Swette Center for Sustainable Food Systems
Arizona State University

Student Food Insecurity

A comprehensive look at Arizona State University's College of Global Futures

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Executive Summary

The Hope Center for College, Community, and Justice (Hope Center, 2021) reported nearly 30% of students enrolled at four-year institutions experienced food insecurity during the Fall 2020 semester. College Student Food Insecurity (CSFI) is associated with negative health outcomes such as impaired mental, physical, and emotional well-being. While increasingly Institutions of Higher Education (IHE) offer emergency funding or campus support centers to struggling students, the effectiveness of such programs may be impaired due to insufficient awareness or participation. In addition to institutional support, food-insecure students are often referred to local food pantries and government programs such as the Supplemental Nutrition Assistance Program (SNAP) or the Emergency Food Assistance Program (TEFAP). However, barriers to student use of these services and programs similarly compromise their efficacy toward reducing CSFI.

This study surveyed 152 undergraduate and graduate students at Arizona State University's (ASU) College of Global Futures (CGF) about their experiences with hunger and food insecurity while pursuing their degree. Institutional staff and faculty members were interviewed about the resources available to these students, as well as common themes and experiences they have noticed among students struggling with food access.

Overall, we found that almost 27% of CGF students are experiencing or have experienced food insecurity in the last 12 months. Food insecurity was found more commonly among students who are queer, students who identify as Black, Indigenous, People of Color (BIPOC), students with disabilities, students aged 20-30 years, and those not living locally on ASU's campuses. A key takeaway from this synopsis is that students who are already disadvantaged or experiencing difficulties/hardships are more likely to be food insecure.

This report contains an in-depth analysis of the data collected through the survey, institutional staff and faculty points of view on institutional support, and our recommendations for institutional support going forward.

Background

Introduction to ASU

Arizona State University is a public research university with its main campus located in the heart of Tempe, Arizona. ASU boasts five campuses throughout the Phoenix metropolitan area - each one with unique attributes and programs that make it easy for students to find a sense of belonging (ASU, 2022). Undergraduate students at ASU can choose between 350 degree options offered by its 17 different colleges, and graduate students are offered more than 450 degree and certificate programs (ASU, 2022).

For two consecutive years, ASU has been the number one public university chosen by international students. It was home to over 15,000 international students in the 21-22 academic year and is considered the fifth-largest university in the nation for hosting international students (ASU, 2022).

Arizona is home to 22 federally recognized Indigenous Tribes, with the ASU Tempe campus built on the ancestral homeland of Arizona's original nations, including the Akimel O'odham (Pima) and Pee Posh (Maricopa) peoples, as acknowledged in a statement from President Michael Crow, in 2015. ASU maintains a strong connection to tribal communities and provides as many opportunities as possible for the success of Indigenous students (Crow, 2015). As of January 2023, 3,504 Indigenous students were enrolled at ASU, making it the largest Indigenous student population of any other college or university in the state (Fox et al., 2023).

ASU values access to education for everyone and aims to tackle the challenges that first-generation students face to ensure they receive that access. In fact, several members of high-level leadership were first-generation students themselves, including President Crow. ASU is one of the first universities to be awarded the First-Gen Forward recognition from the National Association of Student Personnel Administrators Center for Student Success for its commitment to first-generation learners. The enrollment of first-generation undergraduate students at ASU was 28,701 in fall 2022, (ASU, 2022).

For most students, financing is a barrier that can be too daunting and difficult to get through. Fortunately, there are many avenues one can take to access aid. One such avenue is a Pell Grant. Pell Grants are awarded only to undergraduate students who have yet to earn a degree and showcase an exceptional need for financial assistance (Federal Student Aid, n.d.). A benefit of receiving a Pell Grant is that it does not have to

be paid back, unlike student loans. 34,802 students received Pell grants in fall 2023 (Arizona Board of Regents [ABOR], 2023).

ASU is distinguished by its university charter emphasizing inclusivity, student success, and community partnerships. Ranked first in innovation for the past nine years in the Best College rankings report by the U.S. News & World Report, ASU has earned its reputation for a wholly unique approach to problem-solving. Students, faculty, and administrators refrain from balking at wicked, systemic, or pervasive problems. Instead, ASU provides the environment to assess, collaborate, and implement meaningful change. It is within these auspices the research presented examines food insecurity among college students.

Why the College of Global Futures?

The mission of the College of Global Futures is “To foster learning, discovery, and partnerships that drive informed, positive action as we work together to build a better future” (ASU, n.d.-e). CGF is dedicated to tackling sustainability issues; thus, it should be at the forefront of solving these issues for its students. To realize CGF’s vision of creating a sustainable and equitable future, we must first ensure our community is thriving and sustainable.

What is food insecurity?

According to the USDA, food security (FS) is when everyone always has access to enough food for an active, healthy life (Economic Research Service [ERS], 2023). Food security can be further broken down into four categories: high, marginal, low, and very low, the latter being food insecure (FI). In 2021, about 29% of the global population was considered moderately or severely food insecure (World Health Organization, 2022).

The starving college student trope has come under scrutiny in recent years. Organizations such as the Hope Center for College, Community, and Justice (Hope Center) lead the charge, generating awareness and causing government and university leadership to collectively question the ethics of normalizing such an expression. Still, government assistance and support programs, as well as institutional resources and support, can be confusing to navigate and hard to qualify for (Government Accountability Office [GAO], 2018).

What are ASU’s current food security policies and interventions?

ASU has a few food insecurity interventions for students across the institutional system. Such available resources include the mostly student volunteer-run Pitchfork Pantry, a Basic Needs website, and a student crisis fund. ASU also employs hands-on learning of growing fresh food through the Garden Commons, another student-run club. The Garden Commons is located on the Polytechnic campus and educates the community on urban growing techniques and supporting local food systems.

Students can visit the Pitchfork Pantry at the Tempe and Downtown campuses for intermediate assistance. Pop-up pantries are periodically available at the West and Polytechnic campuses. The Pitchfork Pantry is free for all ASU students with a valid ID and offers fresh fruit and vegetables, bread, grains, and proteins, among other items.

The basic needs website was born out of the recommendations the Arizona Board of Regents 2021 Student Food and Housing Insecurity Report set forth. This site compiles resources and support available to ASU students, whether they are seeking help with mental, financial, food, family, academic, or housing issues. If a student is seeking food assistance, the website has three resource sections: a few statements (adapted from the USDA adult short survey module) to help determine if you are possibly experiencing FI, avenues open to you if you are experiencing FI, and information about the Pitchfork Pantry. Some of the resources in the second section include help with applying for SNAP benefits and information on local food pantries.

The student crisis fund is available to students of ASU who need immediate, one-time financial assistance with food, housing, or even medical problems. Students who qualify can be awarded an amount only once per semester, and the application may take up to two weeks to be reviewed before a decision is made. According to the dean of Students, award amounts vary on a case-by-case basis.

Who are the students in ASU's CGF?

According to a recent report from the Arizona Board of Regents (2022b), a total of 142,616 students were enrolled at ASU for the Fall 2022 term. On the whole, ASU's CGF population is mostly representative of ASU's population. Nearly 79% of these students were undergraduates (32% of whom were seniors), 55% female, 58.6% non-residents, and 44% considered digital immersion.

