

# Food Insecurity Among WIC-Enrolled Pregnant Women

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## Introduction

Food insecurity—defined as limited or uncertain access to sufficient, safe, and nutritious food—remains a significant public health issue affecting 13.5% of U.S. households.<sup>1,8</sup> Pregnant women are especially vulnerable due to increased caloric demands, financial strain, and unequal access to nutritious foods.<sup>3</sup> Evidence suggests that food insecurity is highly gendered and disproportionately affects women during pregnancy, with consequences extending beyond inadequate nutrition to include stress, disrupted eating routines, and difficulty maintaining healthy dietary patterns.<sup>4</sup> These nutritional challenges have implications not only for maternal well-being but also for fetal development, as inadequate or inconsistent maternal nutrition during the first 1,000 days—from conception to a child’s second birthday—can shape long-term health outcomes.<sup>5</sup>

Food insecurity is also closely connected to oral health outcomes. High-calorie, low-nutrient foods that are more commonly consumed in food-insecure households—including refined grains and added sugars—are strongly associated with increased dental caries risk in young children.<sup>7</sup> WIC, a federally funded nutrition program for low-income women, infants, and children, seeks to reduce such disparities by providing supplemental foods and nutrition education.<sup>2</sup> However, WIC-enrolled populations continue to demonstrate disproportionately high levels of food insecurity, suggesting that additional targeted interventions are needed.<sup>5,6</sup> Understanding the extent and characteristics of food insecurity within this population is critical for designing strategies that improve both nutritional and oral health outcomes.

## Purpose

Assess food insecurity among WIC-enrolled pregnant women participating in the *Birth to Three – Cavity Free* study, a longitudinal trial evaluating an intervention to improve care behaviors and reduce early childhood caries.

## Methods

- Secondary analysis of 634 survey responses from WIC-enrolled pregnant women which collects maternal demographic, behavioral, and oral health-related information.
- Food insecurity assessed using a validated two-item questionnaire: (1) worry about food running out (2) food not lasting through the month
- Baseline demographics and maternal behaviors compared by food insecurity status using two-sample t-tests for continuous variables and chi-square or Fisher’s exact tests for categorical variables.
- Analyses are descriptive; all tests were two-sided.

## Baseline Demographic and Maternal Behavior Characteristics (n=634)

### Socioeconomic Characteristics

- Employment: Most participants are either employed full-time (31.7%) or part-time (24.3%), while 27.2% are unemployed.
- Education: A majority (63.9%) hold a high school diploma or GED, with 22.7% having some form of college or professional degree.
- Marital Status: Nearly half of the participants (46.9%) are single/never married, followed by 26.6% who are married and 21.1% living with a partner.
- Household Income: The largest single income bracket is \$0–\$5,000 (21.1%), though responses are distributed across various levels up to more than \$55,001 (8.3%).

### Household & Maternal Profile

- Hispanic Identity: 81.4% of the mothers do not identify as Hispanic.
- Dental Insurance: A significant majority (67.4%) utilize Medicaid (Title XIX).
- Pregnancy History: For 39.7% of participants, this is their first pregnancy.
- Household Composition: Most households contain 2 adults (56.4%) and either 0 (34.0%) or 1 (31.0%) minor.
- Student Status: The vast majority (88.7%) are not currently students.

### Health Behaviors & Nutrition

- Smoking: 88.0% of mothers report they do not smoke, and 89.9% live in a non-smoking household.
- Meal Frequency: Most participants eat 3 meals per day (59.2%) and 2 to 3 snacks per day (63.3% combined).
- Breakfast Habits: While 32.6% eat breakfast every day of the week, the remaining participants show varied frequency.
- Dietary Patterns: 70.1% of participants describe their meal patterns as “eating/drinking whatever is available throughout the day” rather than following a set routine.

## Acknowledgement

Supported by the National Institutes of Health and the National Institute for Dental and Craniofacial Research (NIDCR UH3 DE029443) and Iowa WIC Programs.

## Results

- Mean maternal age was 26.98 years (SD = 5.67).
- 43.3% reported worrying that food would run out before they could buy more.

