

# How Food Insecurity Impacts Children's Oral Health Outcomes



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## BACKGROUND

### Social Determinants of Health

Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

### Food Security

Food insecurity is defined as inadequate access to food that results in food shortages, disrupted eating patterns, and hunger. When access to healthy food is hindered by economic barriers, physical limitations, or both, the result is food insecurity.

### Caries Severity

Recent evidence has revealed that children in low-income and food insecure households are more likely to have tooth decay. This is due to a potential mechanism linking food insecurity and tooth decay by way of dietary behaviors, including the quantity and frequency of carbohydrate consumption.

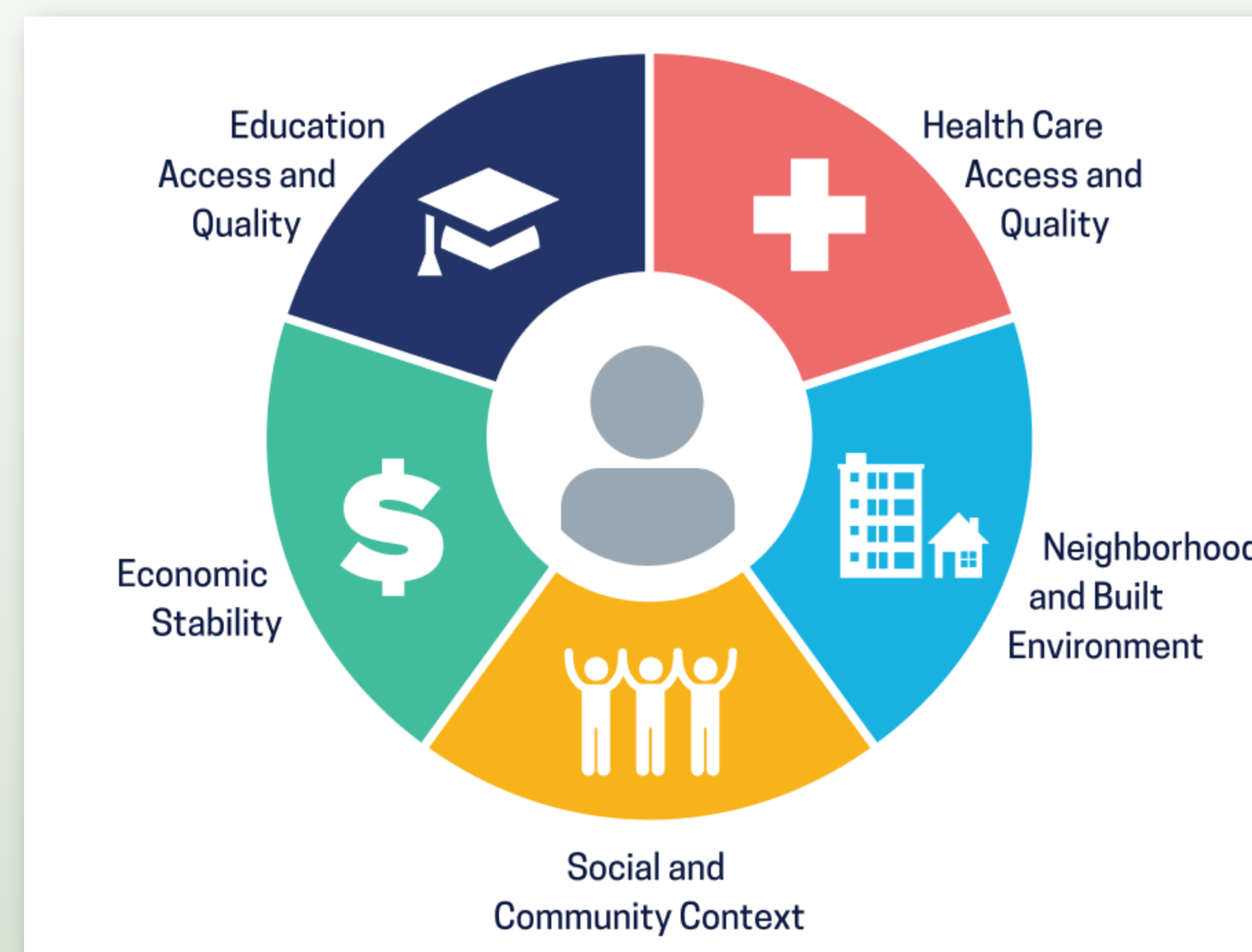


Figure 1: Social Determinants of Health

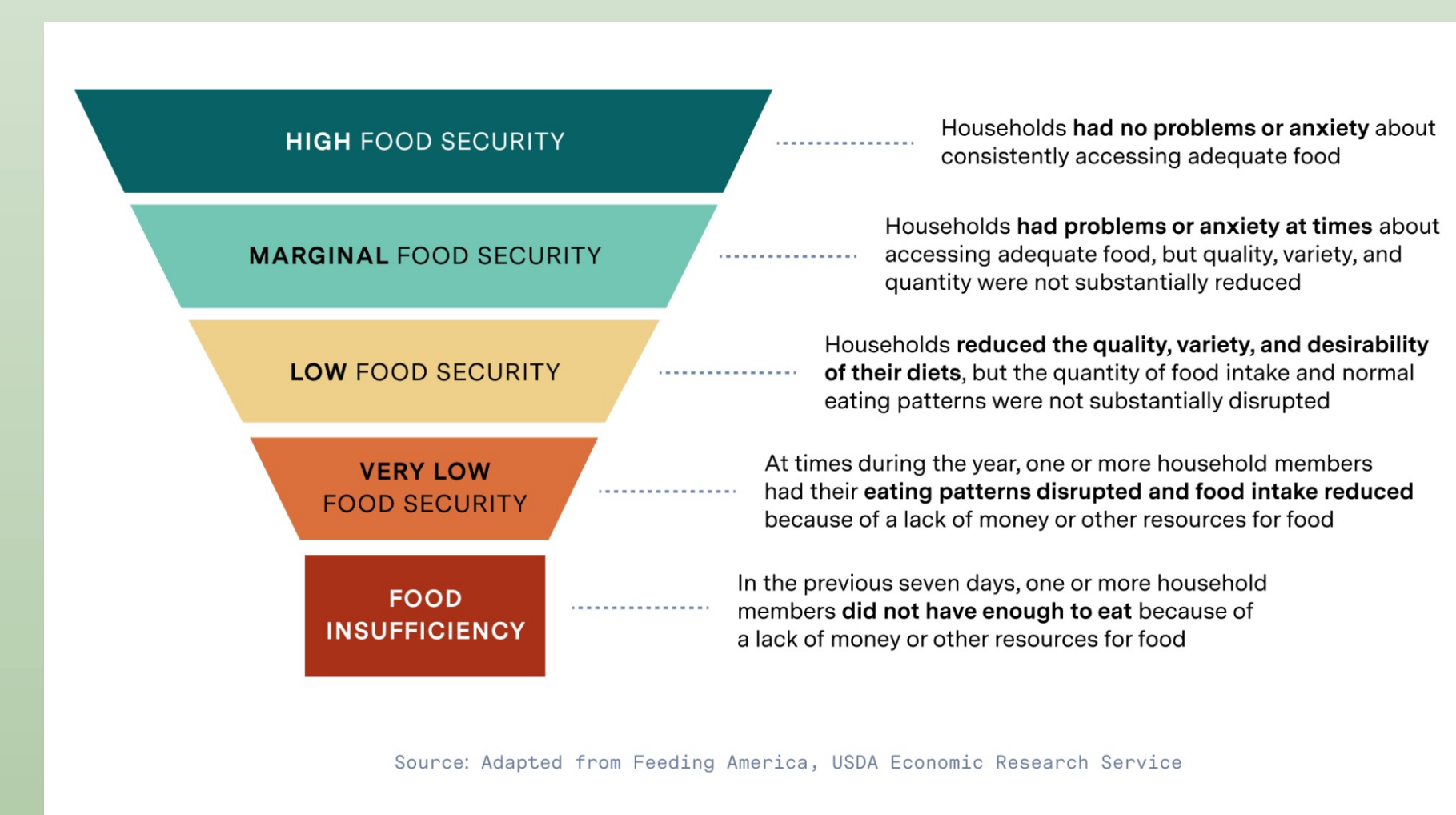


Figure 2: Food Security Status levels

## HYPOTHESES/OBJECTIVES

### Aims

- Explore correlations and associations between caries severity and food security status of pediatric patients.
- Understand how food insecurity impacts children receiving dental care at the University of Illinois Chicago College of Dentistry.

