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ORIGINAL RESEARCH



Revealing Campus Food Insecurity at Urban, Private, Liberal Arts Universities

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ABSTRACT

To address existing and emerging food access needs, three metro private universities in the midwest, with increasingly diverse student bodies representing historically underrepresented backgrounds, utilized a web-based Food Access Survey to collect students' self-reported experiences ($n = 1,478$) accessing food and experiencing hunger. The results from this survey highlight those with marginalized identities are at a higher risk for food insecurity. Given increasing enrollment of marginalized students and diversifying student bodies across all institutions, including private universities, we argue higher education needs to recognize, assess, and act on student food insecurity.

KEYWORDS

Food insecurity; private institutions; college students; marginalized identities

Introduction

Food insecurity on college campuses is an acute and complex public health crisis that disproportionately impacts students from marginalized backgrounds.¹⁻³ This issue impacts students across all different higher educational settings, public and private, and two- and four-year institutions across the country.⁴ However, national research on student basic needs continues to exclude private universities from their research, advocacy, and policy work, instead continuing to prioritize and center students at two- and four-year public institutions. The under representation of experiences of students at private institutions are often marked by assumptions about the demographics of the students in these institutions. There are widespread beliefs that private institutions are composed solely of privileged students who do not experience basic needs insecurity.^{3,5} As the demographics of United States (U.S.) college students have shifted dramatically in the past decades with more marginalized students attending all institution types, including private schools, understanding and advocating for their food justice is more important than ever.

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In recent years there has been growing attention given to the issue of food insecurity on college campuses, however, there are limited research studies that have explored the scope of food insecurity among students in private institutions.^{1,3,6} At best this deliberate exclusion perpetuates ideas about private institutions that are outdated, and at worst contribute to the inequities students face as first-generation college students and Americans, students of color, from poor backgrounds, and with LGBTQIA+ holding identities. Our 2017 findings from the first Food Access Survey (FAS) at one of the private universities included in this article demonstrated 48.5% of students who participated in the survey were food insecure.³ In a recent study by Lankford et al.⁶ conducted at a large private university in Florida, 34% of the students who participated in the study reported experiencing food insecurity. There is still a need for expanding the scope of research at the national level to be inclusive of students at all institution types, specifically private universities.

The connections between sociodemographics and food insecurity are well established; specifically research supports increased prevalence of food insecurity for students that hold marginalized identities,^{3,7} especially those that are of a racial/ethnic minority group,^{3,8,9} low socioeconomic status,^{3,8} first-generation college students,⁹ students living off campus,⁸ and those who attend college in an urban area.⁸ Dubick et al.¹⁰ report findings from a collaborative research project among four campuses across 12 states in the U.S. They report that students of color, particularly African-American students (57% of the sample) reported food insecurity. In the same study 56% of first-generation college students reported experiencing food insecurity. There is also evidence that students who are transgender/non-binary experience higher rates of food insecurity.^{3,9} Gaps in the literature exist regarding food insecurity for urban, mid-western private institutions, therefore, a better understanding of food insecurity in higher education is needed. The aim of this research is to provide evidence for the need for food access research to be more inclusive; specifically addressing private universities and students who hold marginalized identities.

Methods

We conducted our study at three urban Midwestern private liberal arts universities with enrollments (graduate and undergraduate) of approximately 9,356 students across all three campuses. The student body is increasingly diverse, with more students enrolling from historically underrepresented backgrounds, including students of color, first-generation, Pell eligible,^{11,12} and LGBTQIA+. Two of the universities have Asian American and Native American Pacific Islander-Serving Institutions designations as minority serving institutions, and one is approaching this designation. This study builds on student-led initiatives to raise awareness about student poverty and food

insecurity and the research of Keefe et al.³ by expanding the survey to include two other local similarly situated universities (demographically and geographically).

Survey, Recruitment, and Data Collection

Using community engaged methods, in the Spring of 2017, a student-led organization at one of the universities created a web-based FAS to collect undergraduate students' self-reported experiences accessing food and experiencing hunger. This FAS was implemented yearly for 5 years at that original institution. In the Summer of 2021 students, staff, and faculty from all three institutions began to collaborate with the goal of expanding the FAS to include students across all three universities.