Through data sets received from CGF, we can determine how the typical CGF student compares to a typical ASU student (Appendix D). In the Fall of 2022, ASU's CGF had an enrollment of 1,319 students. 57% of these students were undergraduates (46% of whom were seniors), 66% female, 65% non-resident, and 54% considered digital immersion.

Literature Review

Food insecurity among college students is an emerging research topic, though the subject is gaining more attention from college administrators and local, state, and federal policymakers. As a result, Institutions of Higher Education (IHE) have endeavored to better understand the extent of college student food insecurity (CSFI) and its potential implications and design effective responses addressing the issue within their organizations. This section provides background information on food security measurement, an overview of current CSFI research and data, and a comprehensive analysis, interpretation, and critical evaluation of the relevant literature. In this section, we aim to highlight the gaps in the current literature, necessitating further research for more thorough comprehension and formulation of precise interventions.

To familiarize ourselves with the topic of CSFI and to better inform our research, we reviewed relevant literature from various sources. Primary sources such as publications from the Economic Research Service of the United States Department of Agriculture, as well as authoritative organizations on CSFI, such as the Hope Center for College, Community, and Justice at Temple University and the University of California, provided background information in addition to current data, research, and outlined efforts to address food insecurity among college students. Additionally, a search for literature related to this subject was conducted through Proquest, a repository of 64 databases, including prominent education, health, and social science databases such as the Educational Resources Information Center (ERIC), the U.S. Department of Education sponsored collection of academic literature. A Boolean search for the phrases “food security” or “food insecurity” within titles, abstracts, and subject field codes found in conjunction with the terms policy, program, intervention, or initiative within main subject headings University Students, College Students, College Administration, or University administration. Source materials were limited to scholarly journals, trade journals, reports, books, and government and official publications proceeding 2018. Our study further benefited from the timely publication of the *Journal of Agriculture, Food Systems, and Community Development* Winter 2022-2023 special section: Justice and Equity Approaches to College and University Student Food (In)Security.

Food security measurement evolution

Data collection on food security in the United States was first mandated under the Monitoring and Related Research Act of 1990 (ERS, n.d.-b). The U.S. food security measurement survey instrument was initially designed at the 1994 National Conference on Food Security Measurement and Research through the collaboration of the Food and Nutrition Service, the National Center for Health Statistics, additional invested

federal agency leaders and administrators, subject experts, and researchers (ERS, n.d.-b). Beginning in 1998, the USDA's Economic Research Service assumed responsibility for analysis and reporting of data collected through FSSMs (ERS, n.d.-b). Bickel et al. published the *Guide to Measuring Household Food Security Revised 2000*, still regarded as the definitive authority for assessing U.S. food security status. Current Food Security Survey Modules (FSSMs) in use are the products of more than three decades of continuous revision and refinement. Households within high and marginal categories are considered food secure whereas those classified as low and very low constitute food insecure households (ERS, n.d.-c).

It is important to note that in 2006 USDA adopted new reporting descriptions with clear distinctions between food insecurity and hunger, defining each as follows:

> *Food insecurity is a household-level economic and social condition of limited access to food, while hunger is an individual-level physiological condition that may result from food insecurity*. (ERS, n.d.-c)

The change results from recommendations from a panel of experts convened by the Committee on National Statistics (ERS, n.d.-c).

As a result of these ongoing efforts, distinct characteristics of food-secure and food-insecure households were identified and divided into four categories based on a spectrum of experiences: high food security, marginal food security, low food security, and very low food security (ERS, n.d.-a). Food insecure households are defined as "unable to acquire food because they had insufficient money and other resources for food" as assessed using FSSMs (ERS, n.d.-c). Reduced quality and variety diets primarily characterize households classified as low food security, whereas very low food security households experienced dietary reductions from reduced or skipped meals (ERS, n.d.-c). According to the latest data, an estimated 6.4% of households in the United States were deemed low food security and 3.8% very low security at some point in 2021 for a total of 10.2% of food insecure households (Coleman-Jenson et al., 2022). The prevalence of food insecurity was higher in households with children under 18 years old at 12.5%. However, the severity experienced varies for individuals within the household (Coleman-Jenson et al., 2022). For instance, adult caregivers of children may be categorized as low or very low food security while children in the household do not experience the same or as severe characteristics of food insecurity (Coleman-Jenson et al., 2022).

The literature suggests FSSMs may not accurately measure the food security status of college students as the population characteristics are not typical of U.S. households.

Reports from the Government Accounting Office and Congressional Research Office note limitations when the instrument is applied to college students (GAO, 2018; Clifford Billings et al., 2021). Research results are further complicated as various FSSM versions (e.g. Household, Adult, Six-Item Short Form) are used to classify student food security (Clifford Billings et al., 2021; Clifford Billings et al., 2021; Clifford Billings et al., 2022; GAO, 2018). Engel et al. (2022) demonstrated significant differences in student self-perception and food security status as measured using the 10-item Adult FSSM within this population. These results align with a study of student meaning and perceived definitions of CSFI described as “an inevitable sacrifice” (Andersen et al., 2022).

The Wisconsin HOPE lab began collecting data related to the basic needs of college students in the state in 2013 (Golbrick-Rab et al., 2019). Only two years later, the HOPE lab expanded the scope of its research, soliciting colleges nationwide to participate in the distribution and collection of surveys assessing student needs (Goldrick-Rab et al., 2015). These efforts yielded 4,000 survey respondents from seventeen two- and four-year colleges in seven states (Goldrick-Rab et al., 2019). Later renamed the Hope Center for College Community and Justice (Hope Center, n.d.), the organization was integrated into the Lewis Katz School of Medicine at Temple University in 2018. Participation has grown exponentially in the decade since that first survey, with more than 195,000 students in over 200 two- and four-year colleges across 42 states and the District of Columbia contributing to the 2020 survey (Hope Center, 2021). The pioneering work of the Hope Center in conjunction with an ethos of shared and accessible data, has distinguished the organization as a preeminent authority in CSFI research.

The most recent data from The Hope Center Survey 2021: Basic Needs Insecurity During the Ongoing Pandemic found rates of food insecurity were little changed from 2019. However, the report noted limitations in drawing comparisons due to the heterogeneity of participating institutions between survey iterations and pandemic factors, such as decreased enrollment, affecting data. The survey calculated an average food insecurity rate at participating four-year institutions of 29% in 2020. The data indicated significant overall basic need insecurity (BNI) disparities based on gender, LGBTQ status, and racial and ethnic identity. The report also noted that BNI rates were highest among schools in the Western region, with an estimated 59% of four-year college students experiencing one or more forms of basic need insecurity. Barriers to addressing student BNI include low student awareness and underutilization of public benefits. The most recent survey data indicate that 53% of students were aware of emergency aid funds from the Coronavirus Aid, Relief, and Economic Security (CARES) Act, with fewer respondents, 38%, reporting knowledge of general emergency

aid programs. According to The Hope Center Survey 2021: Basic Needs Insecurity During the Ongoing Pandemic, more than half of students provided emergency aid utilized the funds to access food. Among survey participants experiencing BNI, 32% reported receiving emergency aid.

