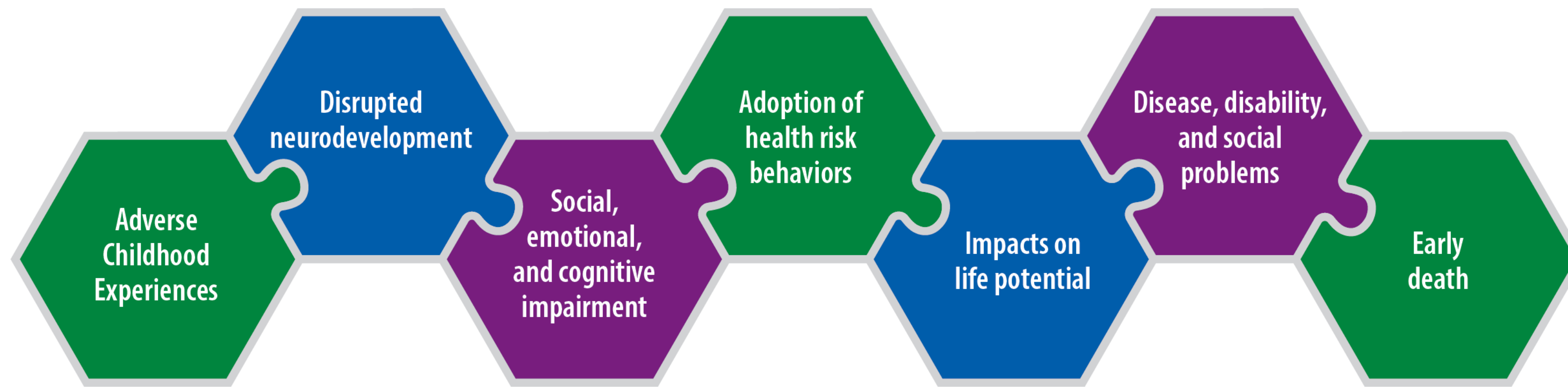




## Introduction

- Adverse Childhood Experiences (ACEs) are earlylife stressors that can disrupt neurodevelopment and trigger toxic stress through prolonged activation of the stressresponse system
- ACEs, which include abuse, neglect, food insecurity, and socioeconomic instability, are more prevalent among children from lowincome households, where parental stress and family conflict are common
- Elevated cortisol levels associated with toxic stress have been linked to longterm physical, emotional, and behavioral health consequences.