Questions in our FAS were informed by three sources: 1) questions modified from the United States Department of Agriculture (USDA) U.S. Household Food Security Survey Module: Six-Item Short Form^{13,14} 2) questions developed from the #RealCollege Survey^{15,16} and 3) questions based on prior conversations with students about their specific food needs.³ Using language from students' own knowledge and experiences was particularly important in order to create accessible and unambiguous survey questions that students would find easy to complete. The Dean of Students offices at all three universities distributed the FAS to all undergraduate and graduate students ($n = 9,356$) via an e-mail link, and student organization volunteers tabled on campus with tablets to encourage peer participation, and food pantries on each campus shared survey link via social media. At the end of the survey was a link to participate in a drawing for gift card prizes for students on each campus. Survey participation was voluntary and a window of 3 weeks was open to complete the FAS.

Study Population

While the survey was open for anyone to participate for this study sample ($n = 1,478$), this analysis only included undergraduate and graduate students. Incomplete submissions were omitted, bringing the total sample size to 1,034. The FAS differentiates from conventional surveys as demographic questions were open-ended to prevent forced categorization and responses were coded for quantitative analysis. Numerous independent variables were evaluated for their impact on food insecurity.

Statistical Analysis

We analyzed demographic and survey data using statistical software R version 4.2.2 and R interface R StudioVersion 22.12.0 + 353. We also used Excel

version 16.71. The USDA-validated method for assessing food insecurity aided in determining food security status.¹⁷ The Six-Item Short Form Survey asks two questions with “yes/no” options and four with “never,” “sometimes,” and “often.” Food insecurity was defined by answers of “yes,” “sometimes,” or “often” on at least 2 questions, and highly food insecure were on at least 5 questions.

Results

Of the 1,034 students who participated in the 2022 FAS, 82% were enrolled as undergraduate students and 18% were enrolled as graduate students. The response rate for the survey was 11% of students ($n = 9,356$). The proportion of certain demographic groups within this study’s sample differed from the population (Table 1). Of note, within the study sample was an overrepresentation of students aged 18–24, those who were White, and those identifying as Pell Grant recipients. Conversely, students 30+, Black/African American, non-Hispanic, male, or non-Pell Grant were underrepresented. Using the definition of food insecurity derived from the Six-Item Short Form Survey, we found 54% ($n = 559$) of students indicate food insecurity via “yes” responses on 2 of the 6 questions. Very low food security was indicated if students answered “yes” in 5 or more of the questions. Findings show very low food security was

Table 1. Characteristics of the 2021–2022 university student population and the sample of students surveyed by the food access survey in spring 2022.

Characteristics	% Sample ($N = 1034$)	% Population ($N = 9356$)	p-value
Age			
18–24	81.3	65.1	<0.001
25–29	9.3	10.8	>0.05
30+	9.3	23.7	<0.001
Race			
White	71.3	56.5	<0.001
Asian	8.6	9.4	>0.05
Black or African American	7.5	14.7	<0.001
Multiracial	4.1	4.9	>0.05
American Indian/Native Alaskan	1.4	0.7	<0.05
Native Hawaiian/Pacific Islander	0.1	0.1	>0.05
Other	0.4	4.3	<0.001
Ethnicity			
Non-Hispanic	69.0	89.4	<0.05
Hispanic	10.3	10.7	<0.05
Gender			
Female	78.8	72.5	<0.001
Male	12.5	24.4	<0.001
Transgender and Nonbinary	6.8	0.3	<0.001
Other	0.4	0.8	>0.05
Pell Grant Status			
No	49.9	71.4	<0.001
Yes	48.5	28.6	<0.001

* χ^2 analysis was used to compare the sample population to the University population.

present in 28% of the student population. The Six-Item Short Form Survey also questions differing levels of food security and within our study sample, 54% indicated that they “couldn’t afford to eat nutritionally balanced meals,” whereas 30% indicated they “cut the size of meals or skipped meals” to make ends meet. Additionally, when we include criteria from four supplemental survey questions informed by Goldrick-Rab et al.¹⁸ and our community-engaged practice,³ when assessing for two or more “yes” responses across the 10 questions, rates of food insecurity increase to 70%.

Race/Ethnicity

In examining race, our results show that students who are Black/African American, American Indian/Alaskan Native, and Asian experienced the highest prevalence of food insecurity. Food insecurity is present in 65% of Black/African American students and these students are 1.8 times more likely to experience food insecurity compared to white students ($p < .05$). Our findings also suggest that students who are American Indian/Alaskan Native face the highest rates of food insecurity (86%) and very low food security (43%). The odds for food insecurity are 5.7 times greater and very low food security are 8.3 times greater ($p < .05$) than white students, however, we have to note that our sample size is 14 for this population (Table 2). Therefore, this sample size does not support making conclusions of statistical significance, but instead, should be explored further. Of note, 8% of our sample is Asian, and specifically, 48% of the sample that identify as Asian reported their ethnicity as Hmong. As shown in Table 2, our study found Asian students were 1.7 times more likely to experience food insecurity ($p < .05$). Additionally, the odds for very low food security is 2.2 times that of their white student counterparts ($p < .01$).