### Hypotheses

- Null:** There is no relationship between food security status and caries severity in children.
- Alternative:** There is a relationship between food security status and caries severity in children.

## METHODS

Study Design – Cross-sectional study

### Questionnaire

- Administered via Qualtrics
- Less than ~5 minutes to complete
- Total questions: 25 questions
  - Child Information (3 Q)
  - Household Demographics (9 Q)
  - Social Work Team Follow up (1 Q)

### Recruitment

Caregivers of children 3-17 years old presenting to UIC COD for an initial/recall exam

### Inclusion

- Caregivers who can read and understand English
- Legal guardians of new and returning patients (ages 3-17) receiving dental care at UIC COD
- Children ages 3-17 years receiving dental care at UIC COD

### Exclusion

- Children who are excluded from the study are those who are:
  - Younger than 3
  - Older than 17
  - Those with uncooperative behavior
- Caregivers who can not read or understand English

### Availability of Food (3 Questions)

- Local food market has fresh produce
- During the week- Purchasing fast food; Using a vending machine

### Access to Food (3 Questions)

- Concerned with having 2-3 balanced meals per day
- During the month – Avoided purchasing healthy food due to cost
- Child is enrolled in a school lunch program

### Utilization of Food (3 Questions)

- Over the course of a week- cutting meal sizes; skipping meal; Anyone in the household was hungry and could not eat

### Stability (3 Questions)

- Applied for (or receive) SNAP benefits
- Over the course of a week – Household has run out of food
- During the month - Ask to borrow money to purchase groceries

## RESULTS

### Demographics (n = 127)

- Mean age of 7.28 years (SD 3.11) at the time of their examination
- Gender: 63% = female; 27% = male
- Race: 36% White, 24% Black, 4% Asian, 3% American Indian/Alaskan Native, 30% Other, and 2% Did Not Report
- Ethnicity: 58% identified as Hispanic