**Figure 1.** Adverse Childhood Experiences (ACEs) can have long-term health and life outcomes [1]

### ACEs can have lasting effects on...



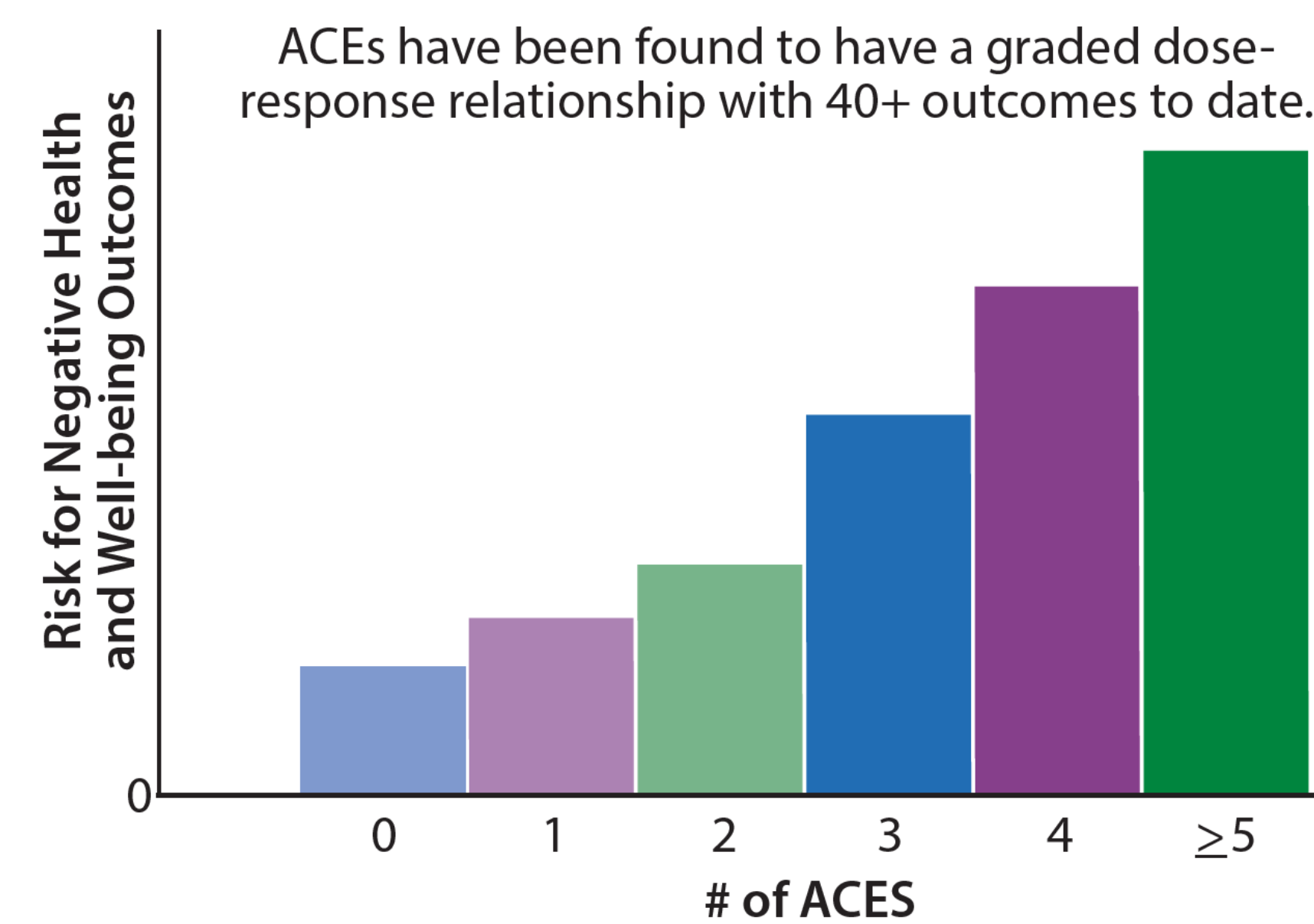
**Health** (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)



**Behaviors** (smoking, alcoholism, drug use)



**Life Potential** (graduation rates, academic achievement, lost time from work)



\*This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.

**Figure 2.** ACEs can have lasting impacts on health, behaviors, and life potential [1]

## Purpose

This study seeks to investigate the relationship between parental stress and children’s diet, sugary beverage consumption, hygiene, and dmft/DMFT scores.

## Materials & Methods

All research was approved and conducted in accordance with procedures and guidelines outlined by the University of Iowa Institutional Review Board Human Subjects Office. Written informed consent was obtained from parents who agreed to enroll their children in the study.

### Study population

Systemically healthy children aged 2–6 undergoing elective surgeries under general anesthesia at the University of Iowa Stead Family Children’s Hospital and a primary caregiver

### Inclusion criteria:

- ASA status I or II (no serious medical problems)
- Hair at least 1 cm long

### Exclusion criteria:

- ASA status III or greater
- Children with chronic diseases affecting the immune system or requiring chronic use of antibiotics (including requirement for antibiotic prophylaxis for infective endocarditis)
- Children with Diabetes
- Gtube fed children
- Children with hair shorter than 1 cm,
- Children who have been on oral antibiotics within the past 30 days.
- Caregivers of eligible participants completed a questionnaire collecting data on demographics, oral hygiene habits, diet, systemic health, socioeconomic status, safety, and psychological distress
- Intraoperative dental examinations were conducted on the children to assess participants’ dmft/DMFT scores.

