

# Do students' home zip codes have implications on food insecurity status in college?

Abigail Sarna, BS and Jesse Stable Morrell, PhD

Department of Agriculture, Nutrition, and Food Systems

University of New Hampshire

## Introduction

**Food Insecurity:** "limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."<sup>1</sup>

Studies have found that college students face food insecurity at more than double the rate of the national average<sup>2</sup> and students who suffer from food insecurity have lower grades and health compared to food secure students.<sup>3</sup> This has led many studies to conclude that students should be carefully screened to prevent food insecurity which will have a negative impact on their academic success.<sup>4,5</sup>

## Methods

Data were collected between 2018-2020 from the College Health and Nutrition Assessment Survey (CHANAS), an ongoing, cross sectional study. (UNH IRB #5524) Subjects - 687 undergraduate college students enrolled in an introductory nutrition and wellness course.

- 19.0 ± 1.25 years
- 62.0% Female
- 90.4% white
- 81.2% Not majoring in Nutrition or Allied Health
- 82.8% 1<sup>st</sup> years and 2<sup>nd</sup> year students
- 39.9% in-state students

### Data Collection

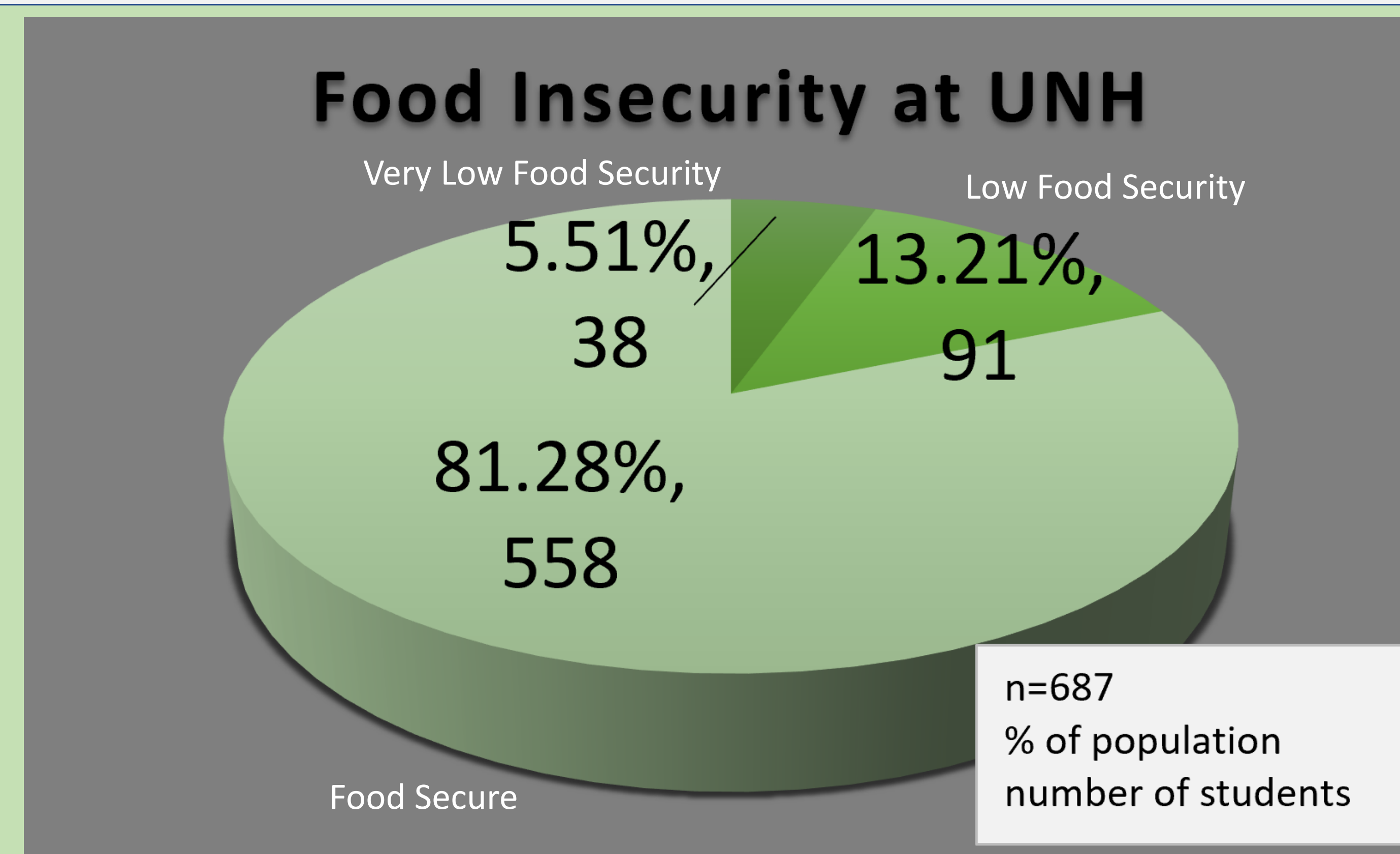
- Wellness Survey (Qualtrics) administered during the first few weeks of each semester.
  - self-reported food security status via the USDA 6-Item Short form Food Security Questionnaire.
  - zip code prior to attending college.
- Self-reported zip code was used to identify 12 unique sets of census data for each reported zip code.