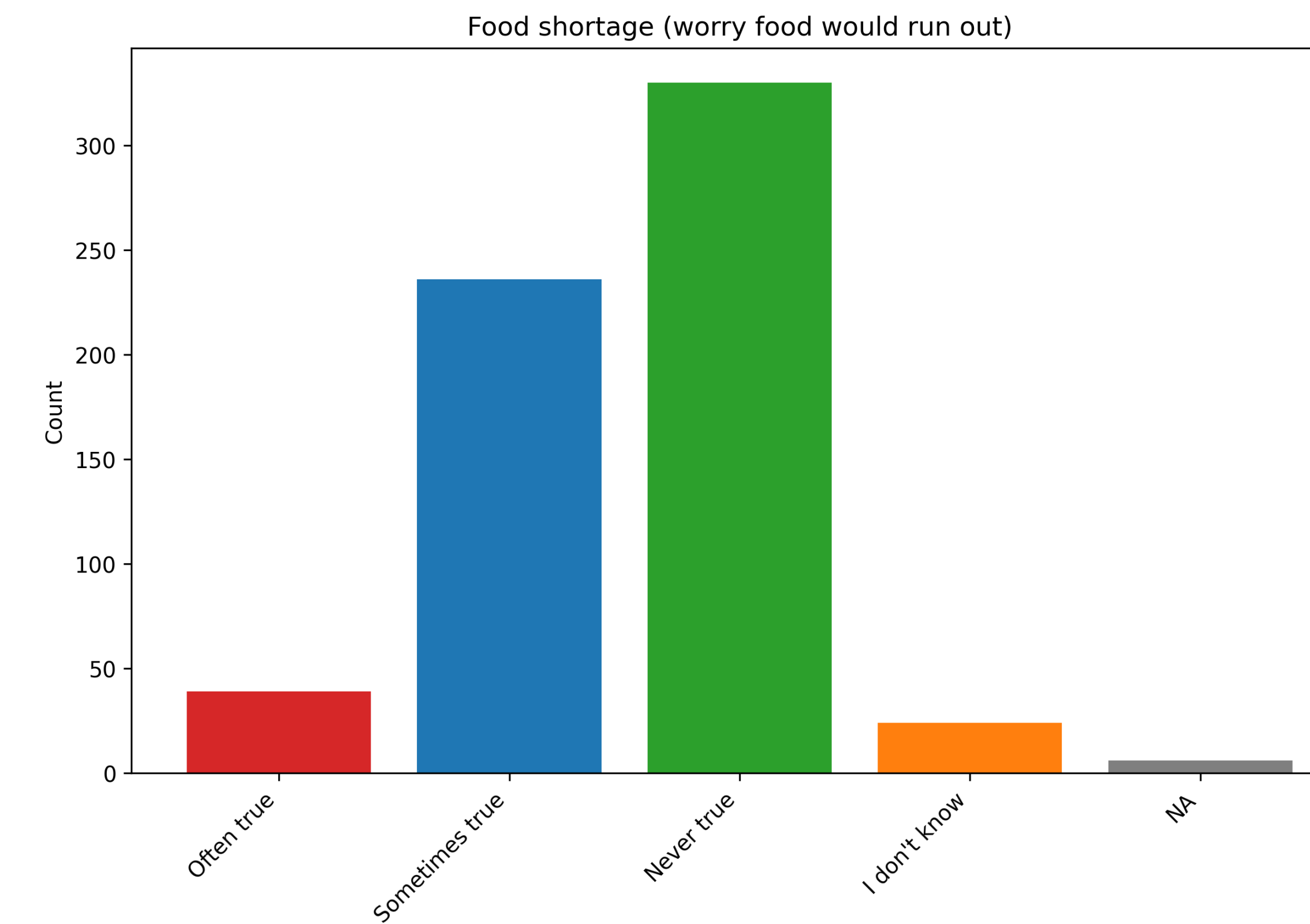


Figure 1. Food Shortage (Worry Food Would Not Last)