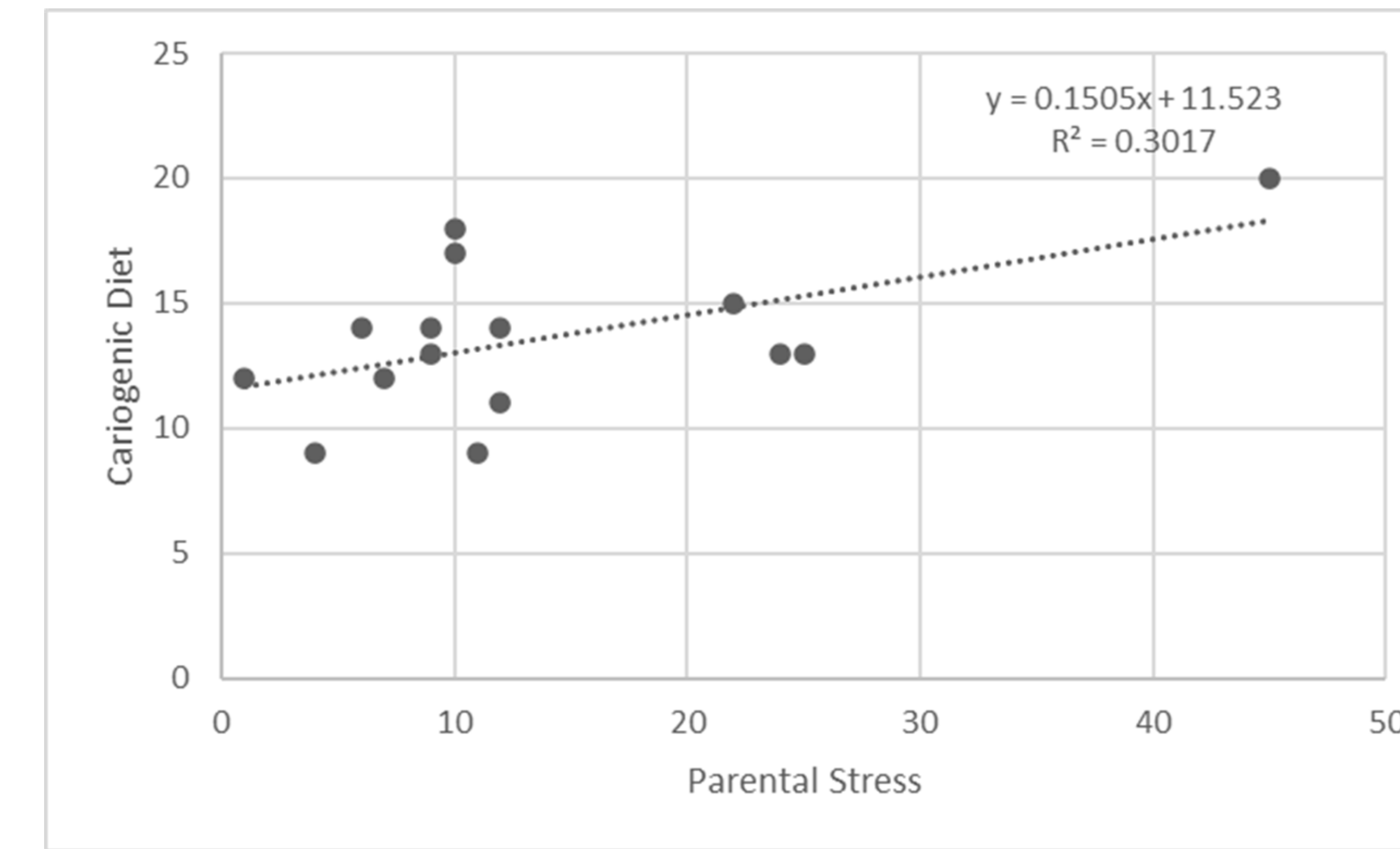
## Limitations

Small sample size and qualitative nature of the data

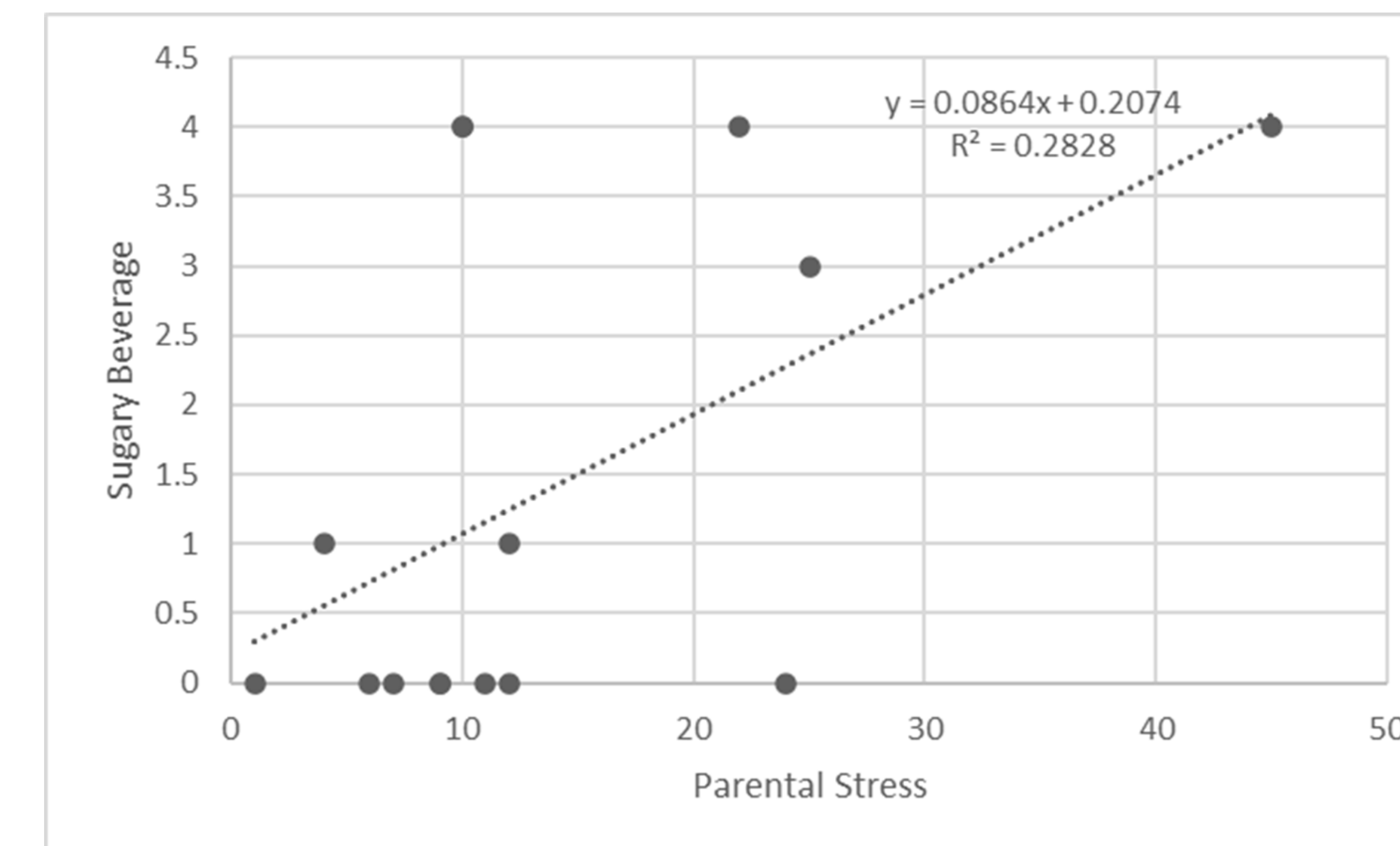
## Conclusion

- Parental stress appears to influence children’s dietary behaviors, particularly increasing sugary beverage intake
- Parental stress did not appear to be linked to oral hygiene or caries experience
- These findings highlight the need to address psychosocial factors in promoting healthy dietary habits