The University of California (UC) has established an equally esteemed reputation on the subject. The same year the Wisconsin HOPE lab survey was distributed nationwide, the University of California (UC) commenced the largest evaluation CSFS, surveying nearly 9,000 students across its ten campuses (University of California Office of the President [UCOP], 2017). The project was coordinated through the Global Food Initiative (GFI) founded in 2014 under then UC President Janet Napolitano and the ten UC chancellors (UCOP, 2020). The UC Nutrition Policy Institute was tasked with conducting the survey, analyzing the results, and providing systemwide recommendations for addressing UC student food insecurity (Martinez et al., 2016). The analysis examined differences in food security based on student demographics, factors contributing to CSFI, and barriers students encounter to food access (Martinez et al., 2016). This leading-edge study continues to influence research on CSFI demonstrated by myriad papers published after the UC GFI report exploring the same areas. The Student Food Access and Security Study report included a framework for effectively responding to the basic need deficiencies students experience at college intended to serve as a nationwide model, establishing the University of California as the topic vanguard (UCOP, 2017).

In the fall of 2020, the UCOP Regents Special Committee on Basic Needs published five-year basic need goals with revised recommendations for five target audiences: policymakers and advocates, university leaders, student service practitioners, researchers, and students. The first ambitious goal the committee aspired to was a 50% reduction in UC student food insecurity, bringing the rate down to 22% of undergraduate students and 13% of graduate students by 2025 (UCOP, 2020). The most recent data from an annual report to university regents found the prevalence of undergraduate student food insecurity trended downward between 2018 and 2020 before rising to 43% in 2022 (UCOP, 2023). Food insecurity among graduate students fell from 26% in 2018 to 21% in 2021 (UCOP, 2023). Although these figures indicate extensive work is needed to reach this goal in the next few years, they need to be more representative of the considerable progress policymakers and advocates, university leaders, student service practitioners, researchers, and students have made toward committee recommendations. The University Student Aid program increased investment from 33% to 45% following the approval of the Tuition Stability Plan (UCOP, 2023). An additional $1,500 to $2,000 in aid was offered to the lowest-income UC students as a result of investments from both the University and the state of California (UCOP, 2023). The state also designated $650,000 used to assist more than 58,000 students attending UC

schools with CalFresh, the federal Supplemental Nutrition Assistance Program administered through the state (UCOP, 2023). Policymakers, California public benefit agencies, and University leaders and advocates have collaborated extensively to ensure UC student consideration and inclusion in policies and procedures (UCOP, 2023). The close working relationship between the University of California, state lawmakers, and public agencies was foundational in advancing the recommendations from the Special Committee on Basic Needs.

Emerging research topics

Through recent research, college student food security has reentered into the spotlight. Overwhelming trends point to a higher prevalence of food insecurity in college students compared to the general population. Emerging topics include the correlation between more diversified student populations and food insecurity and the differing constraints affecting these individuals.

The opportunities available to a broader range of students have allowed for the diversification of student populations. Over 70% of present-day college students are from lower socioeconomic backgrounds, first-generation college students, individuals that have taken a gap year, or from racial and sexual minority groups (Larin, 2018). These factors may put the students at a higher risk of facing food insecurity. Students with these backgrounds may experience unique limitations that affect their daily choices with food decisions. This allows for different perceived meanings of food security. In many studies, a similar constant can be found. Students don't know how to categorize their situation. Students who identify as food secure at the beginning of an interview would later make comments that would insinuate struggles with food security (Brand, 2023). Students may understand the concept of food insecurity but may not identify it for themselves. This could be a result of individuals' self-protection or disbelief of their personal situation as a coping mechanism and can affect the validity of quantitative research performed.

Students have identified limited food consumption as a necessary sacrifice in efforts to obtain a college degree for future success. A general feeling of lack of time, money, and employment contributes to their connotation of food insecurity. One student defined food insecurity to them as "not always eating as healthy as you would like, as often as you would like." A different student described it as a "willingness to sacrifice in the moment to get that degree, and if that means going hungry for a few days, a lot of people will be willing to make that sacrifice" (Anderson et al., 2022).

Students, in general, are having difficulties balancing school, work, and their lives. A considerable shift in student demographics has developed over time, as 71% of US

college students were considered non-traditional students by 2018 (Manboard et al., 2021). When individuals with unique circumstances, such as Deferred Action for Childhood Arrivals (DACA) and the larger Development, Relief, and Education for Alien Minors (DREAMer) students, are considered, the limited options available and increased restrictions to these students are a pressing issue on their food security. Previously unconsidered factors to food insecurity, a 2021 study illustrated new factors that must be considered. It emphasized “cultural differences in food preferences often available at food pantries, the inability or fear of seeking paid work, higher real and immediate expenses for DREAMer students due to the restrictions on federal loan and grant programs for DREAMers, and, the restriction of SNAP benefits for DREAMer students which provides monthly payments that can be used for food only” (Klobodu et al., 2021). Addressing food security on college campuses will require attention for all students, especially those disproportionately affected by external factors.

Key findings

Due to the multifaceted nature of addressing food insecurity among college students, several common themes and elements emerged in the literature. One prevailing topic revolved around the pervasive attitude of stigma and shame that encases food-insecure students, impacting their sociability and unwillingness to seek assistance or make use of available resources. Another common theme surrounded economic constraints such as high educational costs & insufficient financial aid. High educational costs can encompass tuition, living/housing, transportation, meal plans, and school supplies (i.e., laptops and textbooks). The literature also highlighted those disproportionately impacted by food insecurity, like first-generation students, students of color, or those marginalized from communities. Food assistance programs were frequently mentioned, mainly (SNAP). In this context, SNAP is an essential resource for securing nutritious regular meals, yet its effectiveness hinges on elements such as awareness, eligibility, and guidance. As institutions strive to provide support, populating initiatives such as food pantries, campus gardens, and educational workshops are commendable efforts, though they need to meet the student's needs (Brand, 2023). However, the effectiveness of these programs remains a subject of ongoing research and evaluation. As connections are made between these themes and elements, it becomes evident that a multidimensional approach will need to be created that acknowledges the immediate challenges and strives to unravel the intricate layers of stigma, socioeconomic disparities, and systematic barriers perpetuating this complex issue.

Differences in survey approaches can alter the measurement of food insecurity among participants. The original and most common tool to measure food insecurity, the 18-item HFSSM has been adapted to different survey respondents such as the shortened 10-item AFSSM and 6-item FSSM. These modifications have been shown to produce

different results. Shorter FSSMs produce higher food insecurity prevalence rates in college students than longer versions of the USDA HFSSM (Nikolaus et al., 2020). In addition, the use of screening protocols in surveys to tailor questions to unique respondents have resulted in 13-15 percent lower rates of food insecurity (Nikolaus et al., 2019).

