

Prevalence of Food Security among College Students in a Southeastern University

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RESEARCH

Please cite this paper as: Koszewski WM, Holland R, Barbera AK, Sadek AN, Brooks G. Prevalence of food security among college students in a southeastern university. *Journal of Food & Nutritional Sciences* [2019] 1(1): 49-54.

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ABSTRACT

The purpose of this study is to assess the prevalence of food insecurity among college students at a southeastern university. A total of 629 undergraduate and graduate students participated in the research study. A Cross-sectional design was used to measure food security status and sociodemographic data. Researchers analyzed responses from the Household Food Security Survey Module survey. Frequencies were calculated for the questions and sociodemographic data using SPSS software. Frequencies for food security status were calculated manually. Data was collected from 629 students (N= 629; 73.4% female, 16.2% male, mean age: 21.2 years + 4.4

years). 304 students (48.3%) were classified as food insecure and 325 (51.6%) were classified as food secure. There were significant relationships ($p < 0.05$) between food security status and sociodemographic factors including living on or off-campus, employment status, and race. Students at higher risk of being food insecure were those who reported living off-campus and those who reported full-time or part-time employment. Those identifying themselves as Black, Hispanic, and Asian were also at risk. The survey found that food insecurity is a significant problem among college students at this university. These findings are consistent with previous research.

Key Words: Food security; Sociodemographic data; Hispanics; Food-insecurity.

Introduction

The United States Department of Agriculture (USDA) defines food security as having sufficient access to food, allowing a healthy and productive life [1]. The present standard for measuring food security in populations is the Household Food Security Survey Module (HFSSM) from the USDA [2]. According to the HFSSM, individuals are sorted into four categories pertaining to food security standing: high food security, marginal food security, low food security and very low food security [2].

Food secure individuals are considered high or marginally food secure [2, 3]. High food security means



people can access food without difficulties or limitations. Marginal food security indicates concern for food quantity without causing diet modification.³ Food insecurity includes both low and very low food security statuses [2, 3]. Low food security refers to reduced quality but not quantity of food, while very low food insecurity is defined as reduced quality and quantity of food.³ Groups regarded as “food insecure” have diets with reduced calorie intakes, and which lack variety [1].

A 2017 report published by the USDA Economic Research Service found that 11.8% of Americans were food insecure, with 4.5% who qualified as having very low food security [4]. Therefore, in 2017, 15.1 million people had a food insecure household, including 2.9 million children. Populations at greater risk were Blacks (non-Hispanic), Hispanics, single parent households, and households below 185 percent of the poverty threshold [4]. College campuses have also shown a greater prevalence of food insecurity than the general American population. A recent California State University-Sacramento study found that 19.4% of students were food insecure, which is greater than the national average (12.7%). Similar studies at various American universities found food insecurity rates ranging from 21-59% [2, 7- 9].

In a late 2019 report, Feeding America noted there is some degree of food insecurity across every demographic category in the United States (US). However, it is of particular concern in rural counties (63%), and 61% of these counties are in the southern US. States with some of the highest food insecurity levels are Mississippi, Arkansas, Georgia, North Carolina, Missouri, Tennessee, and West Virginia. According to the report, “rural counties in the South have the highest average food-insecurity rate in the country (16.1%) when compared to regional averages from rural counties in the West (13%), Northeast (11.6%), and Midwest (11%) regions.” Counties with the highest food insecurity rates are also disproportionately rural. Rural counties make up 63% of all U.S counties, but account for 63% of counties with food-insecurity rates that rank in the top 10% of all counties [10].

In this university’s county, 55% of the population lives below 130% of the poverty line and another 17% lives between 130 and 185% of the poverty line. While this region has several universities in large urban areas, most reside in rural areas where food insecurity is an issue. Accounts of food-insecure students have been reported on University of California campuses where 25% of students skipped meals somewhat often to very often to save money; City University of New York reported 40% of their undergraduates experienced food insecurity, and 59% of students in a rural Oregon university reported themselves as food insecure [8, 9, 11]. Food insecurity is an issue that universities must address regardless of where they reside in the US. Feeding America reports that 10% of adults who identified as food insecure were college students [10].

Food insecurity acts as a chronic stressor that can lead to suboptimal diet quality and increased risk of chronic diseases such as cardiovascular disease, diabetes, and obesity [12]. Even individuals with marginal food security are at greater risk of experiencing poor health [13]. Food insecurity has been linked with impaired cognitive, academic, and psychosocial development, which can negatively affect student performance [9, 14-17]. College students who work and receive financial assistance are also more likely to be food insecure.