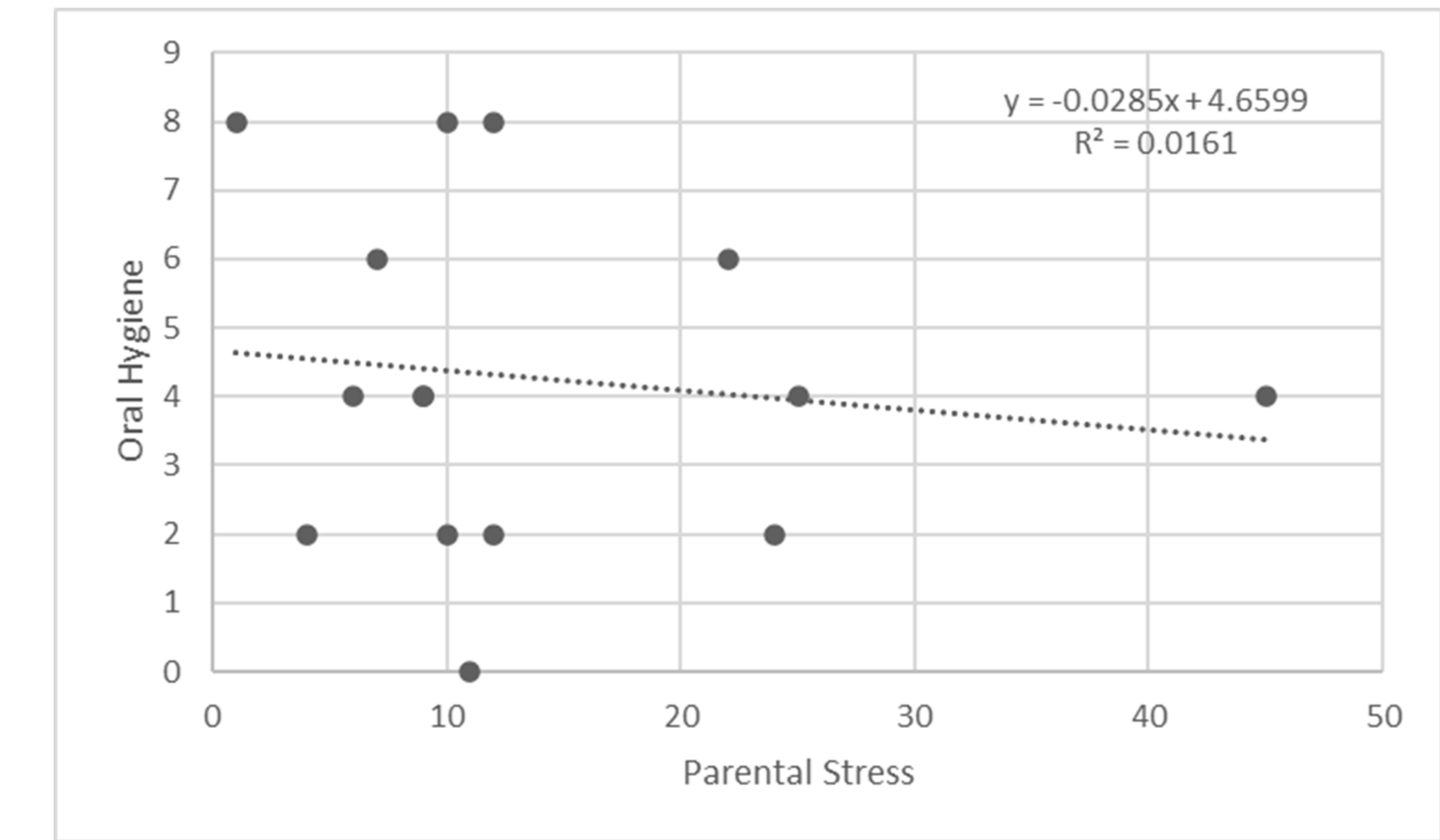
## Results



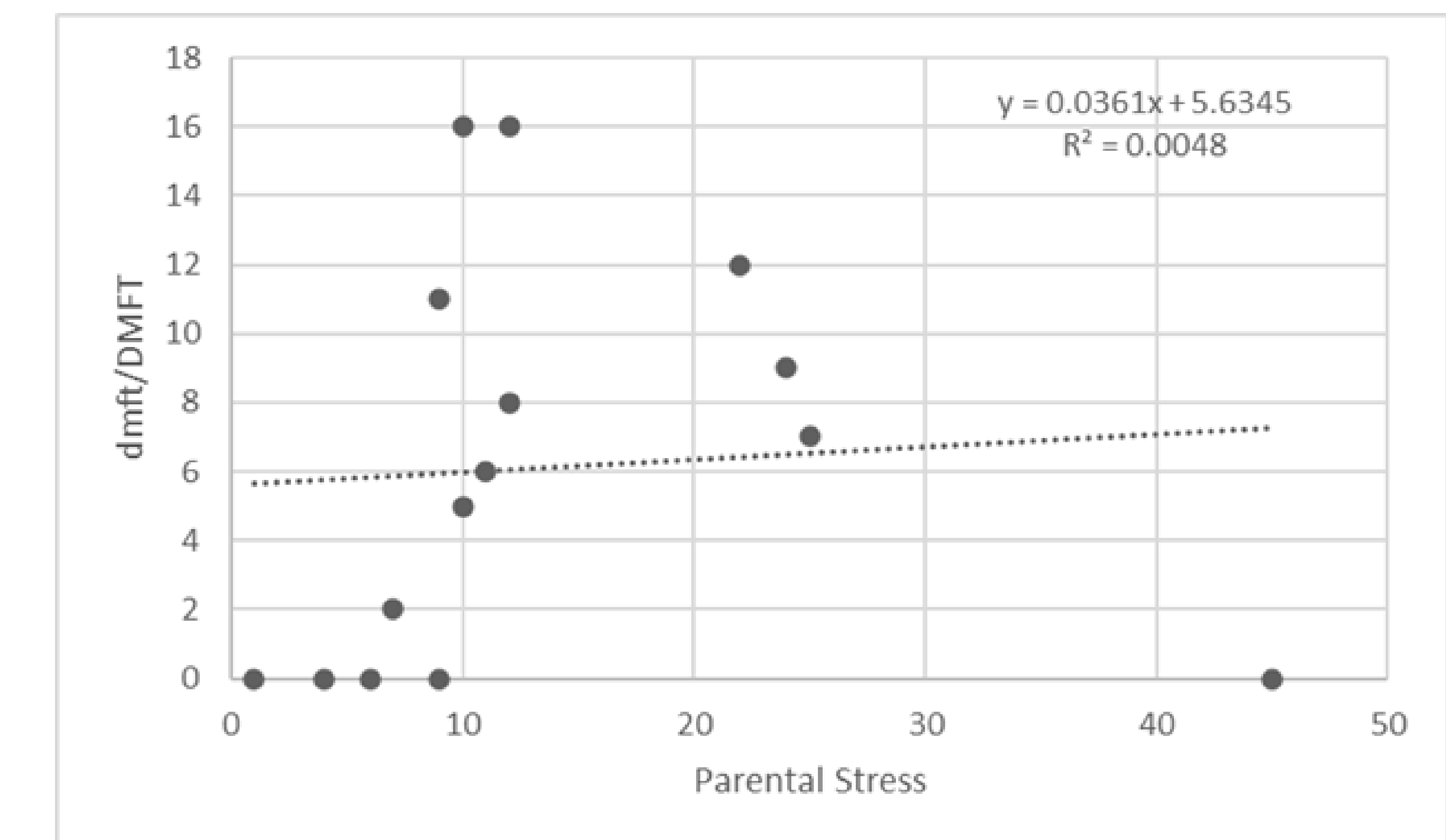
**Figure 3.** Parental Stress vs. Cariogenic Diet



**Figure 4.** Parental Stress vs. Sugary Beverage Consumption



**Figure 5.** Parental Stress vs. Oral Hygiene



**Figure 6.** Parental Stress vs. dmft/DMFT

| Preventing ACEs  |   |
|--|---|
| Strategy   | Approach  |
| Strengthen economic supports to families                         | <ul style="list-style-type: none"> <li>Strengthening household financial security</li> <li>Family-friendly work policies</li> </ul>   |
| Promote social norms that protect against violence and adversity | <ul style="list-style-type: none"> <li>Public education campaigns</li> <li>Legislative approaches to reduce corporal punishment</li> <li>Bystander approaches</li> <li>Men and boys as allies in prevention</li> </ul>  |
| Ensure a strong start for children                               | <ul style="list-style-type: none"> <li>Early childhood home visitation</li> <li>High-quality child care</li> <li>Preschool enrichment with family engagement</li> </ul>   |
| Teach skills   | <ul style="list-style-type: none"> <li>Social-emotional learning</li> <li>Safe dating and healthy relationship skill programs</li> <li>Parenting skills and family relationship approaches</li> </ul>   |
| Connect youth to caring adults and activities                    | <ul style="list-style-type: none"> <li>Mentoring programs</li> <li>After-school programs</li> </ul>   |
| Intervene to lessen immediate and long-term harms                | <ul style="list-style-type: none"> <li>Enhanced primary care</li> <li>Victim-centered services</li> <li>Treatment to lessen the harms of ACEs</li> <li>Treatment to prevent problem behavior and future involvement in violence</li> <li>Family-centered treatment for substance use disorders</li> </ul> |

**Figure 7.** Strategies suggested by the CDC to prevent ACEs [1]

## References

- Centers for Disease Control and Prevention, Preventing Adverse Childhood Experiences: Leveraging the Best Available Evidence. National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, 2019. Atlanta, GA.

## Acknowledgements

Colgate Award for Research Excellence; University of Iowa College of Dentistry Seed Grant