The time frame within which the surveys are given or taken could provide different results as well. Institutions have varying reasons why they see increased activity on campus, like course availability. A study done in 2020 indicated higher response rates to surveys for undergraduate students in Fall 2017 than in Spring 2017. The opposite resulted in graduate students yielding more responses in the Spring of 2017 (Riddle et al., 2020). This paired with the time frame with which participants are asked to reflect on; most were over 12 months but also included a question where participants reflect over 30 days. Amongst graduate students, the percentage of high-risk students for food insecurity is more significant in the Fall (67.7) than in the Spring of 2017 (60.8). To this point, when respondents reflect on their level of food insecurity, being asked at a time when students might feel less food insecure (Spring) versus when they might feel more food insecure (Fall) can yield different results. The timing in which surveys are taken is critical to yield consistent and comparable results. Therefore, due to the survey inconsistency, the data is not comprehensive, nor does it reflect the actuality of FI in IHE.

Critical evaluation and data gaps

Our reviewed literature points out that the current perceived landscape of food insecurity for college students needs to be revised due to low response rates, resource hurdles, and research gaps. One of the biggest issues in food insecurity research and studies is the variety (or lack thereof) of the audience who responds to survey and interview requests. On average, respondents to food insecurity studies are female, White or Latinx, live off-campus and are undergraduates. One study we reviewed had a participant pool that was 65% female, 67% white, 84% living off campus, and 86% undergraduates (Engel et al., 2022).

The results of these studies commonly show that students who fit the USDA definition of food insecure are also female, White or Latinx, live off-campus, and are undergraduates. The above discovery may explain why the results skew this way. The data gaps are glaringly obvious: respondents who are male, African American, or Indigenous, and/or live on campus are less likely to participate in these study opportunities, ensuring the data hides how food insecurity can and does affect these groups. While many studies agree that approximately 41% of students in the U.S. are

FI, one study brings to light that the percentage of FI students at Historically Black Colleges and Universities (HBCUs) is significantly higher at 73% (Duke et al., 2023).

Of the portion of students that screen as food insecure, only some actually seek out resources to support themselves. One study showed that out of 30 food-insecure students interviewed, two-thirds knew they had access to an on-campus food pantry, but only one-third utilized it (Anderson et al., 2022). Regardless of how many resources are present and available for the student, there are typical roadblocks that prevent them from completing the necessary tasks required to receive benefits. Common roadblocks across the literature include unfamiliarity with resources available, doubt about qualifications, embarrassment and anxiety, timing, lack of financial literacy, healthy food acquisition and preparation knowledge, and even obliviousness to being FI (Diaz & Gaylor, 2020, Anderson et al., 2022, Klobodu et al., 2021).

Arizona Board of Regents

The Arizona Board of Regents (ABOR) released a report after conducting a state-wide study of FI students in three major Arizona institutions (ABOR, 2021b). This study showed that 26% of surveyed students at ASU were either low food security or very low food security. Comparatively, Northern Arizona University (NAU) had 47% and the University of Arizona (UA) had 35% of FI students (Arizona Board of Regents, 2021). It is important to note that NAU and UA utilized a different survey model than ASU, and the response rates were 16%, 10.5%, and 12.8% respectively. Another inconsistency is that when asked if the student had gone an entire day without eating because there was not enough money for food, ASU's timeframe was "in the past 30 days," while NAU and UA utilized a past 12 months time frame. The "Yes" responses to this question were ASU 5%, NAU 17%, and UA 25%, indicating ASU's data may not be nearly as comprehensive as the other two institutions.

This report concluded with recommendations to create a Basic Needs Committee on each university campus, develop a communication plan and portal to detail and demonstrate university initiatives, and file an annual report for the board that is focused on efforts and activities to assess and alleviate student food and housing needs.

A second report was put out by ABOR indicating the strides and interventions each institution implemented to reduce FI on their campuses. ASU followed the recommendations of ABOR in the original report and created a basic needs webpage, increased crisis financial assistance, and increased awareness of campus resources (ABOR, 2022a). However, neither this report nor the 2023 version includes up-to-date FI statistics to show if these interventions are working. The 2023 report does reveal that there was a 51% increase in students visiting the basic needs website (ABOR, 2023).

While the Hope Center basic needs survey is the largest distributed and has served as the template for numerous studies on CSFI, including our own, the instrument still needs to undergo the rigorous testing necessary to establish validity and reliability in accurately measuring food insecurity in this unique population. Additionally, despite each iteration of the USDA Food Security Survey fulfilling this metric, evidence of significant variation among college student respondents is sufficient to warrant efforts to refine and standardize CSFI measurement.

Due to the variety of factors affecting the measurement of food security, it can be suggested that open-ended qualitative approaches may be the most beneficial to assessing respondents' overall food security. This method allows for a more comprehensive understanding of the specific constraints and support affecting a participant's food security (Ellison et al., 2021). The use of cognitive interviews can be an important resource to dive into the root causes rather than focusing on the symptoms of food insecurity.

Conclusion

In the last decades, substantial progress has been made toward evaluating the extent of food insecurity at colleges and universities nationwide, understanding its causes and repercussions, and implementing appropriate and effective solutions. Over the years, the development of Food Security Survey Modules (FSSMs) has provided valuable insights into household food insecurity nationally. However, the issue's complexity has become increasingly evident, with discrepancies in survey instruments, response rates, and the diverse characteristics of college students, which challenge the accuracy of food security measurement.

Our review underscores several critical findings and gaps in the research. Notably, it reveals that the demographic composition of respondents to food insecurity studies may not fully represent the entire spectrum of college students, leading to an underestimation of the issue, particularly for marginalized and underrepresented groups. Additionally, it emphasizes the importance of addressing the stigma associated with food insecurity, as well as the various economic constraints and systemic barriers that perpetuate this multifaceted problem.

Furthermore, the review underscores the need for more comprehensive and standardized approaches to assess food security in college students, suggesting that open-ended qualitative methods may provide a deeper understanding of the challenges and support systems influencing food security.

Finally, the evolving landscape of research in this area highlights the substantial efforts being made by institutions, policymakers, advocates, and students to address the issue of college student food insecurity. These efforts, as demonstrated by the University of California and the Hope Center, reflect a growing commitment to reducing food insecurity among students.

While progress has been made in understanding and addressing college student food insecurity, there is still much work to be done. The review calls for a more inclusive, comprehensive, and refined approach to accurately measure and address the complex problem of food insecurity among college students, focusing on equitable representation and innovative solutions to ensure the well-being of all students.

Methodology

The primary objective of this research is to provide a comprehensive and nuanced assessment of the risks, contributing factors, and interventions for food insecurity among students attending ASU College of Global Futures to offer informed recommendations to university leadership that effectively address CSFI. A mixed-method research design was selected to provide a full understanding of CGF student food experiences and give a voice to those experiencing or working to remedy CSFI at the university using quantitative and qualitative data. The research was conducted in five stages.

A literature review was conducted to provide background information, relevant studies, reports, and publications on the subject of CSFI (see the previous section, Literature Review, for full results of this component). Student surveys captured a snapshot of the extent of CSFI experienced by CGF students, allowing us to establish a benchmark and compare data. Administrator, faculty, and student interviews generated insights from a broad range of perspectives. Survey data analysis examined how CGF student food insecurity experiences vary among college students nationwide, the overall ASU student population, and between self-identified student groups. Interview coding revealed common themes and provided a starting point for recommendations. The ASU Institutional Review Board approved all aspects of this research.