### Data Analysis

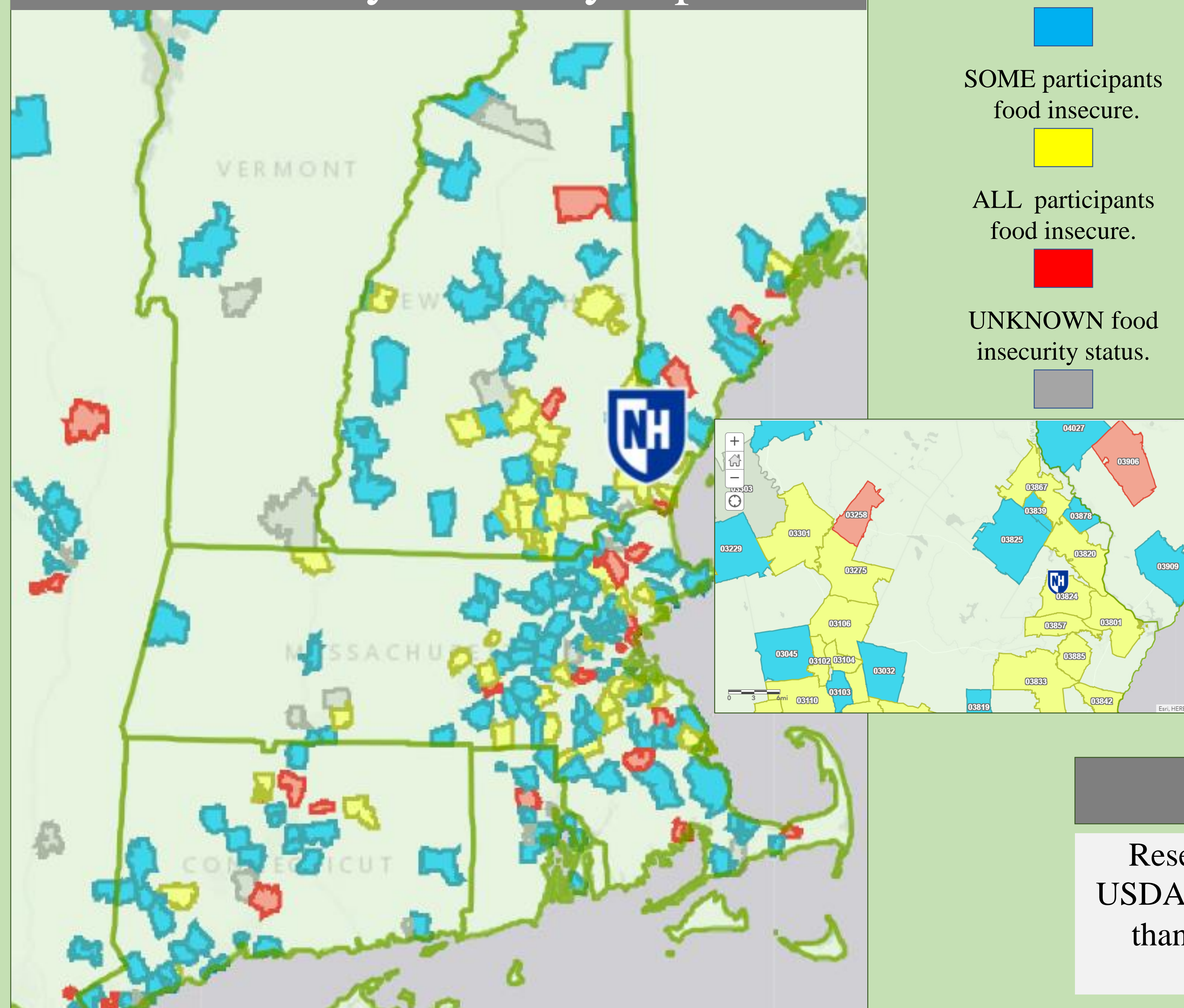
- Students were categorized into three categories based on the food security questionnaire score.
  - Food Secure
  - Low Food Secure
  - Very Low Food Secure
- A food insecurity index was created from the census data and Chi square analyses were conducted to test for significance against the food security categories.

