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Oregon State University Food Security Study

OSU DIVISION OF STUDENT AFFAIRS
FOOD INSECURITY TASKFORCE
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Brief Report

Food insecurity (FI) is an ongoing concern on college campuses across the U.S. Food insecurity is defined by the United Stated Department of Agriculture Economic Research Service as a lack of access to enough food for an active and healthy life (USDA ERS, 2022). This report summarizes findings from the second formal study of the prevalence and patterns of FI among OSU students on the Corvallis campus, conducted in Spring 2022. FI was measured using the United States Department of Agriculture (USDA) 10-item Food Security Survey Module (FSSM) with a 2-item food sufficiency screener (as shown in Appendix A). Two sampling strategies were employed in an effort to improve upon existing sampling methods commonly used for estimating FI among college students. These findings can be used to inform OSU's plan to ensure equitable food access among all students.

The full report from the initial OSU FI study in 2020 provides background on the issue of college student FI, broadly and within the context of the COVID-19 pandemic, and concludes with a discussion of findings, limitations, and areas for future research. The full report also includes a detailed description of the methodology used to estimate FI among OSU students. The only notable difference in the 2022 methodology compared to 2020 was the course sample data were collected in person vs. via Zoom. Similar to our findings in 2020, the 2022 findings differed based on the two sampling methods, indicating that methodology is an important consideration in measuring FI in this population.

The 2022 study included a total of 1,555 participants; 622 participants who completed the FI survey during course visits between May 2nd and May 12th and 933 participants who completed the survey in response to a campus-wide email between May 18th and June 1st. The higher response rate for the course sample (77%) compared to the email sample (5%) indicates a lower non-response bias in the course sample and therefore likely reflects a more accurate estimate of FI.

As shown in Table 1, the 2022 course-delivered survey estimated a FI rate of 26.6% among OSU Corvallis campus students, while the email-delivered survey estimated a rate of 38.9%. For reasons explained above, and more fully in the 2020 report, we believe the more conservative estimate of 26.6% is more accurate. However, because email surveys are the standard method for collecting FI data among college students in the U.S., the higher FI rate is appropriate for making comparisons between institutions and thus we report those data here as well. A statistical weighting technique corrects for differences in the samples as they compare to the racial demographics of the entire campus and to enrollment by college within the university. Appendix B presents the representativeness of the samples compared to known demographic characteristics of the OSU population enrolled at the Corvallis campus in May 2022.

The FI rate on the Corvallis campus in spring of 2022 remained nearly identical to the rate measured in fall of 2020 (26.6% and 24.3%, respectively, based on the course-visit samples in each year). This suggests that 1 in 4 students on the Corvallis campus continues to experience difficulty accessing adequate food for an active and healthy life.

Table 1: Prevalence of Food Insecurity at OSU Corvallis Using Two Modalities, 2022[1]

	Course Sample		Email Sample	
Demographic Characteristics	FI (%)	n	FI (%)	n
All Participants	26.6	662	38.9	933
Class standing				
Frosh/Sophomore	24.3	328	44.0	243
Junior/Senior+	29.8	267	41.6	317
Graduate	27.1	51	32.4	373
Race/Ethnicity				
White or Caucasian	26.3	435	31.3	580
Asian	20.4	117	37.1	182
Black, Latino, Indigenous, Pacific Islander	39.2	110	57.5	171
First-generation College Status				
First-generation	37.3	200	56.5	225
Not First-generation	22.8	439	32.2	654
Gender				
Female	32.2	325	38.0	559
Male	22.1	294	40.5	268
Non-binary	25.0	21	46.6	74
International Student				
International	22.4	47	45.2	109
Domestic	27.3	599	38.4	790

[1] Rates of food insecurity were weighted for known university student population, considering racial demographics and college within the university.

As was the case in 2020, the prevalence of FI in 2022 was disproportionately experienced by vulnerable student groups including students of color and first-generation college students. The course-based data showed 1 in 3 first generation students were food insecure. More than 1 in 3 Black, Latino, Indigenous, or Pacific Islander students were food insecure -- 13 percentage points higher than the rate reported by white students and 19 percentage points higher than Asian students. The small number of students who reported non-binary gender in the course sample limits its validity, but the email sample suggests that non-binary students had FI rates as much as 7 percentage points higher than males or females. Similarly, the emailed survey indicates the possibility that international students have higher FI rates than domestic students, but this was not evident in the course-visit sample.

The higher FI rate for female v. male students is statistically significant, and similar to findings reported in 2020 (~7 to 10 percentage points difference.) The gap narrows to near parity among students who answered the email survey, again a similar pattern we observed in 2020. In the

course-visit sample, the observed differences may be explained by other characteristics associated with gender and FI. In the U.S. population as a whole, food insecurity is higher for female residents. A subsequent analysis of our data may further explain this observed difference.

A notable difference between the 2020 and 2022 data is whether class standing may be related to FI. The 2020 results showed an apparently protective effect of being a younger student with a statistically significant lower rate among younger students when compared to juniors and seniors. This finding was not observed in 2022 with first-year students and sophomores reporting FI prevalence only 5 percentage points below that of juniors and seniors.

