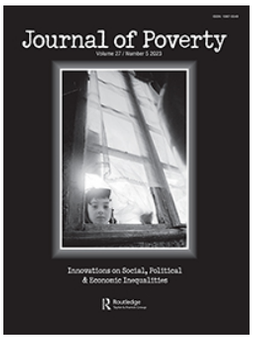

Journal of Poverty

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/wpov20

An Examination of Food Insecurity within Connecticut's Public University System

Jennifer Anziano, Latasha Neal & Victoria A. Zigmont

To cite this article: Jennifer Anziano, Latasha Neal & Victoria A. Zigmont (21 Sep 2023): An Examination of Food Insecurity within Connecticut's Public University System, Journal of Poverty, DOI: 10.1080/10875549.2023.2259890

To link to this article: https://doi.org/10.1080/10875549.2023.2259890

JOURNAL OF POVERTY
https://doi.org/10.1080/10875549.2023.2259890

Routledge
Taylor & Francis Group

An Examination of Food Insecurity within Connecticut's Public University System

Jennifer Anziano, Latasha Neal, and Victoria A. Zigmont

Department of Health, Exercise Science, and Recreation Management, University of Mississippi, University Park, Mississippi, USA

ABSTRACT

This secondary analysis examined the differences in food security, knowledge of eligibility for food assistance programs, and access to food programming across students attending two- and four-year public postsecondary institutions in the state of Connecticut. This study found two-year college students experienced a higher prevalence of food insecurity and were also more aware of their eligibility for SNAP than students attending four-year institutions. Additionally, all institutions provided students with an on-campus food pantry. Further research is needed to understand differences in food security and opportunities to address student barriers to the use of available resources to support food security.

KEYWORDS

College students; community college; food insecurity; hunger; university

Introduction

Background

Food security is a measure of an individual's access to food that is nutritious and substantial to maintaining an active, healthy life (United States Department of Agriculture [USDA], 2023). Current literature on the topic has identified low food security, or *food insecurity*, as a public health concern among postsecondary students in the U.S. According to a scoping literature review, studies have estimated that nearly half (41%) of college students nationwide experience food insecurity (Nikolaus et al., 2020). In addition to inhibiting appropriate nutritional intake, students experiencing food insecurity are more likely to experience decreased sleep quality, high levels of stress, poor mental health indicators and lower academic achievement (El Zein et al., 2019; Nagata et al., 2019).

The majority of research on food insecurity has focused on students in higher education attending public or private universities (four-year institutions), with those attending community colleges (two-year institutions) unaccounted for in much of the literature. Over the past years, community colleges have provided beneficial opportunities to non-traditional, disadvantaged, and

CONTACT Victoria A. Zigmont vzigmont42@gmail.com Department of Health, Department of Health, Exercise Science and Recreation Management, University of Mississippi, University Park, MS, USA

underrepresented students, a factor that has bolstered enrollment and retention rates at these institutions (Community College Research Center, 2022). During the 2019–20 academic year, federal data estimated that about one third (about 5.6 million) of undergraduate students in the U.S. were enrolled in two-year institutions (CCRC, 2022). Community colleges tend to have higher proportions of students that are first-generation, from low-income communities, from racial minority groups, and who hold additional non-academic responsibilities such as employment and parenting, when compared to those attending four-year universities (American Association of Community Colleges, 2022; CCRC, 2022). With additional external pressures and burdens, it is reasonable to surmise that community college attendees also face barriers to food security.

In comparison of institutional rates, recent literature has provided evidence that students attending two-year colleges may experience food insecurity at a higher rate than their peers attending four-year universities, with several studies placing the food insecurity prevalence rate for community colleges near or above 50% (Goldrick-Rab et al., 2018; Ilieva et al., 2019; Wood et al., 2017, Nikolaus et al., 2020; Spaid & Gillett-Karam, 2018). In examining national figures, Goldrick-Rab et al. (2018) found 54% of community college students to be considered food insecure – compared to 49% of those attending four-year institutions; while Nikolaus et al. (2020) estimated that 47% of community college students were considered food insecure, in comparison to their peers attending four-year universities (36%) (Goldrick-Rab et al., 2018; Nikolaus et al., 2020). Another study compared food insecurity prevalence rates amongst community colleges in urban versus suburban settings and found that the overall food insecurity rate in their sample was 56%, with rates being slightly higher for those students at the urban community college (60% vs. 53%) (Maroto et al., 2015). However, these studies did not directly compare the two institution-types as part of the same study.

One study found in recent literature compared food insecurity amongst two-year and four-year college students. Broton and Goldrick-Rab (2018) evaluated four surveys that included data from both two- and four-year colleges and universities to estimate levels of food and housing insecurity among college students (Broton & Goldrick-Rab, 2018). While results were mixed, there was some evidence that two-year college students were more likely to report experiencing food insecurity than their peers at four-year universities (Broton & Goldrick-Rab, 2018). Rates of food insecurity amongst community college students ranged from 11% to 38%; compared to 9% to 25% amongst state university students (Broton & Goldrick-Rab, 2018).