Student surveys

Student surveys were administered online using the cloud-based platform Qualtrics. Participants were recruited through announcements within ASU newsletters, the course learning application Canvas, listservs, and social media. Additionally, students enrolled in summer and fall 2023 semester courses offered through the College Global Futures were sent direct emails requesting participation. Qualifying respondents were offered e-gift cards with a $5 value for completing the online survey. See Appendix A for complete student recruitment materials.

Participants were first presented with information regarding the organization and researchers conducting the study and its purpose. The document further detailed students' rights and risks associated with participation. Participants were also informed how the data collected would be used and actions taken to protect confidentiality. Students were then prompted to indicate participation consent (the consent form can be found in Appendix B). No "I do not give my consent" responses were recorded. Next, respondents were screened to exclude students under the age of 18 and those not enrolled in the CGF. The first series of questions were taken from Questions Used to

Capture Student Background Characteristics in the Hope Center #RealCollege Survey (2021b) to allow for direct demographic comparisons (see succeeding Results section for complete comparison analysis). Additional student demographic questions identified as important to stakeholders after preliminary inquiries from the research team were also included.

The next series of questions evaluated household food experiences using a revised U.S. Food Security Survey Module (FSSM) questionnaire (ERS, 2012). Participants who identified as the parent, primary caregiver, or guardian (legal or informal) of any children were directed to questions from the 18-item U.S. Household Food Security Survey Module (HFSSM); all others were directed to the 10-item U.S. Adult Food Security Survey Module[1] (AFSSM). See Appendix C for survey questions and flow logic. Raw scores were tabulated for each respondent following ERS coding specifications (ERS, 2012). This score is calculated from the sum of affirmative responses (i.e. yes, often, sometimes, almost every month, and some months but not every month) to the set of questions participants were directed to answer. CGF students were then sorted into food security categories based on their raw score placement within the ranges in Table 1. The four categories above represent the spectrum of behaviors and experiences related to meeting or failing to meet household food needs. Households within high and marginal categories are considered food secure whereas those classified as low and very low constitute food insecure households (ERS, n.d.-c).

Table 1: Food Security Category by Raw Score[2]

Category		Food Security Survey Module (FSSM)	
		AFSSM (no children)	HSFSSM (children <18)
Food Secure	High	0	0
	Marginal	1 – 2	1 – 2
Food Insecure	Low	3 – 5	3 – 7
	Very Low	6 – 10	8 – 18

Interviews

Individuals with university roles related to CSFI were identified, and interview requests were emailed (see Appendix D). Research team members carried out one-on-one interviews with recruited individuals willing to participate. A total of fifteen interviews were conducted with ASU administrators, faculty, staff, and students. Prior to engaging in conversation, researchers informed interviewees their participation was voluntary, and at any time they could stop the interview, refuse to be recorded, or refuse to answer any or all questions. Additionally, participants were provided interview questions and

details as to researchers' efforts to ensure confidentiality, use of recorded discussions, and maintenance and disposal of collected data. The consent form and interview questions are in Appendices E and F.

Each interview was divided into segments for analysis. The software program Dedoose aided the initial analysis using an inductive approach. The software platform allowed for ease of organizing interview segments using descriptive coding. Primary themes identified from this process included signs of food insecurity, challenges, food insecurity experiences, potential solutions, and recommended resources. Subgroups were then cataloged from primary themes. These were developed into a codebook, and a second analysis was conducted, applying axial coding to the data.

Study limitations

This study limited survey participants to students over the age of 18 and enrolled in the College of Global Futures. Therefore, the data presented here can only be general to this population. Student immersion type, campus or digital, within our sample was similar to total CGF enrollment. The sample slightly overrepresents women students as more than 71% of respondents identified as female compared to 66.7% of CGF students. We cannot determine sample representation by other demographics due to insufficient data either not collected from survey participants or not provided by the College of Global Futures. Missing survey demographic data include respondent academic levels (i.e., undergraduate, graduate, non-degree seeking, freshmen, sophomore, junior, or sophomore), full-time or part-time enrollment, and residency status (in-state, out-of-state, international student). Demographic data were unavailable for the total population of College of Global Futures students, including student sexual orientation, age, military service, parental educational achievement, relationship status, living arrangements, previously in foster care, criminal record, disabilities, and parental responsibilities.

Two questions inadvertently omitted from the online survey went unnoticed until midway through data collection. The researchers elected not to alter the survey to include the responses in the survey sample. As no adjustments to the instrument measurement scale were applied to the data, the reported rates of food security for students without children in our sample represent a conservative estimate. Additionally, the question that directed participants to either the AFSSM or HFSSM did not qualify the age of children in the household. As the HFSSM instrument is intended for households with children under the age of 18 living at home, the data reported may need to accurately capture the food security status of these students. Other possible factors affecting calculated rates of food insecurity include recall bias; participants were asked to reference experiences over the past year. Furthermore, without academic level information we

cannot confidently report student food security status is representative of experiences while attending the College of Global Futures. Finally, differences in when students completed the survey (e.g., during the summer or fall semester) may influence outcomes.

Results

Survey respondent characteristics

A total of 182 participants opened and began the survey. Of that number,152 participants completed the survey, their responses producing the data for this report. These 152 fully completed online responses by the enrolled participants are a sample size representing approximately 11.5% of the 1,319 students in the College of Global Futures at ASU.

Of the 30 excluded surveys, nineteen surveys were respondents not enrolled in the College of Global Futures. Two others were excluded as the respondents were younger than 18 years of age. Nine responses left in progress were discarded with no data collected upon expiration of the online survey at midnight on September 24, 2023.

The majority of respondents in this survey identified as female 71% (n=108), 62% (n=95) identified as heterosexual or straight, 50.6% (n=77) indicated their age as 20-30 years old, 57.2% (n=87) identified as White or Caucasian, 52.6% (n=80) are digital immersion students, 42.7% (n= 65) reside outside of the local university area, 20.4% (n=31) are considered first-generation students, and 84.2% (n=128) are not the primary guardian of any children/claim any dependents.

Dependents impact

The 129 respondents without dependents measured overall high levels of food security. When asked, “In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?” 83.7% (n=108) of the participants answered “no,” indicating their personal financial situation did not have an effect on their food security.

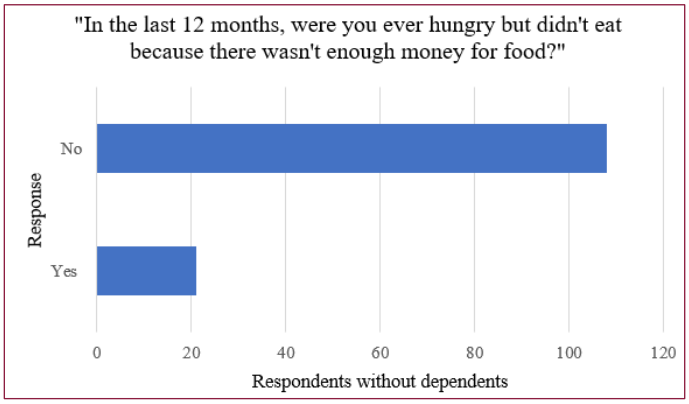


Figure 1: Respondents without dependents displayed an overwhelming response of “no” when asked, “In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food? On the other hand, the remaining participants with dependents measured different results. 34.7% (n=8) of these individuals reported they could not afford to eat balanced meals “sometimes” or “often”. 26.1% (n=6) relied on minimal varieties of low-cost food to feed the child/children in their household because they ran out of funds to buy food.