## Objective

**To explore the relationship between students' home zip code demographics and their food security status at a midsized, northeastern university.**



## Food Insecurity Status by Zip Code



## Food Insecurity Index<sup>6</sup>

Each zip code was scored by sextiles for each census demographic, with 1 being a higher risk for food insecurity and 6 meaning a lower risk for food insecurity, and the scores summed. Final index values were assigned to each reported zip code and ranged from high to low risk of food insecurity (12-72) with higher scores indicating less risk/more food secure characteristics.

Characteristics (n=687)	Food Insecure	Food Secure	P Value
<b>Class Standing (%)</b>			<0.0001
Freshmen (n=294)	15.60%	84.40%	
Sophomore (n=212)	22.60%	77.40%	
Junior (n=68)	36.80%	63.20%	
Senior (n=37)	32.40%	67.60%	
Other (n=4)	0%	100.00%	
<b>State (% of state)</b>			0.723
New Hampshire (n=246)	22.80%	77.20%	
Massachusetts (n=211)	20.90%	79.10%	
<b>Receive Pell Grant (%)</b>			0.004
Yes (n=128)	28.90%	71.10%	
No (n=354)	18.40%	81.60%	
<b>Living Situation (%)</b>			<0.0001
On campus w' dining plan (n=435)	16.80%	83.20%	
Living off campus with kitchen (n=158)	34.80%	65.20%	
Living at home/perm residence (n=15)	13.30%	86.70%	

## Future Research

More work is needed to elucidate the role of students' prior place of residence to identify those at greatest risk of experiencing food insecurity on campus. Targeted efforts should be made to prevent and mitigate food insecurity in at-risk students to improve academic performance and health outcomes.

### References

1. USDA ERS - Definitions of Food Security. Accessed November 6, 2020. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx>
2. Freudenberg N, Goldrick-Rab S, Poppendieck J. College Students and SNAP: The New Face of Food Insecurity in the United States. *Am J Public Health*. 2019;109(12):1652-1658. doi:10.2105/AJPH.2019.305332
3. Bruening M, Argo K, Payne-Sturges D, Laska M. The struggle is real: a systematic review of food insecurity on post-secondary campuses. *J Acad Nutr Diet*. 2017;117(11):1767-1791. doi:10.1016/j.jand.2017.05.022
4. Payne-Sturges DC, Tjaden A, Caldeira KM, Vincent KB, Arria AM. Student hunger on campus: Food insecurity among college students and implications for academic institutions. *Am J Health Promot AJPH*. 2018;32(2):349-354. doi:10.1177/0890117117719620
5. Morris LM, Smith S, Davis J, Null DB. The Prevalence of Food Security and Insecurity Among Illinois University Students. *J Nutr Educ Behav*. 2016;48(6):376-382.e1. doi:10.1016/j.jneb.2016.03.013
6. Schuette CK, Laninga T. The Spatial Distribution and Quantification of Food Insecurity in the North Central Health District of Idaho. *J Hunger Environ Nutr*. 2016;11(3):396-413. doi:10.1080/19320248.2016.1146192

## Acknowledgements

Research funded by the New Hampshire Agricultural Experiment Station and USDA National Institute of Food and Agricultural Hatch Project 1010738. Special thanks to Shane Bradt, UNH Cooperative Extension, for the graphics of food insecurity in UNH students.