to support oral health in children.
- The findings from this study will inform policymakers and program developers on how community context may be meaningful for children to access the oral healthcare that they need.
- **Planned Action→** implementation of interventions in the community to build assets in order to improve population oral health metrics are needed.
- **Next Steps/Considerations→** Policymakers and program planners must take in account the social structures and community assets surrounding children, community level advocacy efforts are highly needed, and federally qualified health centers (FQHC) are a great avenue for community-based dental care

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- The study was submitted for approval by the Institutional Review Board at the University of South Carolina.
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