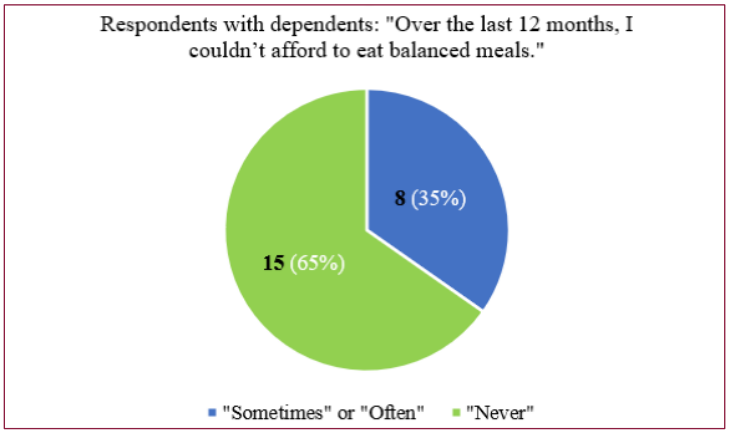


Figure 2: A significant percentage (35%) of respondents with dependents responded “sometimes” or “often” when asked, “Over the last 12 months, I couldn’t afford to eat balanced meals.”

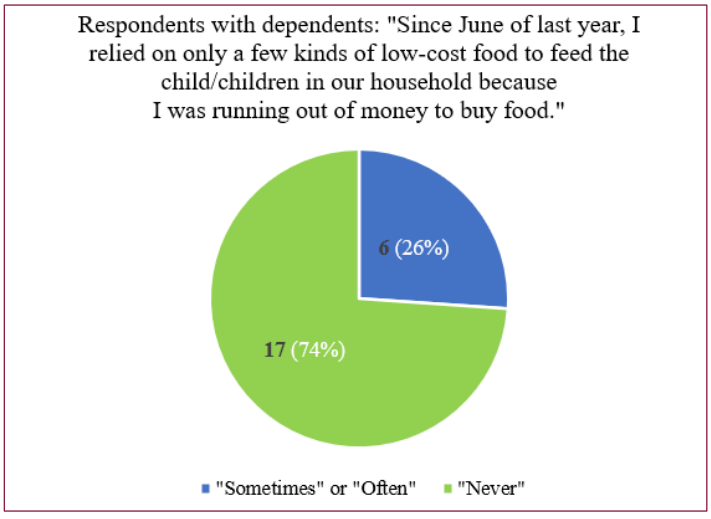


Figure 3: A significant percentage (26%) of respondents reported a reliance on low-cost food options to feed their family when low on money to buy food. In addition, 8.7% (n=2) reported cutting the size of the meals for their child/children in their household because funds were low. All 23 who claim dependents stated that their child/children in their household never skipped meals because there wasn't enough money for food any time in the last 12 months.

Digital compared to campus immersion

Digital immersion and in-person student attendance represent another key variable to consider. When prompted, “In the past 12 months, I worried whether my food would run out before I got money to buy more”, 63.4% (n=26) of students who gave an affirmative response belonged to the digital immersion student group. Moreover, 100% who replied “often”, belonged to the digital immersion group.

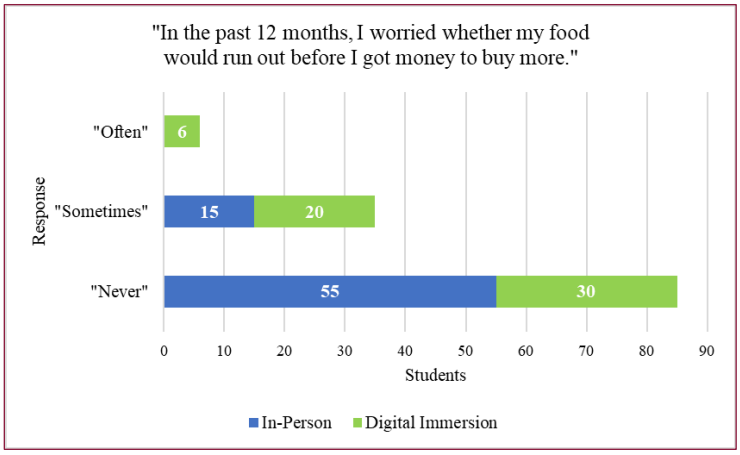


Figure 4: Digital immersion students represented higher levels of affirmative responses to the statement, “I worried whether my food would run out before I got money to buy more.” Similar results were identified when asked, “In the past 12 months, the food that I bought just didn’t last, and I didn’t have money to get more”. 69.2% (n=18) of all students responding positively were digital immersion students. Similarly, 100% of those who responded “often”, belonged to the digital immersion group.

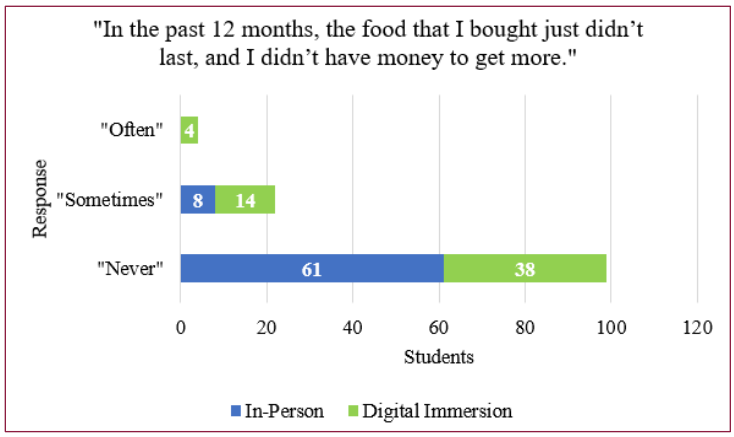


Figure 5: Consistent results were found among digital immersion students representing higher levels of affirmative responses to the statement, “In the past 12 months, the food that I bought just didn’t last, and I didn’t have money to get more.”

Race/ethnicity

The largest ethnic group indicated in the sample population were White or Caucasian (n=87). In response to the question, “In the past 12 months, I worried whether my food would run out before I got money to buy more.” Among those who identified as White or Caucasian, 30.3% (n=27), gave an affirmative response. Hispanic, Latinx/Latina/Latino or Chicanx/Chicana/Chicano respondents (n=12) provided 44.4% of affirmative responses. Other Asian or Asian American respondents gave the lowest ratio of affirmative responses with 25% (n=3). African American or Black (n=4) gave the highest % affirmative responses among any racial group with 100%. It is important to consider the smaller sample size of this demographic, but the data is noteworthy, nevertheless.