Community college students experiencing food insecurity report the inability to eat balanced meals, often reducing the size of their meals or skipping daily meals altogether, a problem that stems from a lack of monetary funds to support eating an sufficient and balanced diet (Goldrick-Rab et al., 2018; Spaid

& Gillett-Karam, 2018). Additionally, these students indicated experiencing high levels of stress, poor mental health indicators, disruptions in energy levels, and housing instability, all factors that impact their ability to stay on track in their academic plans (Spaid & Gillett-Karam, 2018; Wood et al., 2017). These outcomes are consistent with observations among food insecure students attending four-year universities (El Zein et al., 2019; Nagata et al., 2019; van Woerden et al., 2019), yet no direct comparisons have been investigated between the two institution-types in related literature.

In July of 2019, Connecticut passed a bill that required all public institutions in the state to collect and submit data on the number of students at their institution who experienced food insecurity, the number of students who attempted to access food support and benefits offered by the institution, as well as additional data about the availability of on campus food pantries including if the institution currently operated one. The current study is a secondary analysis of this data.

Objectives

The purpose of this secondary analysis was to examine differences in food insecurity amongst students enrolled at public two-year community colleges and four-year universities in Connecticut. Specifically, this analysis sought to answer the following questions: 1) What differences exist in food security across institution-type? 2) Are there differences in knowledge of available campus food assistance across institution-type? 3) Are there differences in student food security status and having received food support from campus? and 4) Does knowledge of SNAP eligibility status differ by institution-type and student food security status?

Materials and methods

Study design

The current cross-sectional study is a secondary analysis of survey data collected in Fall 2019 by the public state university system in Connecticut in which this study takes place. The survey contained the United States Department of Agriculture (USDA) U.S. 10 item Adult Food Security Survey Module (AFSSM) survey module, using a timeframe of the past six months to measure food insecurity (USDA, 2012). Additional questions asked about participant age, student knowledge and use of food assistance programs and the food environment.

Supplementary data to describe the demographic characteristics of students attending each institution was obtained from the Integrated Postsecondary Education Data System (IPEDS) (Integrated Postsecondary Education Data

System [IPEDS], n.d.). Additionally, institution websites were reviewed to understand the food environment and supports for student food security including the type and availability of food security resources.

Study population

Undergraduate students who were enrolled as a student at any of the 17 public institutions included in this study during the Fall 2019 semester were invited to participate in this study. Two community colleges had less than three participants and were removed from analysis. This study presents data for the students across the remaining 15 public institutions.

Sampling procedures

This study employed a non-probability convenience sample to recruit participants. Each institution sent out a link to the electronic survey (SurveyMonkey) via e-mail to all undergraduate students enrolled in classes for the Fall 2019 semester. Up to two reminder e-mail messages were sent out. Each e-mail was sent from an administrator at the institution where the student was enrolled.

Measurements

Food security was measured using the U.S. Adult Food Security Survey Module (USDA, 2012). Students were asked questions about food support offered on their campus, their SNAP eligibility status, and ease of access to local food stores and the variety they provided. Students were also asked a question about if they had enough money to spend on everyday items, such as food. Institution-type was measured by asking students to select which institution they were currently enrolled in from a list of participating campuses, and if they were a new or continuing student at that institution. Age categories for students were also collected at the beginning of the survey. The survey instrument is included in the Supplementary Material. IRB approval was obtained at the institutions where this research was conducted (#301), and the study was considered exempt. Consent to participate in the survey was obtained from students at the beginning of the survey, and students also confirmed that they were 18 years of age or older.

Demographic and institutional information was obtained from IPEDS to describe the student populations at each institution (IPEDS, n.d.). Respective institutional website reviews were conducted to identify a list of available food supports on campus, such as on-campus food banks, food pantries, or meal swipe donation programs. Additional details about on-campus food pantries

and food banks were also collected, such as if they required an application or ID.

Data analysis

Frequencies and percentages were calculated for all variables. Surveys with missing food insecurity data were excluded. Chi-square tests were used to compare categorical variables across food insecurity status and institution-type. Food security responses were scored according to the guidelines of the AFSSM instrument (USDA, 2012) and dichotomized to compare food insecure and food secure students. The list of institutions in this study was dichotomized into two-year institutions (community colleges) and four-year institutions (state university) to compare students based on **institution**-type. Descriptive statistics were used to summarize the data collected from each institutional website. SPSS and Microsoft Excel were used to analyze this data.

Results

A total of 4,479 responses were recorded. After removing all records with missing food insecurity data, records from 3,076 participants remained. Participant demographics are presented in Table 1. Participants were relatively evenly split amongst institution-types; 48.6% ($n = 1,494$) were from two-year institutions (community colleges) and 51.4% ($n = 1,582$) were from four-year institutions (state universities). The majority of participants were between 18 to 24 years old ($n = 2,206$, 66.1%).

