

The Prevalence of Food Security and Insecurity Among Illinois University Students

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ABSTRACT

Objective: This study aims to define the food security status of Illinois university students and whether sociodemographic characteristics are related to that status.

Design: A cross-sectional research design was used to analyze the food security status of undergraduate Illinois university students, employing a survey containing the Household Food Security Survey Module that was distributed via e-mail to student participants.

Setting: Four public Illinois universities were highlighted, including Eastern Illinois University, Northern Illinois University, Southern Illinois University, and Western Illinois University.

Participants: A total of 1,882 undergraduate students participated in the research study in April, 2013.

Main Outcome Measure: Variables include food security status and sociodemographic characteristics such as age, sex, race, and academic standing.

Analysis: Statistical analysis included frequencies and chi-square tests.

Results: The percentage of student respondents in the total sample who were considered food insecure was 35.0%. There were significant relationships between food security status and sociodemographic variables including race, grade point average, loan use, and living location.

Conclusions and Implications: This study suggests that 35% of respondents were food insecure based on quantitative assessment. Understanding the significant relationship between food security status and race, grade point average, loan use, and living location may be useful in developing services for those in need.

Key Words: food insecurity, food security, university students, hunger, college, school nutrition (*J Nutr Educ Behav.* 2016; ■:1-7.)

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INTRODUCTION

Food insecurity is the inability to obtain an adequate amount of food and sufficient nutrition.¹ Originally referred to as food insufficiency, food insecurity was first addressed in 1990 as part of the National Nutrition Monitoring and Related Research Act,² which mandated that a standardized food security measurement be created.³ In 1995 the Food Security Supplement became the main instrument to measure annual food security and insecurity in the US.³ The Household Food Security Survey Module (HFSSM)

is a small portion of the Food Security Supplement that specifically focuses on food sufficiency.² The HFSSM is the current reference standard for assessment of food security in various populations.⁴⁻¹³ The HFSSM classifies individuals into 4 different categories regarding their food security status.³ Those considered food secure may have high or marginal food security. Those considered food insecure may have low or very low food security.

Currently in the US, the percentage of food insecurity is 14.3% of the population, which is a 0.6% decline since 2011.¹⁴ Of that, very low-food-secure

individuals comprise 5.6% or 6.8 million households.¹⁴ The remaining 85.7% of the US population is considered food secure.¹⁴ Some populations are at higher risk for food insecurity than others, including households with children, households headed by black, non-Hispanic, and Hispanic people, and households with incomes at or below 185% the poverty line.¹⁴ Populations associated with a greater incidence of very low food security include single-parent households; individuals living alone; black, non-Hispanic households; Hispanic households; households with an income below 185% of the poverty line; metropolitan areas; and households in the southern portion of the US.¹⁴ Although these high-risk characteristics comprise a portion of the university student population, a limited number of studies have considered the prevalence of food insecurity specifically among this population.^{4,9-11}

In 2006, a study from the University of Alberta reported that overall risk of food insecurity was directly related to

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a lack of student loan money to pay for adequate amounts of food.⁴ In 2009, the University of Hawaii at Manoa found 21% of the student body was food insecure, and people more likely to be food insecure included those living on campus, those living off-campus with roommates, and those identifying themselves as Hawaiian, Pacific Islander, or Filipino.⁹ In 2011, the Queensland University of Australia found food insecurity to be 46.5% among undergraduate students.¹⁰ Those renting, boarding, or sharing accommodations and those with low incomes or receiving government assistance were at higher risk for food insecurity.¹⁰ A 2013 study examined female African American college students and observed food insecurity as a significant predictor of low self-esteem and poorer conflict resolution.¹⁵ A recent study in Oregon found that 59% of students were food insecure at some point during the school year.¹¹ Being employed, having an income < \$15,000/year, and having poor to fair health were associated with food insecurity whereas higher grade point averages (GPAs) were inversely related to food insecurity.¹¹

Food insecurity is associated with a multitude of health disparities such as undernourishment, chronic diseases, inflammation, obesity, and mental health conditions such as anxiety, depression, and aggression.^{5,7,8,12-14,16-22} Specifically in university students, poor self-image is a documented occurrence with food insecurity.¹⁰

Nearly one third of college students are first-generation; within that number, approximately 24% represent disadvantaged groups.²³ In 2013, the average student loan debt for college graduates was nearly \$30,000.²⁴ As tuition rises and more low-income, first-generation students enroll, the idea of the frugal college student who exists on ramen noodles has been displaced by the hungry student in need of help, yet unsure of how to ask.