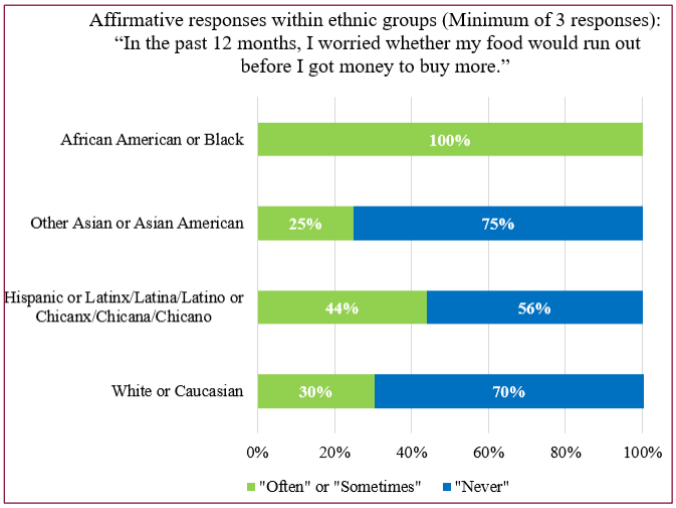


Figure 6: Affirmative responses to the statement, “In the past 12 months, I worried whether my food would run out before I got money to buy more,” were from the most represented ethnic groups surveyed.

Survey analysis

To gain an accurate sample, our research team aimed for a 10% survey participation rate from the CGF student body. We received complete surveys from 11.5% of the CGF student population - 152 participants. From that number, 17.8% were screened as having low food security and 9.8% as having very low food security. Combined, nearly 27.6% of students surveyed are classified as food insecure, which is higher than the 26% of ASU’s total student population that was previously found to be food insecure. This percentage is also similar, yet slightly lower than the WHO’s estimation that around 29% of the global population experiences food insecurity (World Health Organization, 2022).

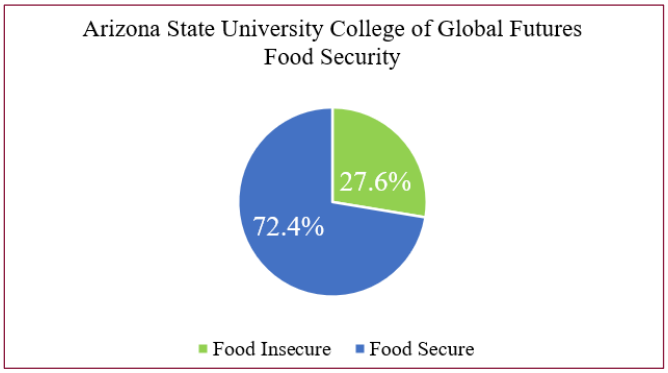


Figure 7: Over 27% of students enrolled in the College of Global Futures surveyed were found to be food insecure. The student survey asked a variety of demographic questions, which allows us to compare many facets of food insecurity for college students. We found that 17% of those who screened FI identify as female, 18% attend ASU's CGF through online immersion, 15% identified as White/Caucasian, 15.8% considered themselves as head of their household, 15% do not live locally to ASU, 17.8% are between the ages of 20 and 30, and 24% are not the primary caretaker of a child (Appendix H).

Gender and food insecurity

108 of the survey participants identified as female, 36 as male, six as non-binary, and 2 preferred to self-describe. Of the participants, 24% were females, 27% were males, 83% were non-binary students, and 50% were self-described students screened as food insecure. Even though other groups have higher levels of food insecurity, the female-identifying food insecure group is one of the largest representations in our survey with 17% of survey participants screening as food insecure.

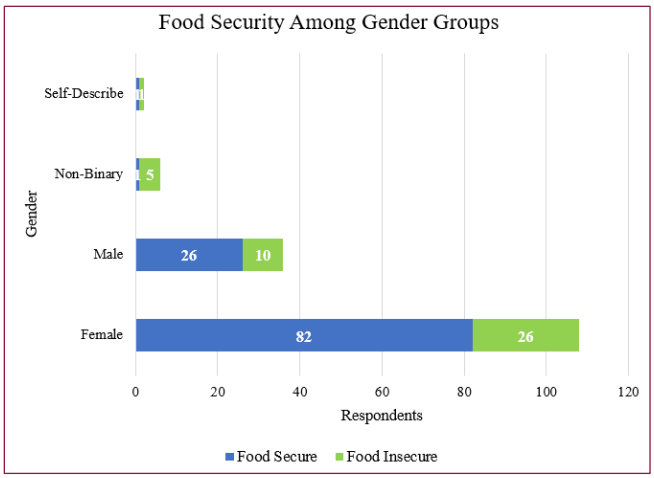


Figure 8: A higher proportion of food insecurity was found among gender groups that self-described or considered themselves as non-binary compared to males and females. Four participants identified as transgender, and all four indicated that they were experiencing food insecurity. These statistics demonstrate that non-traditional genders are impacted much more greatly by food insecurity than female/male-identifying students even though they are the largest represented groups in the survey.

Race and food insecurity

The majority of our participants, 57%, identified as White/Caucasian, and 17% identified as more than one race. These two groups produced similar findings, 26% of the former and nearly 27% of the latter screened as food insecure. Comparatively, the groups who identify as African American, American Indian/Alaskan Native, and Middle Eastern all had 50% of participants screened food insecure; however, they each had 6 or fewer participants, whereas the other two groups had 113 combined.

Households and relationships

Survey results found that 46% of participants consider themselves head of their household, meaning they cover more than half of the household's expenses. Within this group, 34% were screened as food insecure. Some participants indicated that they are not only the head of the household, but that they are also the primary caretaker of at least one child. Of this group, 25% are food insecure, while 28% of those who are the head of the household but not the primary caretaker of a child are food insecure. The results indicate 31% of participants living with a spouse or partner are considered food insecure. In the study, one male respondent indicated he is the primary caretaker of a child, does not live with another adult, and is not in a relationship. This specific participant was screened as food insecure.

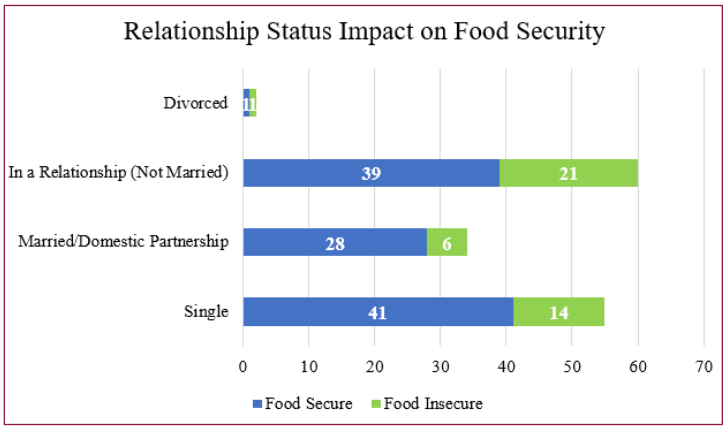


Figure 9: Respondents in domestic partnerships or marriages represented the lowest percentage facing food insecurity at 17 percent. The findings also suggest food insecurity is experienced in 25% of participants who indicated their relationship status as single are food insecure, 35% of participants in relationships but are not married, 17% of married/domestic partners, and 50% of divorced participants.