### Families Requesting assistance from Social Work Team

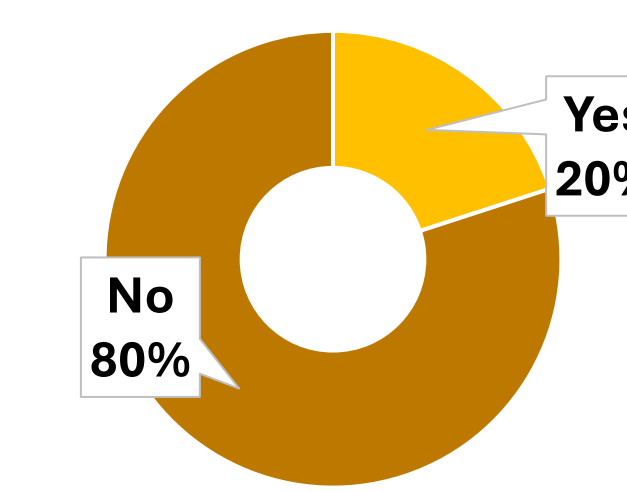


Figure 3: Social Work Team Referral Responses

### Calculations

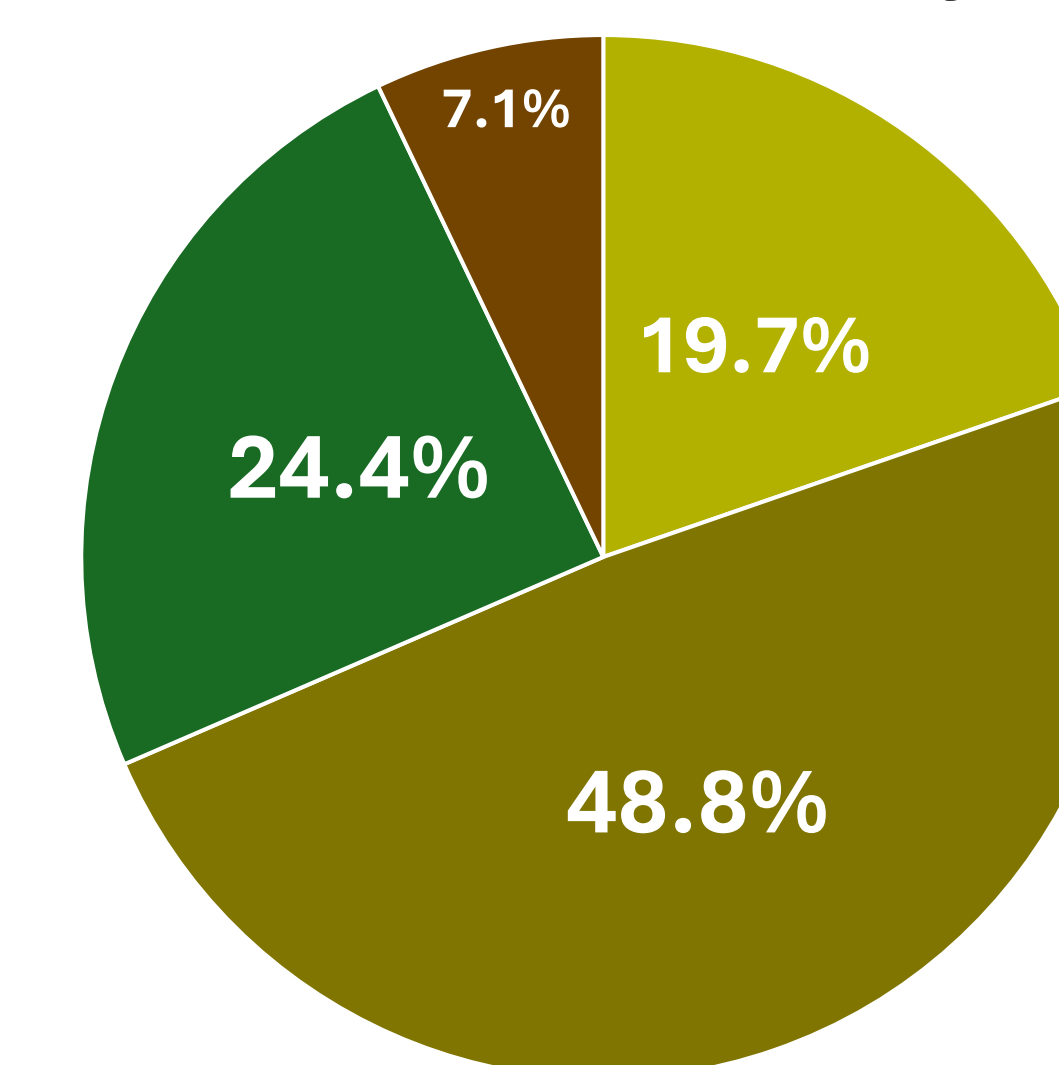
dmft/DMFT Scores (from Electronic Health Record) the sum of the number of Decayed, Missing due to caries, and Filled Teeth

- dmft/DMFT Percentage Calculation = dmft/DMFT Score / Total Teeth Present
- Severity Scale:
  - Low Severity dmft/DMFT , 0-24%
  - Moderate Severity dmft/DMFT T, 25-49%
  - High Severity dmft/DMFT , 50-74%
  - Extreme Severity dmft/DMFT , 75-100%

### Food Insecurity Status (from Qualtrics Survey)

- Raw score zero—High food security
- Raw score 1-2—Marginal food security
- Raw score 3-7—Low food security
- Raw score 8-18—Very low food security