IPEDS data

Data collected from IPEDS is presented in Table 2 to provide a better understanding of the student demographics at each institution, as this data was not able to be collected during the original study. This data is based on enrollment during Fall 2019. Overall fall undergraduate enrollment ranged from 1,299 to 9,045. Four-year institutions had a higher average total enrollment than community colleges (6,697 vs. 3,592, respectively). Most institutions had more females enrolled than males and consisted of students aged 24 and younger. Based on a congregate average, students who attended these institutions were primarily White (52%), followed by Hispanic (22%) and Black (15%). The percentage of Pell Grant recipients per organization for the 2019–2020 school year ranged from 36% to 82%, with an average of 55%. The average percentage of Pell Grant recipients for community colleges was significantly higher than four-year universities (60% vs. 41%, respectively).

Table 1. Participant demographics.

	Total Sample ($n = 3,076$)		2-Year ($n = 1,494$)		4-Year ($n = 1,582$)		
Characteristic	n	(%)	n	(%)	n	(%)	p-Value
Age Category							*<0.01*
18 to 24	2,206	(66.1)	774	(51.8)	1,217	(76.9)	
25 to 34	593	(17.8)	351	(23.5)	216	(13.7)	
35 to 44	260	(7.8)	191	(12.8)	62	(3.9)	
45 to 54	148	(4.4)	97	(6.5)	46	(2.9)	
55+	129	(3.9)	81	(5.4)	41	(2.6)	
Food Security Status							*<0.05*
Food secure	1,363	(40.9)	584	(39.0)	676	(42.7)	
Food insecure	1,973	(59.1)	910	(61.0)	906	(57.3)	
Does your institution offer any kind of food assistance?							*<0.01*
Yes	1,355	(40.8)	650	(43.7)	633	(40.2)	
No	428	(12.9)	211	(14.2)	176	(11.2)	
I don't know	1,536	(46.1)	626	(42.1)	766	(48.6)	
Do you know if you are SNAP eligible?							*<0.01*
Yes, I know I am eligible	306	(9.8)	223	(14.9)	80	(5.1)	
Yes, I know that I am not eligible	883	(28.3)	427	(28.6)	432	(27.3)	
No, I don't know that I am or am not eligible	1,934	(61.9)	839	(56.2)	1,062	(67.1)	
Have you received food support of any kind from your campus?							>0.05
Yes	490	(14.7)	246	(16.5)	216	(13.7)	
No	2,402	(72.2)	1,058	(70.8)	1,167	(73.8)	
I don't know	436	(13.1)	186	(12.4)	197	(12.5)	
Did anyone on campus refer you to community resources?							*<0.01*
Yes	286	(9.4)	165	(11.1)	121	(7.7)	
No	2,527	(82.8)	1,183	(79.7)	1,341	(85.6)	
I don't know	240	(7.9)	136	(9.2)	104	(6.6)	
How easy or difficult would it be to get to food store by walking, riding your bike, or taking the bus?							*<0.01*
Very Easy	1,118	(36.4)	561	(37.6)	557	(35.3)	
Fairly Easy	1,297	(42.3)	607	(40.7)	693	(43.9)	
Fairly Difficult	467	(15.2)	229	(15.4)	238	(15.1)	
Very Difficult	187	(6.1)	97	(6.5)	90	(5.7)	
Variety of Food Available?							*<0.05*
Enough	2,597	(84.8)	1,281	(86.3)	1,316	(83.5)	
Not Enough	464	(15.2)	204	(13.7)	260	(16.5)	
Financial Resources for Food?							*<0.05*
Enough	1,433	(46.0)	651	(43.9)	750	(47.6)	
Not Enough	1,683	(54.1)	833	(56.1)	825	(52.4)	

Prevalence of food insecurity

The overall prevalence of food insecurity across all fifteen institutions in this study was 59% ($n = 1,973$). Of these food insecure students, most students ($n = 1,391$, 42%) reported very low levels of food security. The prevalence of food insecurity at the eleven community colleges in this study was 61% ($n = 910$). The prevalence of food insecurity at the four state universities in this study was slightly lower at 57% ($n = 906$). According to a Chi-square analysis, this difference was statistically significant ($X^2 = 4.212$, df = 1, $p < .05$).

Table 2. Institution Undergraduate Student Demographics* (2019).