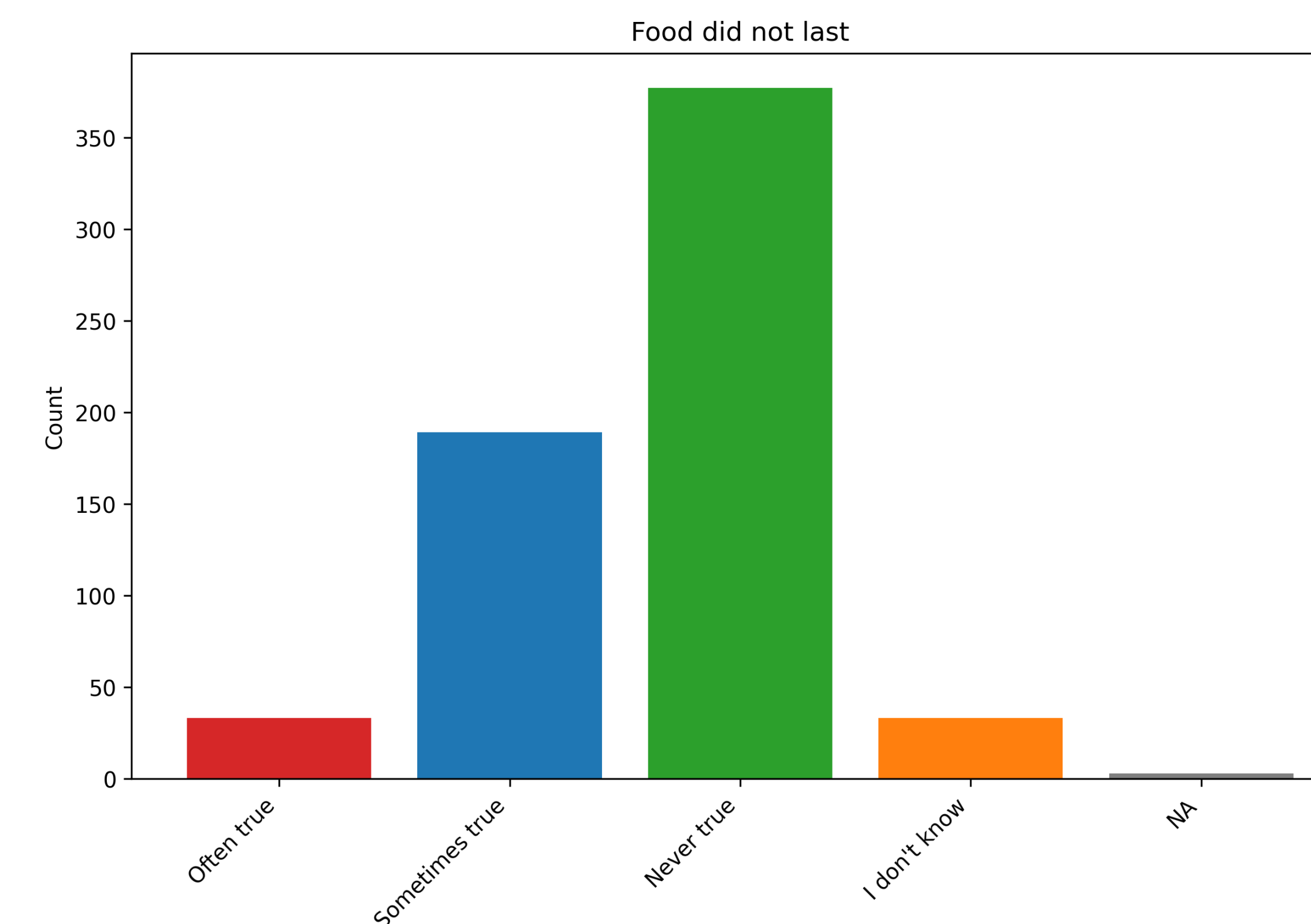


Figure 2. Food Did Not Last

- 35.0% reported that the food they purchased did not last long enough.
- Smoking was more common among FI+ respondents, particularly among those worried about food running out (14.5% vs. 8.5%).
- Participants experiencing food insecurity (FI+) were significantly more likely to be:
  - In their first pregnancy (49.1% vs. 31.9%; p < 0.001)
  - Have no minors in the household (43.3% vs. 26.2%; p = 0.002)
  - Very low income (<\$5,000 annually) (25.6% vs. 17.6%; p = 0.005)
  - Be on Medicaid for dental insurance (70.3% vs. 66.1%; p < 0.001)
  - Consume fewer total meals per day (52.9% vs. 65.8%; p = 0.001)
  - Consume breakfast less than 5 times a week (26.3% vs. 38.7%; p = 0.004)

Table 1. Key Characteristics by Food Insecurity Status (FI- vs. FI+)

FI- = both items never; FI+ = either item endorsed. Values are percentages unless noted. P-values refer to comparisons across the full distribution for each variable.

Variable	Category / Measure	FI- (%)	FI+ (%)	P-value
First pregnancy	Yes	31.9	49.1	<0.001
Amount of minors in household	0	26.2	43.3	0.002
	1	35.5	25.9	
	2	19.8	13.7	
	3	10.2	8.9	
	4	4.2	4.1	
Household income (selected)	<\$5,000	17.6	25.6	0.005
	> \$55,001	12.5	4.8	
Dental insurance	Medicaid (Title XIX)	66.1	70.3	
	Private	22.4	15.4	
Meals per day	No dental insurance	7.3	13.7	
	3 meals/day	65.8	52.9	0.001
Breakfast per week	7 days/week	38.7	26.3	0.004

## Discussion & Conclusion

- Demographic disparities, including lower income and inconsistent access to nutritious foods, were strongly associated with FI status.
- Food insecurity prevalence in this WIC-enrolled population exceeded national averages, highlighting a vulnerable subgroup with heightened nutritional risk.
- Maternal food insecurity may contribute to early childhood oral health disparities by increasing reliance on inexpensive, cariogenic foods.<sup>4</sup>
- Interventions addressing both food access and nutrition education within WIC settings may help mitigate these risks.
- Targeted interventions should address food access, promote consistent meal patterns, and integrate oral health support during pregnancy to benefit both mothers and their infants.

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