The odds for food insecurity for Hispanic students is 1.5 times that of non-Hispanic students (see Table 2), which is not significant, however, this research demonstrates that students identifying as Hispanic are more likely to be food insecure (62%) than those that identify as non-Hispanic (53%). Additionally, the odds for very low food security in students identifying as Hispanic have 1.7× higher rates than white students ($p < .05$), which is significant.

Gender

For associations between gender identity and food insecurity, our results show that students who are genderqueer, non-binary and transgender are 1.7 times more likely to experience food insecurity compared to students who are female ($p < .05$). It is important to note that of the 70 individuals who are genderqueer, non-binary and transgender, the rate of food insecurity is 66% and 36% indicated very low food security,

Table 2. Self-reported food insecurity status and crude odds ratios for three private institutions in metropolitan minnesota between 2021 and 2022 disaggregated by various demographic factors.

Characteristics	Sample (n)	Food Insecure		Highly Insecure	
		Percent Food Insecure	Odds Ratio	Percent Highly Food Insecure	Odds Ratio
Overall	1034	54.1		28.1	
Race					
White	737	51.2	Baseline	25.9	Baseline
Asian	89	64.0	1.70	39.3	2.21 ^b
Black or African American	78	65.4	1.80 ^a	32.1	1.83
Multiracial	42	59.5	1.40	40.5	1.81
American Indian/Native Alaskan	14	85.7	5.73 ^a	42.9	8.33 ^a
Native Hawaiian/Pacific Islander	1	0.0	0.00	0.0	0.00
Other	4	50.0	0.96	50.0	2.76
Ethnicity					
Non-Hispanic	713	53.2	Baseline	27.6	Baseline
Hispanic	107	62.6	1.48	37.4	1.76 ^c
Gender					
Female	815	53.4	Baseline	28.0	Baseline
Male	129	52.7	0.97	26.4	0.91
Transgender and Nonbinary	70	65.7	1.67 ^a	35.7	1.66
Disability/chronic illness					
No	703	49.4	Baseline	22.8	Baseline
Yes	324	63.3	1.77 ^c	39.5	2.46 ^c
Age					
18–24	841	56.4	Baseline	29.3	Baseline
25–29	96	38.5	0.49 ^c	20.8	0.45 ^b
30+	96	49.0	0.74	26.0	0.65
Pell Grant					
No	516	43.6	Baseline	19.6	Baseline
Yes	501	65.3	2.43 ^c	37.5	3.58 ^c
Income level					
Living wage or above	60	48.3	Baseline	28.3	Baseline
Between living wage and poverty	208	58.2	1.49	28.8	1.44
Below poverty	668	56.3	1.38	30.5	1.74

^a $p < .05$, ^b $p < .01$, ^c $p < .001$.

which is high when compared to gender nonqueer students. There were no significant differences in the odds of experiencing food insecurity or very low food security for those who are men and women, although the rate of food insecurity is 53% and 53% respectively.

Disability Status

We also assessed the association between disability and/or chronic illness and food insecurity, finding that those who have a disability and/or manage a chronic illness have 1.8 times the odds of experiencing food insecurity ($p < .0001$). Moreover, they are 146% more likely to experience very low food security ($p < .0001$).

Age

Our findings, with consideration for traditional students ages 18–24 and non-traditional students over the age of 25, show that food insecurity is prevalent in over 50% of traditional aged students and very low food security is present in almost a third of the traditional aged student population. Interestingly, the odds for food insecurity are significantly lower for non-traditional students ages 25–29 (OR = 0.49, $p = .001$). Odds are lower for non-traditional aged students over 30, however, this was not a significant finding (OR = 0.74, $p = .19$). Of importance, an additional association noted with the three aforementioned age groups is the percentage of students who identified as parents/supporting dependents. For traditional 18–24-year-old students, 2% of the population identified as being parents, compared to all non-traditional students (25+ years), the average reporting of parental responsibilities was 37%. More specifically, 16% identified as being parents in the non-traditional 25–29-year olds and 58% in the non-traditional age bracket over 30 years old.