Institution	Type	Total Enrollment	Male *n (%)*	Female *n (%)*	≤24 y/o *n (%)*	≥25 y/o *n (%)*	White *n (%)*	Black *n (%)*	Hispanic/Latino *n (%)*	Asian *n (%)*	Other** *n (%)*	Pell Grant Recipients *n (%)*
1	2-year	1600	777 (49)	823 (51)	1039 (65)	561 (35)	970 (61)	207 (13)	268 (17)	42 (3)	113 (7)	752 (47)
2	2-year	1547	460 (30)	1087 (70)	220 (14)	1327 (86)	862 (56)	257 (17)	231 (15)	41 (3)	156 (10)	882 (57)
3	2-year	3083	880 (29)	2203 (71)	1412 (46)	1671 (54)	607 (20)	1157 (38)	950 (31)	145 (5)	224 (7)	2528 (82)
4	2-year	4836	1828 (38)	3008 (62)	2918 (60)	1913 (40)	1143 (24)	1575 (33)	1715 (35)	147 (3)	256 (5)	3288 (68)
5	2-year	5511	2466 (45)	3045 (55)	3759 (68)	1751 (32)	2589 (47)	1031 (19)	1199 (22)	318 (6)	374 (7)	3031 (55)
6	2-year	6055	2553 (42)	3502 (58)	3909 (65)	2146 (35)	2712 (45)	651 (11)	1952 (32)	216 (4)	524 (9)	3694 (61)
7	2-year	2424	1039 (43)	1385 (57)	1479 (61)	945 (39)	1454 (60)	237 (10)	494 (20)	84 (3)	155 (6)	1285 (53)
8	2-year	3304	1380 (42)	1924 (58)	1978 (60)	1326 (40)	1990 (60)	278 (8)	565 (17)	142 (4)	329 (10)	1916 (58)
9	2-year	5083	2168 (43)	2915 (57)	3373 (66)	1710 (34)	1671 (33)	768 (15)	2048 (40)	246 (5)	350 (7)	3050 (60)
10	2-year	1308	456 (35)	852 (65)	817 (62)	491 (38)	985 (75)	46 (4)	173 (13)	26 (2)	78 (6)	785 (60)
11	2-year	6864	2738 (40)	4126 (60)	4112 (60)	2752 (40)	2533 (37)	1688 (25)	1956 (28)	286 (4)	401 (6)	4599 (67)
12	4-year	4982	2364 (47)	2618 (53)	4195 (84)	751 (15)	2914 (58)	460 (9)	1054 (21)	229 (5)	325 (7)	1993 (40)
13	4-year	7962	3097 (39)	4865 (61)	6816 (86)	1146 (14)	4186 (53)	1495 (19)	984 (12)	268 (3)	1029 (13)	3901 (49)
14	4-year	4800	2032 (42)	2768 (58)	4447 (93)	350 (7)	3097 (65)	456 (10)	566 (12)	167 (3)	514 (11)	1728 (36)
15	4-year	9045	4796 (53)	4249 (47)	7467 (83)	1578 (17)	5291 (58)	1132 (13)	1452 (16)	395 (4)	775 (9)	3528 (39)

*Table is based on data from The Integrated Postsecondary Education Data System (IPEDS).

**Due to relatively low numbers and limited table space, the following race/ethnicity categories were combined to create the "Other" variable – American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Two or More Races, Unknown and Nonresident Alien.

Knowledge of food assistance

Amongst community college students, 43% ($n = 650$) were aware of some kind of food assistance offered by their campus, knowledge of food assistance amongst state university students was 40% ($n = 633$). This difference was statistically significant ($X^2 = 14.881$, df = 2, $p < .001$). Furthermore, rates of food insecurity were also significantly higher for those who said their institution did not offer food assistance compared to those who said their institution did offer food assistance (73% vs. 58%, respectively). This difference was also statistically significant ($X^2 = 39.556$, df = 2, $p < .001$).

SNAP eligibility

About 15% ($n = 223$) of community college students knew that they were SNAP eligible. However, only 5% ($n = 80$) of state university students knew that they were SNAP eligible. Most students at both institution-types were not aware of their SNAP eligibility status. According to a Chi-square analysis, significantly more community college students were aware of their SNAP eligibility compared to state university students ($X^2 = 91.044$, df = 2, $p < .001$).

When comparing SNAP eligibility to food security status, about 13% ($n = 237$) of food insecure students knew they were eligible for SNAP compared to only 5% (n=69) of food secure students. However, like the findings above, most students were not aware of their SNAP eligibility status; this proportion was slightly higher amongst food insecure students (63% vs. 60%). These differences in SNAP eligibility by food insecurity status were significantly different according to a Chi-square analysis ($X^2 = 72.294$, df = 2, $p < .001$).

Received support from campus

Approximately 17% ($n = 246$) of community college students have received some kind of food support from their campus compared to 14% ($n = 216$) of state university students. This difference was not statistically significant ($X^2 = 4.970$, df = 2, $p > .05$).

However, about 20% ($n = 389$) of food insecure students have received food support from their campus while only 7% ($n = 101$) of food secure students received support. This difference was statistically significant ($X^2 = 110.910$, df = 2, $p < .001$).

Referred to community resources

Approximately 11% ($n = 165$) of community college students reported that they were referred to community resources by someone on campus, compared

to approximately 8% ($n = 121$) of state university students. This difference was statistically significant ($X^2 = 18.511$, df = 2, $p < .001$).

Significantly more food insecure students were referred to community resources by someone on campus compared to food secure students (11% vs. 6%,). This difference was statistically significant ($X^2 = 30.819$, df = 2, $p < .001$).