The body of evidence about food insecurity on college campuses is growing [19]. It is important that institutions of higher learning identify their student population’s food insecurity rate and develop ways to combat it. With the changing university environment of more non-traditional students who are older, first generation, lower income and from communities of diversity who have to juggle family responsibilities and work, the issues of food insecurity will continue to be a challenge for college campuses. Other issues pushing food security rates are the decrease of state funding and the rise of university tuition. With little change to the factors that are impacting food insecurity universities need to be more proactive in addressing the issue on their college campuses. The purpose of this study was to determine the current food insecurity rate at a regional university.



Subjects and Methods

Subjects

The inclusion criterion for subjects was: participants were at least 18 years old, enrolled as college students, and had access to the university's email system. All included participants gave informed consent for the use of their responses in the study.

Measurement

The study used a cross-sectional research design to determine the food security status of undergraduate and graduate students. Paper and electronic versions of a survey, based on the HFSSM, were written and submitted to the Institutional Review Board (IRB) for Human Subjects approval. Once approved by the IRB, faculty members were recruited to assist with in-class administration of the paper survey and email distribution of the electronic survey. The electronic survey was also distributed by email to all students through the university's daily student announcements.

The survey used in this study consisted of questions based on the HFSSM, and sociodemographic questions. The HFSSM survey utilized 10 questions to determine food security status, assessed by the number of affirmative answers provided [18]. Questions asked in the HFSSM used to identify food insecurity are: 1. "We worried whether our food would run out before we got money to buy more." Was that often, sometimes, or never true for you in the last 12 months? 2. "The food that we bought just didn't last and we didn't have money to get more." Was that often, sometimes, or never true for you in the last 12 months? 3. "We couldn't afford to eat balanced meals." Was that often, sometimes, or never true for you in the last 12 months? 4. In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn't enough money for food? (Yes/No) 5. (If yes to question 4) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months? 6. In the last 12 months, did you ever eat less than you felt you should because there

wasn't enough money for food? (Yes/No) 7. In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food? (Yes/No) 8. In the last 12 months, did you lose weight because there wasn't enough money for food? (Yes/No) 9. In the last 12 months did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food? (Yes/No) 10. (If yes to question 9) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months? [18] Responses of yes, often, sometimes, almost every month and some month but not every month were coded as affirmatives [18]. The sum of the affirmative responses to the 10 questions was totalled. A raw score of 0 was classified as high food security; scores of 1-2 indicated marginal food security; scores 3-5 represented low food security, and any score greater than 6 indicated very low food security. Therefore, a score greater than 3 signified food insecurity based on the response per question [20].

Sociodemographic questions asked whether students possessed a campus meal plan, and employment status. Frequencies of HFSSM responses and sociodemographic data were calculated using IBM SPSS software, while frequencies of food security status were computed manually.

Results

A total of 629 students, aged 18 to 28 years (mean=21 years + 4.4 years), participated through electronic and paper surveys. Of the students that responded, 309 resided on-campus and 316 resided off-campus. Females comprised 500 responses (73.4%), and males comprised 110 (16.0%). White (non-Hispanic) (54.8%) and black (non-Hispanic) (25.4%) made up the largest demographics (80.2%), followed by Hispanic (4.6%), Asian (1.3%), mixed races (1.2%) and Middle Eastern (.3%). Almost half of students had a campus meal plan (49.2%) and lived on campus (45.2%). Over half (50.7%) were employed part-time or full-time. Figure 1 depicts the demographics of respondents in comparison to the current student demographic.



As depicted in Table 1, almost half of the participants reported that they worried about whether food would run out before having money to purchase more (46%). For 39.2% of respondents, food has run out without the funds to buy more and over 52.7% of students could not afford to eat balanced meals.

Table 1: Food insecurity frequencies.

Question	Often true	Sometimes true	Never true	Not sure
1. I worried whether my food would run out before I got money to buy more.	13.8%	32.2%	43.5%	2.9%
2. The food that I bought just didn't last, and I didn't have money to get more.	7.8%	31.4%	48.9%	4.1%
3. I couldn't afford to eat balanced meals.	18.2%	34.5%	36.6%	2.9%

Table 2 represents data from the last 12 months. Participants reduced portions or ate fewer meals (36%) and ate less than they felt they should (31.4%). Due to insufficient funds for food, 8.5% of students lost weight and 28.3% abstained from food despite hunger. Nearly 7% of participants have forgone eating for an entire day. Once HFSSM scores were totaled, participants were classified as having high food security (31.6%), marginal food security (20.0%), low food security (21.1%), or very low food security (27.2%). Of the total sample, 51.6% were classified as food secure and 48.3% as food insecure. Therefore, 68% of students surveyed were either food insecure or at risk for being food insecure.