Pell Grant Status/Income Level

One of the most significant findings from this study shows that students who are Pell Grant recipients are 2.4 times more likely to report experiencing food insecurity compared to students that do not receive Pell Grants ($p < .001$). Moreover, the odds for very low food security are significantly higher for students that receive Pell Grants (OR = 3.58, $p < .001$). It is worth mentioning that while 85% of students that received Pell Grant recipients were eligible for the Supplemental Nutrition Assistance Program (SNAP), only 5% of students utilized this food security benefit.

In contrast, the income levels (earning a living wage of \$39,000 or above per year, living between the Federal Poverty Guideline of \$13,600 and \$39,000 - per year, and living below the Federal Poverty Guideline of \$13,600) students reported when asked, “What is your monthly income from work?” did not reflect similar food insecurity trends shown for students who receive Pell Grant funding. The findings show no significant differences in rates of food insecurity between the three indicated categories. However, 72% (668 of 936 students who reported their income level) reported income below the Federal Poverty Guideline. Of these students, 56.3% experienced food insecurity, which is 17% higher than those that are earning a living wage.

Discussion

The findings of this campus FAS at three urban Midwestern private liberal arts universities expands previous research on campus food insecurity and argues for more robust inclusion of private universities in campus food access.^{1,3,6}

Further, our findings highlight the continued need to recognize food insecurity disparities. Food access research, advocacy, and policy must address the basic needs of students who hold (often multiple intersecting) marginalized identities at private institutions.¹⁻³ We want to acknowledge this data was collected in 2022 and Covid was still impacting experiences with food insecurity, including among college students.¹⁹

College students at all institution types have historically been excluded in food access and basic needs research, advocacy, and policy. For example, public assistance programs like SNAP have either directly or indirectly excluded college students from accessing these programs. With recently expanded student eligibility for SNAP, the student population needs increased advocacy and support accessing these resources.²⁰ Despite critical food insecurity levels, SNAP access on our campuses is minimal. These exclusions are rooted in notions about who has access to higher education and the assumptions about their privilege. Further, there are long-standing expectations of college students needing to suffer as a rite of passage with common tropes such as “the ramen diet.” This should not be an expectation of college student experiences.

A recent review of campus food insecurity¹ demonstrates that food insecurity rates on college campuses across the U.S. are consistently higher than the national average which is 10.2% of households were food insecure at least some time during the year, and 3.8% were highly food insecure.²¹ National data for college students (which tends to exclude private universities) indicates 39% of students at two- or four-year school experienced food insecurity in the last 30 days.¹⁵ Food insecurity rates from other university food security studies demonstrate high rates of food insecurity; public universities 41%,²² large private 34%.⁶ However, showing data from our previous study, indicative of a small private school, we see major differences.

Race

Similar to the findings of other campus food security surveys we observe that students with marginalized racial identities continue to face higher levels of food insecurity.^{9,23,24} Our findings demonstrate a clear relationship between food insecurity and race. Specifically, Black/African American, American Indian/Alaskan Native, and Asian identifying students appear to be more at risk for food insecurity than white students. It is important to recognize that two of the institutions are minority serving institutions and all three universities have a high proportion of students of color. Despite underrepresentation of these students in the survey relative to campus population the findings for students of color are significant and warrant more attention.

The relationship between food insecurity and race, particularly for students who are Black/African American is well documented.^{9,23} In a study by Myers & Painter²⁴ they found that Black/African Americans and Latinos are significantly more food insecure than Whites even when controlling for socioeconomic status. In our sample, Black/African American students represent 7.5%, and food insecurity is present for 65% of this student population. Moreover, Black/African American students are 1.8 times more likely to experience food insecurity compared to white students ($p < .05$). While students who are American Indian/Alaskan Native represent a small number of students in our survey and on our campuses, it is imperative to highlight this finding. We believe this contributes to a general lack of inclusion of AI/NA in research because the sample size is often deemed statistically insignificant due to the small sample size. As shared above, American Indian/Alaskan Native face the highest rates of food insecurity and very low food security and the odds for food insecurity are 5.7 times greater and very low food security are 8.3 times greater ($p < .05$) than white students. We know health disparities and inequities are much higher for AI/NA communities^{25,26} and we do not want to contribute to that erasure.

Becerra et al.²⁷ conducted a study in California to explore the burden of food insecurity among Asian-Americans. Their study particularly spoke to the burden of the “model minority myth” and its impact on the understudying of issues that adversely affect Asian Americans. It is of note that Asian Americans are the fastest growing minority group in the U.S.²⁷ Our study confirmed the high prevalence of food insecurity among specific groups within the Asian-American community. Furthermore, this study also found the low participation in SNAP programs among Asian Americans in California.