Difficulty getting to a food store

There were no significant differences in the number of students who reported they had difficulty getting to the nearest grocery store by institution-type. However, about 24% ($n = 451$) of food insecure students said it was either difficult or very difficult for them to get to the nearest food store, compared to 17% ($n = 215$) of food secure students. This difference was statistically significant ($X^2 = 25.066$, df = 3, $p < .001$).

Variety of food available

Significantly more state university students reported that there was not enough variety of food available to them compared to community college students (16.5% vs 13.8%) ($X^2 = 4.529$, df = 1, $p < .05$). When comparing food variety by food security status, significantly more food insecure students reported limited food variety available compared to food secure students (21% vs. 7%,) ($X^2 = 120.74$, df = 1, $p < .001$).

Money for food

Approximately 44% ($n = 650$) of community college students reported that they had enough money to spend on everyday things, including food, compared to 48% ($n = 750$) of state university students. This difference was statistically significant ($X^2 = 4.331$, df = 1, $p < .05$).

Only 21% ($n = 388$) of food insecure students reported they had enough money for every items, compared to 82% ($n = 1{,}045$) of food secure students. This difference was also statistically significant ($X^2 = 1131.884$, df = 1, $p < .001$).

Review of food options

A review of the dining and food pantry characteristics at each of the present study's institutions ($N = 15$) collected the most recent (2022) information for comparison across institution-type (Table 3). All the state universities offered retail dining options, compared to only seven (63.6%) of the community colleges. Of the community colleges that did offer dining, only four (36.6%) offered either a dining hall and/or café. Other options included student-run

Table 3. University dining characteristics.

	Institution-type	
On Campus Dining Characteristics	2- year ($n = 11$) n (%)	4-year ($n = 4$) n (%)
Any Dining Options Available	7 (63.6)	4 (100.0)
Dining Hall is available	4 (36.6)	4 (100.0)
Café/Restaurant is available	4 (36.6)	4 (100.0)
Student Run Café is available	2 (18.18)	
Meal Plan is available	0 (0.0)	4 (100.0)
On Campus Food Pantry (mobile or brick and mortar on campus)	11 (100.0)	4 (100.0)
Food Pantry Characteristics		
Fresh fruits & vegetables are available	7 (63.6)	2 (50.0)
Students are required to apply to use the food pantry	3 (27.2)	0 (0.0)
Students are required to complete a screener for eligibility	1 (1.0)	0 (0.0)
Students are required to provide ID	8 (72.7)	4 (100.0)
Partnership with a community organization	5 (45.5)	1 (25.0)
Additional food assistance programs are available/being promoted to students	6 (54.5)	2 (50.0)

cafés and catering options. No community college offered a student meal plan, while all state universities did.

Discussion

This study conducted a secondary analysis of state-collected data to compare food insecurity among students attending community colleges (two-year institutions) and state universities (four-year institutions) within Connecticut. Previous research has suggested that those attending two-year institutions experience food insecurity in higher proportions than those attending four-year institutions, however previous studies have not directly compared the two institution-types within the same study (Goldrick-Rab et al., 2018; Ilieva et al., 2019; Wood et al., 2017, Nikolaus et al., 2020; Spaid & Gillett-Karam, 2018). This study found 59.2% of students across fifteen institutions experienced food insecurity. The eleven community colleges included in this study had slightly higher proportions of food insecure students (61%), when compared to the four-year state universities (57.3%), which is consistent with previous studies (Goldrick-Rab et al., 2018; Nikolaus et al., 2020). This difference in food insecurity prevalence was found to be statistically significant, indicating that there may be a relationship between institution-type and food security. This study examined this association further, comparing food security, food assistance, and institutional support among students enrolled at public two-year community colleges and four-year universities.

Access to food is strongly associated with food security which, for college students, includes community and institutional foodscapes. In the present study, only 63.6% of the community colleges offered retail dining options, with 36.6% offering a dining hall or cafeteria option, compared to the 100% of the state universities that offered retail dining options. Additionally, while none of the community colleges offered a meal plan to students, all the state

universities did. While there was no significant difference in difficulty getting to the nearest grocery stores by institution-type, results revealed a significant difference in this task by food security status. In their investigation of institutional foodscape navigation, Ilieva et al. (2019) found food insecure students to report often acquiring food from bodegas, vending machines, convenience stores and fast-food restaurants far more frequently than utilizing the campus cafeteria and café (Ilieva et al., 2019). Within their written narratives, the community college students revealed two main barriers to accessing food on-campus: lack of appeal and low affordability (Ilieva et al., 2019). Furthermore, the researchers found that features of the on-campus foodscapes encouraged distrust of the college institution among the student sample (Ilieva et al., 2019). With this, Ilieva et al. (2019) concluded that accessibility to food on-campus not only impacts students' emotional and academic wellbeing, but their perception of the academic institution they attend (Ilieva et al., 2019).