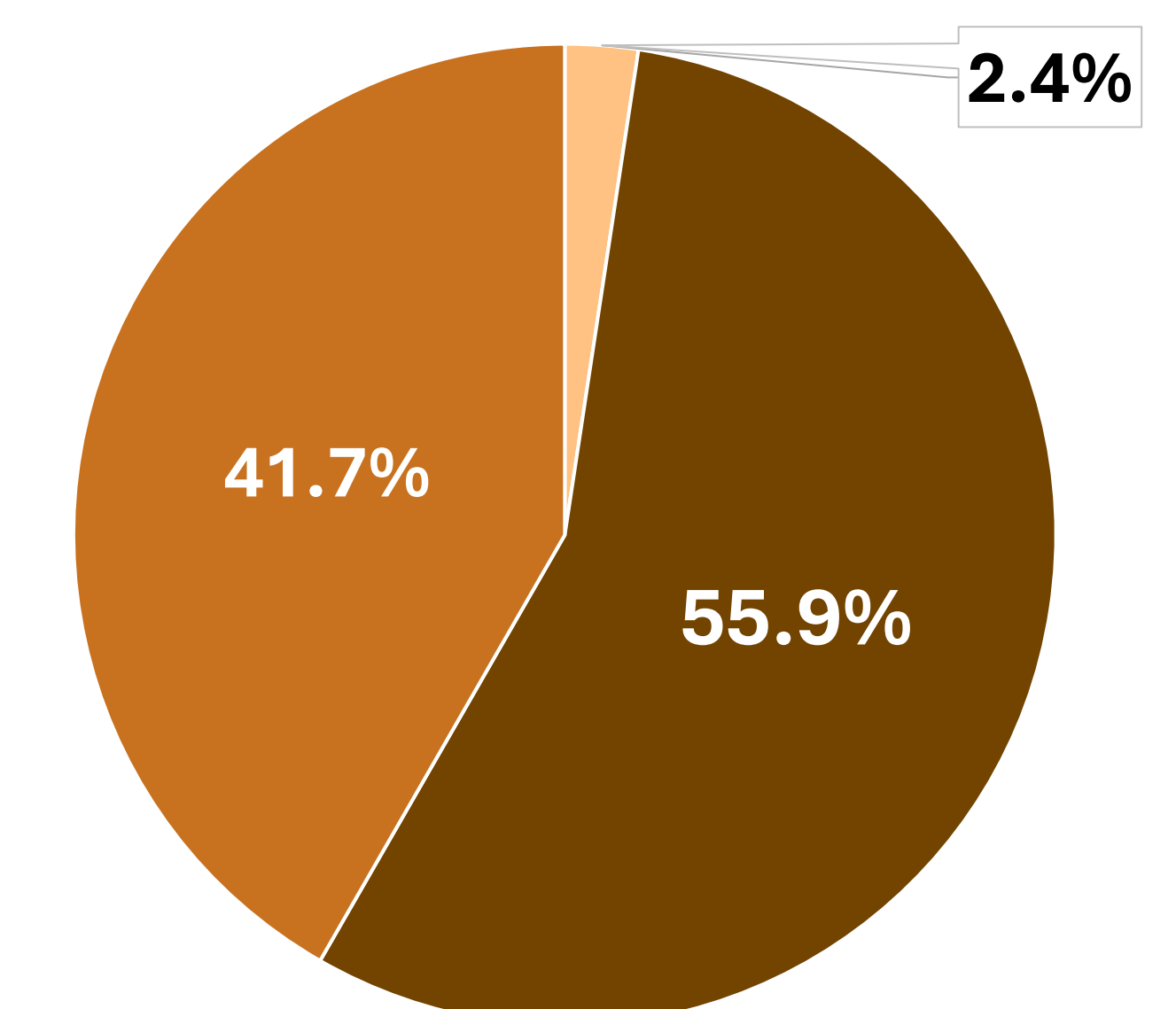
### dmft/DMFT Severity Status



- Low dmft/DMFT Severity
- Moderate dmft/DMFT Severity
- High dmft/DMFT Severity
- Extreme dmft/DMFT Severity

Figure 4: dmft/DMFT Severity Status

### Food Security Status



- Marginal Food Security
- Low Food Security
- Very Low Food Security

Figure 5: Food Security Status

## CONCLUSION

- Although there was no association between food insecurity and caries severity, access to food was the closest domain to have a significant association with caries severity.
- Ninety eight percent (98%) of this study population reported living in households with low or very low food security, emphasizing the importance of identifying and addressing social determinants that impact this patient population.

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### Future Considerations

- Implementing a longitudinal study to better understand the long-term impact of food insecurity status on oral health outcomes.
- Gathering information on the confounding factors contributing to food insecurity and early development of chronic systemic conditions.
- Establish nationwide interventions to increase food access and help address the caries epidemic among children in the United States.

## ACKNOWLEDGMENTS

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## REFERENCES