It is worth noting that 48.3% of the Asian students who participated in our survey are Hmong American. According to the 2017 American Community Survey there are 310,000 Hmong living in the U.S. and Minnesota with 85,263 Hmong has the largest urban Hmong population in the U.S.^{28–30} Despite increasing numbers, the Hmong remain among the most understudied racial/ethnic groups in the U.S. today.³¹ Understanding the reasons for the diaspora of Hmong refugees is crucial for understanding the socio-cultural dynamics of the Hmong population today. Hmong American families are not well understood in the public and academic spheres.³²

Gender

Transgender non-binary and other marginalized gender identity groups experience the burden of health inequities and also face higher levels of food insecurity.^{9,33,34} Several studies of campus food insecurity support our findings that transgender and nonbinary students are at increased risk for food insecurity.^{9,15,33} Given the additive barriers LGBTQIA+ students face in

navigating higher education, college campuses need to create resources and supportive services specifically to address food insecurity among LGBTQIA+ identified students.

Disability

We know an increasing number of students with disabilities are pursuing higher education each year³⁵ and the relationship between disability, poverty, and food insecurity in the U.S. population is well established³⁶ and the intersection of these concerns with other marginalized identities is likely. Prevalence of food insecurity among college students found that students who report disability experienced higher rates of food insecurity than students without a disability.³⁷ Our study, which was conducted on private universities, parallels their findings showing that students with chronic illness and disabilities were more prone to experiencing food insecurity.

Age

There is little to no research on the intersection of age and food insecurity for college students. This study demonstrates that non-traditional students over the age of 30 are more likely to experience food insecurity than those 25–29 years of age, but less likely to experience food insecurity than 18–24-year-old students. We hypothesize that non-traditional aged students have lower odds of food insecurity than 18–24-year-old students, as they are earning an income or have higher income levels, thus reducing food insecurity. However, students over 30 reported higher rates of supporting dependents, implying likelihood of supporting a family in which households supporting children are more likely to experience food insecurity.

Income and Pell Grants

Our study findings demonstrate that students who receive Pell grants are 2.4 times more food insecure than those who do not. This is consistent with other research findings; El Zein et al.⁴ assessed the prevalence of food insecurity amongst students from eight U.S. universities and found that Pell grant eligible students were more likely to experience food insecurity. Moreover, about half of all Pell eligible students come from families with annual income under \$20,000.^{11,12} This study did not show any statistical significance between family income and the experience of food insecurity among students. However, this amplifies the reality that food insecurity is a pervasive and pernicious issue that impacts a wide range of students and cuts across family income.

Strengths and Limitations

This study is the first of its kind in assessing food security across multiple private universities. Although the sample size is large, we acknowledge limitations in this study. Of note, the sample is voluntary and not random, therefore, the demographics of the survey respondents differs from the university demographics. Additionally, due to the survey participation being voluntary, responses and data from some demographics are limited. Our research advances understanding of the factors that contribute to food and basic needs insecurity for students at private universities.

Conclusion and Implications

We are called to action by the ongoing basic needs advocacy and research on our campus and beyond. We need local approaches to address students' specific needs by drawing on the strengths of the college & community to help meet their challenges.^{5,38} Many students struggle to balance financial obligations of tuition, food, housing, & other basic needs^{39,7} and when students cannot pay their college costs without experiencing material hardships, they will make sacrifices to make ends meet⁴⁰ including directing their limited resources away from their food budget. While paying attention to student food insecurity is important for numerous reasons, including their overall health and wellbeing, student sacrifice inhibits learning & discourages persistence, which impacts academic success & retention.⁴⁰⁻⁴²

Students at private universities are faring worse than those at public 2 and 4 year institutions when it comes to food insecurity and higher education cannot continue to ignore these students. Common assumptions and stereotypes about the privilege of students who attend private universities often render the experiences of these students invisible, which only further contributes to the food insecurity and stigma they face. The demographics of students at private universities have shifted over the last 20 years and yet the assumptions and stereotypes inhibit research on issues that students at private institutions are confronted with. Our research exemplifies that the barriers of access to food impact students across different historically marginalized groups. We need more nationally representative research on issues of food insecurity across all institution types, public and private. Our research highlights the need for policy advocacy to resource food hubs and campus food security initiatives in private institutions.

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