Knowledge of food assistance among students

The Supplemental Nutrition Assistance Program (SNAP), formally known as "food stamps," is a federal program that provides benefits to low-income households (USDA, n.d.). In 2018, 12.4% of households in Connecticut experienced food insecurity, with 4.2% experiencing very low food security (Coleman-Jensen et al., 2019). However, only 31% of eligible households in the state participated in SNAP (Cronquist, 2019). College students 18 years or older may be eligible to receive these benefits, yet the same pattern exists; while an estimated 7.3 million college students nationally were eligible for SNAP in 2018, only 2.26 million (31%) were enrolled in the program (Cronquist, 2019).

This study found that significantly more community college students had any knowledge of food assistance offered by their campus and greater awareness of their SNAP eligibility compared to state university students. About 14.9% of community college students knew that they were SNAP eligible, compared to only 5.1% of state university students. This suggests that community college students may have experienced a higher level of financial hardship than four-year college students, and also may have a higher awareness of food assistance opportunities than their peers attending state universities. While the cost of tuition is similar across the two study institution-types, individuals from lower income households are more likely to pursue an two-year degree (associates) than a four-year college degree (bachelors) (Fry & Cilluffo, 2019) and many of these students start their education at a community college prior to enrolling in a four-year state school (CCRC, 2022). However, while in the present study the difference in SNAP eligibility across institution-type was found to be statistically significant, the majority of the total student sample (61.9%) reported not knowing their SNAP eligibility status at all. This finding aligns with Ilieva et al. (2019), who found all students

in their small sample of low-income, minority undergraduate students experienced food insecurity (Ilieva et al., 2019). In investigating factors that were considered by the students when making food choices, the researchers found that over 77% considered SNAP benefits, and other federal food subsidies, an unimportant factor in these decisions (Ilieva et al., 2019). Similarly, in their qualitative study of 19 food insecure students, Zigmont et al. (2019) found only one student reported utilization of any federal food assistance program (Zigmont et al., 2019).

Furthermore, Freudenberg et al. (2019) posed that, aside from the associated social stigmas of receiving federal assistance, another reason why more college students do not apply for SNAP is a result of daunting policies and stipulations that deter students from applying (Freudenberg et al., 2019). A 2018 study from the Government Accountability Office found that both college students and university officials experienced confusion and uncertainty when reviewing student eligibility rules (Freudenberg et al., 2019; United States Government Accountability Office [GAO], 2018). Additionally, with rigid qualifications such as needing to be a being full-time college student while simultaneously working 20 hours per week, to reporting physical eating location, students have been excluded from any of these benefits nationwide (Freudenberg et al., 2019). Currently, due to the public health emergency due to the COVID-19 pandemic, many of the rigid qualifications have been relaxed, allowing more college students to access this benefit (Federal Student Aid, 2023). Still, Freudenberg et al. (2019) offered sound recommendations proposing changes to policy at the federal, state, local, and university levels that may catalyze campus mobilization and forward progress toward raising national awareness of college food insecurity and increase student enrollment in the SNAP program (Freudenberg et al., 2019).

Institutional food assistance for students

Due to the relatively high proportions of college students experiencing food insecurity, and other basic needs insecurities, academic institutions have generated means of supporting students' basic needs. The most common form of food assistance are on-campus food pantries. Other common food supports include meals vouchers, food outreach events, emergency fund distribution and educational programs for federal benefits and food efficacy skills (Freudenberg et al., 2019; Zigmont et al., 2019). In the review on on-campus food options in the present study, it was found that most community colleges did not offer on-campus dining. As mentioned above, a lack of adequate and affordable dining options on community college campuses may contribute to high proportions of food insecure students. However, all the study institutions had a food pantry available to support students.

The present study found that significantly more community college students (43%) had any knowledge of food assistance provided by their institution compared to their peers attending public universities (40%). Furthermore, significantly more community college students (11%) had been referred to community resources from someone on campus, than at the state universities (8%). It is probable that these differences exist due to the increased proportions of non-traditional students attending 2-year institutions, where these students are more likely to experience food insecurity and use food resources (Tanner et al., 2023). According to the 2022 data of the food options at the institutions of the present study, 54% of the community colleges and 50% of the universities offered means of food assistance, in addition to a food pantry. While this study did not find that there was a significant difference in the proportions of students who received food support from their school based on institution-type, there was a significant difference in receiving food support from campus based on food insecurity status. Significantly more food insecure students received food support from campus (20%) compared to food secure students (7%) across both institution-types, similar to previous findings (Adamovic et al., 2022; El Zein et al., 2018). It is probable that students who are food insecure are more likely than food secure students to seek out the resources available to them, as previous research has indicated (Adamovic et al., 2022; El Zein et al., 2018; Zigmont et al., 2019).