Food insecurity is a major public health concern because of its prevalence and underlying health complications. However, despite the severity of this issue, little known is about the food security status of university students. Previous research looking at US institutions is limited and is composed of smaller sample sizes. The current research available has been conducted

only in coastal areas (ie, Hawaii, Oregon) and may not reflect the Midwest. Moreover, no study has conducted thorough food-insecurity research on Illinois university students even though Illinois is in the bottom 20% of state economies, which may differ from students attending universities in more stable economies.²⁵ As such, this study will target 4 universities in various regions of Illinois to address not only the prevalence of food insecurity but also important sociodemographic factors. The importance of the findings presented here is that it provides clear data on the extent of food insecurity among Illinois university students. In the authors' opinion, this study represents the first step in a continuum of research that will focus on reducing food insecurity in university students.

METHODS

A cross-sectional research design was used to analyze food security status of undergraduate Illinois university students. The HFSSM along with sociodemographic questions were used in this quantitative study to assess 4 public universities in Illinois including Eastern Illinois University, Northern Illinois University (NIU), Southern Illinois University (SIU), and Western Illinois University. Inclusion criteria for participants were (1) enrollment in the undergraduate programs at any of the 4 state institutions, (2) access to university e-mail system, (3) the ability to read and respond in English, and (4) being age ≥ 18 years. After the authors received approval from the institutional review boards of all 4 universities involved, a link to the HFSSM with sociodemographic questions was e-mailed to all enrolled students at the universities through each university's respected e-mailing system. All students were informed that survey completion implied consent for their responses to be used in the study. Web-based surveys have an average response rate between 6% and 15%²⁶; therefore, an incentive of a gift card drawing for 3 \$100 gift cards allotted for books and groceries was used to increase student participation. Responses were collected during April and May, 2013.

The HFSSM included 10 questions assessing food security level (Table 1). Following US Department of Agricul-

ture procedure to calculate a participant's food security level, the number of affirmative answers were counted.³ An affirmative answer included answering often or sometimes to the 3-point questions and answering yes to the yes/no questions. The total number of affirmatives was participants' total score. A score of 0 classified someone as having high food security. Scores of 1–2 signified marginal food security. Scores of 3–5 signified low food security. Any score > 6 indicated very low food security. Therefore, a score of ≥ 3 signified food insecurity.

The remaining questions on the survey determined sociodemographic characteristics about the students to identify groups with greater amounts of food insecurity. These questions included information about age, sex, race, academic standing, living situation, employment, GPA, financial support, and hometown region. The questionnaire, including both sociodemographic questions and the HFSSM, was pilot-tested on a 300-level university class in the Food and Nutrition Department at SIU; reliability was found to be .80 (Cronbach α).

Frequencies of food security status and demographic information were calculated. Chi-square analysis was used to assess the statistical association between observed values and expected values of the sociodemographic variable and food security variable. As part of the chi-square analysis, standard residuals were calculated to determine where the significant differences in observation vs expectation lie. To adjust for multiple comparisons, a Bonferroni correction was applied, which left statistical significance at $P < .001$. IBM SPSS software (version 22, Armonk, NY, 2013) was used to analyze the data.

RESULTS

A total of 48,658 students were solicited via e-mail. There were 1,882 undergraduate participants who completed and submitted the survey through www.Limesurvey.org (3.87% response rate). The number of responses from each university included 350 Eastern Illinois University students, 484 NIU students, 812 SIU students, and 236 Western Illinois University students. A large percentage of students were from SIU

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