The findings regarding international students at OSU is a new addition to the 2022 report. In the course-visit sample, FI appears lower for international students, but it appears higher in emailed sampled, yet neither of these differences is statistically significant. This is a surprising finding since other literature shows international students to be at higher risk of FI (El Zein et al, 2018; Soldavini & Berner, 2020).

This follow-up study demonstrates that FI continues to be of concern at OSU and shows that prevalence did not improve even as the on-going effects of the COVID-19 pandemic have waned. Previously observed differences between demographic groups generally prevailed from 2020 to 2022 with little sign of change. Black, Latino, Native American, and Pacific Islander students (as a group), first-generation students, and female students are at higher risk of FI. Other groups may be at higher risk (e.g., non-binary students, international students) but our data did not indicate this. These findings can be used to promote equitable and targeted campus-based initiatives to reduce educational costs and increase access to food resources for all students and particularly for those most vulnerable.

Finally, and notably, this research shows how different sampling methods can produce drastically different estimates of FI. To our knowledge, our studies at OSU are the first to examine and compare two different survey sampling strategies in the college student population. While the course-based methodology estimates the Corvallis campus FI rate to be 26.6%, the email-based methodology produced a much higher estimate of 38.9%. This supports the hypothesis that variation among estimates of FI can be attributed, in part, to the methodology of studies. Our findings contribute to the literature on college student FI, as well as the general sampling and survey methodology literature. Further research is warranted to validate our findings and investigate other methodologies that could be used to improve the reliability of estimates.

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Appendices

Appendix A: The scoring guide for the USDA 10 item FSSM and 2-item screener[1]

Question/Item	Affirmative Response (indicating insecure)	Negative Response (indicating secure)
2 – item Food Sufficiency Screener		
In the last 30 days, did you ever run short of money and try to make your food or your food money go further?	Yes	No
Which of these statements best describes the food eaten in your household?	Enough but not always the kinds of food we want to eat, Sometimes not enough to eat, Often not enough to eat	Enough of the kinds of food we want to eat
10 – item USDA Food Security Survey Module		
I worried whether my food would run out before I got money to buy more.	Often true, Sometimes true	Never true, Don't know
The food that I bought just didn't last, and I didn't have enough money to get more.	Often true, Sometimes true	Never true, Don't know
I couldn't afford to eat balanced meals.	Often true, Sometimes true	Never true, Don't know
In the last 30 days, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	Yes	No, Don't know
In the last 30 days, how many days did this happen?	≧ 3 Days	1 – 2 Days
In the last 30 days, did you ever eat less than you felt you should because there wasn't enough money for food?	Yes	No, Don't know
In the last 30 days, were you ever hungry but didn't eat because there wasn't enough money for food?	Yes	No, Don't know
In the last 30 days, did you lose weight because there wasn't enough money for food?	Yes	No, Don't know
In the last 30 days, did you ever not eat for a whole day because there wasn't enough money for food?	Yes	No, Don't know
In the last 30 days, how many days did this happen?	≧ 3 Days	1 – 2 Days

Respondents with 3 or more affirmative responses were categorized as "food insecure." Respondents with 6 or more affirmative responses were further categorized as having "very low food security."

Appendix B: Representativeness of Samples

Using data provided by the Office of Institutional Research, we analyzed the representativeness of our sample. Table B-1 displays the percentage of each subgroup in the sample population as well as the overall OSU population percentages. All food insecurity rates reported earlier were calculated by applying sampling weights to adjust for race and College in which student is enrolled.

	Course Sample %	Emailed Sample %	OSU Campus %
Agricultural Sciences / Forestry	10.0	10.3	9.9
Business	15.3	17.1	15.7
Education	2.0	.6	.1
Science	16.0	14.7	14.7
Liberal Arts	13.4	13.5	13.5
Public Health and Human Sciences	9.7	9.3	9.2
Earth, Ocean, and Atmospheric Sciences	3.1	3.0	3.0
Veterinary Medicine or Pharmacy	1.2	4.7	3.1
Engineering	28.5	25.8	30.6
First-generation student	16.0	26.7	22.6
Not first-generation student	83.5	73.2	77.4
Female	45.4	58.2	46.4
Male	48.4	33.8	53.6
Nonbinary[1]	6.3	8.0	--
White or Caucasian	68.0	57.0	68.0
Asian[2]	20.5	19.0	8.9
Black, Latinx, American Indian, Alaska Native or Pacific Islander (BIPOC)	11.5	24.0	23.0

[1] We include all respondents who indicated identifying as transgender, including those who also indicated female or male, meaning this category is *not* exclusive. OSU official statistics provided to us do not distinguish non-binary student from cis-female and cis-male students.

[2] Asian students were identified separately from other BIPOC students because the food insecurity rate among Asian students was significantly lower than for each of the other groups usually categorized as BIPOC. The race and ethnicity question allowed respondents to "check all that apply." Respondents were coded with a category if they *only* selected that race/ethnicity. If a respondent selected more than one category, they were coded as "BIPOC".