Findings, such as these, raise questions regarding student utilization of food support offered by academic institutions; if resources exist, why is food insecurity still so prevalent? Ilieva et al. (2019) found that students placed high value on the difficulty of accessing food resources, their voices being heard by administrators, problem-solving solutions to campus food insecurity, and social support (Ilieva et al., 2019). Similarly, Zigmont et al. (2019) found common themes preventing food insecure students from accessing food including financial barriers, lack of transportation and decreased time and food efficacy skills, consistent with the findings of the present study (Zigmont et al., 2019). Additional research has indicated that barriers exist in the structure and advertisement of institutional food assistance, as well as negative social perceptions in receiving help among students (Adamovic et al., 2022; El Zein et al., 2018; Peterson et al., 2022).In their mixed-methods study of these barriers, El Zein et al. (2018) identified four barriers preventing their sample of college students from receiving adequate support from their campus food pantry: social stigma and embarrassment, insufficient information on pantry operations, implications of self-identity and inconvenient hours of operation (El Zein et al., 2018). Similarly, Peterson et al. (2022) identified lack of knowledge and social stigma to be large deterrents to students accessing institutional food support (Peterson et al., 2022). These studies indicated that many students hold sentiments that they are undeserving of the support and experience

feelings of fear, embarrassment, or shame (El Zein et al., 2018; Peterson et al., 2022).

In observing the food pantry characteristics among the institutions included in this study, providing student identification was required at the majority of these institutions; all of the state universities have this policy in place, and 72.7% of the community colleges did the same. It was also more common for a community college to require completion of an application or screener (28.2% vs 0%), which can be considered a deterrent to utilizing the food pantries (El Zein et al., 2018; Peterson et al., 2022). However, this study still found a higher proportion of students attending two-year institutions (17%) to have received help from their campus, in comparison to their peers attending four-year institutions (14%). However, as mentioned above, across the entire study sample only 13.9% of students have received help from their campus, suggesting that these barriers are far more impactful than institutions recognize. Access to food pantries, while important, are not the silver bullet to college student food insecurity. In addition to researchers, students have raised their voices, offering alternative programs and means of assistance (Adamovic et al., 2022; Freudenberg et al., 2019; Goldrick-Rab et al., 2018; Ilieva et al., 2019; Nagata et al., 2019; Peterson et al., 2022). Common themes among student suggestions included: redistribution of food resources, off-campus food assistance programs and discounts, and increasing food efficacy and assistance awareness for students (Adamovic et al., 2022; Peterson et al., 2022).

Limitations

This study is not without limitations. The original study did not collect demographic data (gender or race/ethnicity) from students aside from their age category. This decision was made to keep the survey short and increase the completion rate. We provided demographic data based on Fall 2019 from IPEDS in Table 2 to try and supplement this information (IPEDS, n.d.); however, it is unknown if the students who participated in this study accurately represent the institutional data. Additionally, due to the nature of how the original survey was disseminated response rates are not able to be calculated. However, the number of students who responded to the survey at each institution is known. Some institutions had very few (in some instances only one or two) students respond to the survey. Additionally, 50% of the community colleges in this study had less than 100 respondents. As a result, the estimated food insecurity rates in this analysis may widely differ from the true prevalence of food insecurity on the campuses included in this study. The low number of responses may be a result of convenience sampling, sending the survey to students via e-mail, and not providing an incentive to participants to complete the study.

Conclusions

This study provided evidence that students who attend two-year community colleges may experience food insecurity at higher rates than students who attend four-year universities. Additional research is needed to further examine the differences and experiences between these two student populations that may contribute to differences in food insecurity. Both community colleges and universities should continue to research and implement different types of food assistance programs on their campuses to assist their students with their needs. Each institution has different student populations and differences in the campus food environment; therefore, a one-size fits all approach is unlikely to solve the issue of student food insecurity. It is important that campuses evaluate if students in need are taking advantage of these resources, and make appropriate changes as needed to lessen barriers, and increase student uptake of available resources.

Acknowledgments

The authors thank Dr. Bill Gammell for leading this study of college food security. Additionally, we thank the participants for sharing their experiences.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

We did not have funding for this study.

ORCID

Victoria A. Zigmont http://orcid.org/0000-0002-3747-4328

Author contributions

J.A., L.N. and V.Z. conceptualized the manuscript, wrote and edited the manuscript, conducted the analyses and researched data. All authors reviewed and commented on subsequent drafts of the manuscript.

Jennifer Anziano MPH, Southern CT State University.

Latasha Neal BS, Graduate Research Assistant, Department of Health, Exercise Science and Recreation Management, University of Mississippi.

Data availability statement

The dataset from this research will be shared on reasonable request to the corresponding author.

References

Adamovic, E., Newton, P., & House, V. (2022). Food insecurity on a college campus: Prevalence, determinants, and solutions. *Journal of American College Health*, *70*(1), 58–64. https://doi.org/10.1080/07448481.2020.1725019

American Association of Community Colleges. (2022, March). *Fast Facts 2022*. https://www.aacc.nche.edu/research-trends/fast-facts/

Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, *47*(2), 121–133. https://doi.org/10.3102/0013189X17741303

Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2019). *Household Food Security in the United States in 2018*. www.ers.usda.gov

Community College Research Center. (2022). Community college FAQs. Retrieved September 19, 2022. https://ccrc.tc.columbia.edu/community-college-faqs.html

Cronquist, K. (2019). *Characteristics of supplemental nutrition assistance program households: Fiscal Year 2018*. United States Department of Agriculture. http://www.fns.usda.gov/ops/research-and-analysis