Table 2: Responses from the U.S. Household Food Security Survey Module.

Question	Yes	No	Not Sure
4. In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	36%	52%	4.4%
6. In the last 12 months, did you ever eat less food that you felt you should because there wasn't enough money for food?	31.4%	56.2%	4.7%
7. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?	28.3%	60.8%	3.2%
8. In the last 12 months, did you lose weight because there wasn't enough money for food?	8.5%	72.8%	11%
9. In the last 12 months, did you ever not eat for a whole day because there wasn't enough money for food?	6.8%	81.9%	3.2%

There were also significant relationships ($p < 0.05$) between food security status and sociodemographic

variables including living on or off-campus, employment status, and race. Students at higher risk of being food insecure were those who reported living off-campus and those who reported full-time or part-time employment.

Discussion

This study examined the prevalence of food insecurity on a university campus in the Southeast, an area not previously studied [1]. Findings indicated that food insecurity existed on this campus at a rate of 48.3%—nearly four times higher than national food insecurity 12.7% rate [4]. The rate of 48.3% is high compared to universities that published similar research of 21% to 30%. [6-9]. Oregon University conducted the only study that found higher rates of food insecurity than this university (59% vs. 48.3%) [9].

Food insecurity on campus can negatively impact a student's academic performance. [6]. A study by the College and University Food Bank Alliance, National Student Campaign Against Hunger and Homelessness, the Student Government Resource Center, and the Student Public Interest Research Groups found that a relationship existed between food insecurity and students' inability to afford textbooks (55%), missing classes (53%) and dropping classes (25%). This research found that food insecure students had a higher risk of housing instability (64%) or homelessness (15%) and these students believed that hunger or housing problems negatively affected their educational achievements. Results from the current study show that accessing and affording food posed problems for students on campus and that a number of this university's college students are food-insecure. Food insecurity may damage personal health and jeopardize academic potential. [17, 18] The university's administration should address food insecurity and take measures to reduce this issue's prevalence. A food pantry could be implemented on campus, improving access to nutritious food. The university could also offer cooking demonstrations, using items commonly found in food pantries, to teach students how to create nutritious, inexpensive meals. Implementing a community garden and connecting students with food

assistance programs, such as SNAP, could potentially improve students' health.

Nutritionist and dieticians need to work with university personnel in designing effective policies to address the issue of food insecurity on university campus. Education programs addressing meal planning and preparation, food resource budgeting and comparison shopping should be implemented. Another area nutrition professionals can work with universities is developing resources on where students can receive assistance, in anonymous fashion, in dealing with their food insecurity. However, most universities do not have nutrition professional available for their students and should consider the need for hiring them for their health centers and wellness programs.

Despite an accurate sample of the student population, limitations must be acknowledged. The survey was not entirely representative of the student population as only 10% of the student population was surveyed. There were time limitations for data collection and surveys were distributed, collected and analyzed within a one-month time frame. However, to minimize bias, paper surveys were administered in classes with diverse populations and electronic surveys were posted in the daily announcements, a medium to which every student has access.

Conclusions

The present study aimed to address the level of food insecurity present among students at a small, public, southeastern university. The study revealed almost half of the college students surveyed were food-insecure. The study also identified at-risk groups of students, including those who live off-campus, those who work part-time or full-time, and those who identify as Black, Hispanic, or Asian. Based on these results, the university's administration should take actions to improve the student body's food-security status. These findings are similar to other food insecurity research on this population, but percentages are higher due to the rural area targeted.

Universities need to actively address the food insecurity issue on their campuses, which is a problem that no longer can be ignored. The researchers of this project recommend that colleges and universities annually screen their students for food insecurity using the HFSSM, and include questions about financial wellness. As students are stretched financially in a number of areas, it is important to assess their ability to manage their resources. Educational institutions must communicate food insecurity facts to campus administrators, policy makers, legislators, and local communities. It is important to develop community partnerships to address and mitigate college students' food insecurity issues. Students should be educated on the causes of food insecurity, the availability and benefits of local, state, and federal resources. Finally, food insecurity rates are highest in the South, but all regions of the US are affected by this issue. Colleges and universities that do not currently assess food insecurity on their campuses could have a more serious problem than they realize.

This study has made a small, yet significant, contribution to current research regarding food security and insecurity among college students in the United States. Future qualitative and longitudinal studies should investigate the long-term effects of food insecurity on graduate students and non-traditional students, and students should be surveyed post-graduation.

Conflicts of Interest

There are no conflicts of interest in the publication of this study.

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PEER REVIEW

Not commissioned. Externally peer reviewed.