El Zein, A., Mathews, A. E., House, L., & Shelnutt, K. P. (2018). Why are hungry college students not seeking help? Predictors of and barriers to using an on-campus food pantry. *Nutrients*, *10*(9), 1163. https://doi.org/10.3390/nu10091163

El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., Olfert, M. D., Riggsbee, K., Morrell, J. S., & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among U.S. college students: A multi-institutional study. *BMC Public Health*, *19*(1). https://doi.org/10.1186/s12889-019-6943-6

Federal Student Aid. (2023, April 3). *SNAP Benefits for Eligible Students During the COVID-19 Pandemic (EA ID: GENERRAL-21-11)*. https://fsapartners.ed.gov/knowledge-center/library/electronic-announcements/2021-02-23/snap-benefits-eligible-students-during-covid-19-pandemic-ea-id-general-21-11-updated-april-5-2021

Freudenberg, N., Goldrick-Rab, S., & Poppendieck, J. (2019). College students and SNAP: The new face of food insecurity in the United States. *American Journal of Public Health*, *109*(12), 1652–1658. https://doi.org/10.2105/AJPH.2019.305332

Fry, R., & Cilluffo, A. (2019, May 19). *A Rising Share of Undergraduates are from Poor Families, Especially at Less Selective Colleges*. Pew Research Center. https://www.pewsocialtrends.org/2019/05/22/a-rising-share-of-undergraduates-are-from-poor-families-especially-at-less-selective-colleges/

Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., & Cady, C. (2018). Addressing community college completion rates by securing students' basic needs. *New Directions for Community Colleges*, *2018*(184), 7–16. https://doi.org/10.1002/cc.20323

Ilieva, R. T., Ahmed, T., & Yan, A. (2019). Hungry minds: Investigating the food insecurity of minority community college students. *Journal of Public Affairs*, *19*(3). https://doi.org/10.1002/pa.1891

Integrated Postsecondary Education Data System [IPEDS]. (n.d.). *Integrated postsecondary education data system*. IPEDS: National Center for Education Statistics. https://nces.ed.gov/ipeds/

Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515–526. https://doi.org/10.1080/10668926.2013.850758

Nagata, J. M., Palar, K., Gooding, H. C., Garber, A. K., Whittle, H. J., Bibbins-Domingo, K., & Weiser, S. D. (2019). Food insecurity is associated with poorer mental health and sleep outcomes in young adults. *Journal of Adolescent Health*, *65*(6), 805–811. https://doi.org/10.1016/j.jadohealth.2019.08.010

Nikolaus, C. J., An, R., Ellison, B., & Nickols-Richardson, S. M. (2020). Food insecurity among college students in the United States: A scoping review. *American Society for Nutrition*, *11*, 327–348. https://doi.org/10.1093/advances/nmz111

Peterson, N., Freidus, A., & Tereshenko, D. (2022). Why college students don't access resources for food insecurity: Stigma and perceptions of need. *Annals of Anthropological Practice*. https://doi.org/10.1111/napa.12190

Spaid, R., & Gillett-Karam, R. (2018). Food for thought: Food insecurity in women attending community colleges. *Forum Public Policy*, 1–9.

Tanner, Z., Loofbourrow, B., Chodur, G., Kemp, L., & Scherr, R. (2023). Food insecurity and utilization of campus food resources differ by demographic and academic group. *Journal of Agriculture, Food Systems, and Community Development*, 63–78. https://doi.org/10.5304/jafscd.2023.122.018

USDA. (2012, September). *U.S. Household Food Security Survey Module*. Economic Research Service. https://www.ers.usda.gov/media/8271/hh2012.pdf

USDA. (n.d.). *Supplemental Nutrition Assistance Program (SNAP)*. USDA Food and Nutrition Service. https://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program

U.S. Department of Agriculture [USDA]. (2023, June 20). *Food Security in the U.S: Overview*. USDA Economic Research Service. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/

U.S. Government Accountability Office [GAO]. (2018). *GAO-19-95* Better information could help eligible college students access federal food assistance benefits. *GAO Highlights*, 1–62. https://files.eric.ed.gov/fulltext/ED594848.pdf

van Woerden, I., Hruschka, D., & Bruening, M. (2019). Food insecurity negatively impacts academic performance. *Journal of Public Affairs*, *19*(3). https://doi.org/10.1002/pa.1864

Wood, J. L., Harris, F., & Delgado, N. R. (2017). *Struggling to survive-striving to succeed: Food and housing insecurities in the community college*. Community College Equity Assessment Lab. https://cdn.kpbs.org/news/documents/2016/12/05/STRUGGLING_TO_SURVIVE_-_STRIVING_TO_SUCCEED.pdf

Zigmont, V. A., Linsmeier, A. M., & Gallup, P. (2019). Understanding the why of college student food insecurity. *Journal of Hunger and Environmental Nutrition*, *16*(5), 595–610. https://doi.org/10.1080/19320248.2019.1701600