Sexual orientation and food insecurity

The sexual orientation of the participants was self-described. 95 participants identified as heterosexual, 46 identified as gay, bisexual, pansexual, or queer, and 11 preferred not to disclose a sexual orientation. Within the gay, bisexual, pansexual, and queer groups, almost 33% of participants were food insecure, followed by 27% of the heterosexual participants and 9% of the non-described.

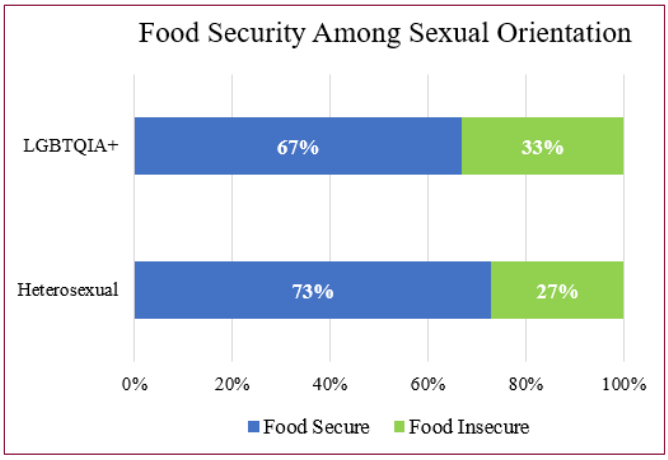


Figure 10: LGBTQIA+ respondents displayed slightly lower food security than heterosexual respondents.

Disabilities and food insecurity

Out of all survey respondents, eighty-eight percent of the participants reported having at least one disability or medical condition. Of this group, just under 30% are food insecure. Of the group with no reported disabilities, 25% also screened food insecure through our survey. This suggests there may be no strong correlation between food insecurity and living with disabilities.

Interview analyses

A prevailing theme that emerged among our fifteen interviewees was the pervasive sense of ambiguity and incognizance intertwined with their experiences addressing or

enduring food insecurity. Ambiguity materialized in various instances; a few participants shared that they were not aware they would have been considered food insecure as they deemed their situation not as dire as others who might be going days without food. Participants who experienced food insecurity were unaware they might qualify for resources to help support their food needs, such as emergency scholarships & funding from the university to programs like SNAP. In the instance with SNAP, not only are people missing out on obtaining nutritious food, but they also miss out on other benefits like the farmer's market Double Up Bucks, which was mentioned as a recommended resource.

When discussing these critical issues regarding food insecurity, several participants shared various challenges, either from personal experience or through their discussions with others. Food accessibility —the ease with which individuals or communities can obtain and access safe, nutritious food— stood at the forefront of challenges mentioned most often among interview participants. Food accessibility is a broader concept and entails more than just physical proximity to food sources. Inadequate food accessibility can result from factors such as economic and financial constraints, geographic barriers, lack of transportation, dietary restrictions, and limited availability of nutritious food options in a specific area.

Accessibility and affordability were correlated, demonstrating a connection between students being able to afford nutritious food that is available near where they live or attend classes. One participant, who stated they were a former student at ASU, mentioned there used to be a small Wal-Mart, with an adequate produce section, on campus until it was turned into a P.O.D., which is more like a convenience store. However, the P.O.D. came with increased prices, less availability of fresh produce, and more packaged food with preservatives. Interviewees shared their struggles with the cost of food, particularly when faced with limited financial resources due to low incomes, high living expenses, or unexpected financial setbacks.

Other common challenges that arose from the interviewees were stigma, shame and difficulty asking for support. In this case, stigma or shame is in reference to the negative perceptions individuals may face and difficulty asking for support, which go hand in hand. In situations where individuals experience food insecurity, they may feel embarrassed or ashamed about their inability to support themselves or their families. Asking for help means admitting their perceived faults, failures, or struggles. This type of shame can stem from societal stereotypes or expectations that individuals should be able to meet their basic needs independently. Especially at a time in which students are newly expected to be independent, most for the first time. College is also a time in which students are meeting new people and making new friends, food is often the

center for socialization opportunities to make these important connections. A common sign of food insecurity among interviewees was isolation or lack of sociability, a few mentioning they wouldn't want to go and not be able to order anything because they couldn't, so it was easier not to go at all. It was also commonly expressed among interviewees that solutions to overcome this type of perception would be to have more open conversations and resources available for students to access, whether living on campus, off campus or out of state.

There were two specific challenges that were not mentioned frequently among our interviewees: allergies/dietary restrictions and cooking limitations. These challenges were mentioned alongside one another frequently as they do intertwine and impact one another. Two-thirds of interviewees that mentioned both challenges also experienced food insecurity, indicating a new perspective. Dietary restrictions like vegan, vegetarian, dairy-free, or gluten-free can make it difficult to find nutritious meals that meet their needs, and will also find an increased price point on these items. To accommodate their dietary needs, they might need to rely on meals prepared and planned by themselves. However, this requires cooking skills, equipment, utensils, proper storage, and more in order to accomplish this, as well as time for budgeting and planning. For students living on campus, dorms are often not equipped with appliances such as ovens, refrigerators, or stovetops. This can further exacerbate the need for processed commodities or foods with preservatives. But even for individuals with access to other cooking appliances and utensils, say in an apartment or home, preparing and executing nutritious meals requires a certain skill level. One particular participant indicated that completion of an assignment for a class required preparing a meal for two in respect to the culture being studied. This individual received reports of difficulties affording food for more than one person, and not having the skills required to execute the assignment correctly. This participant expressed a need for cooking classes to be available and open for these individuals.

Six of the interview participants shared that they had experienced food insecurity and each roughly identified an average of seven different challenges out of eleven total. This highlights the importance of having conversations and collaborating on potential solutions with individuals who have experienced food insecurity, as not only will they be able to identify challenges but also resources, not just resources available but resources that work or have worked for them. Both Pitchfork Pantry and local food banks/pantries were recommended most often. Of our interviewees who experienced food insecurity, half recommended both resources and one individual recommended just Pitchfork Pantry. This highlights the need for and importance of both of these resources on campus so that students can access and find information on both.

Discussion and Recommendations

The following section is organized into three major themes identified through the interview portion of this study: affordability, access to information and resources, and institutional support. First, context is provided for each theme. Relevant survey results are then examined in relation to the identified themes. We close this section with recommendations informed by the literature review and the experiences, challenges, and successes encountered by the participants interviewed.

Affordability

The literature provides evidence that the two primary factors impacting CSFS are rising food and housing costs. Our interviews also supported this conclusion, as these issues frequently emerged in discussions with students, faculty, and administrators. Interviewees noted students' food choices (e.g., skipping meals, eating inexpensive but nutritionally deficient meals) suffer in the context of increasing rent and food prices. In Tempe and the surrounding Phoenix metropolitan area, the 2022 median gross rent rose nearly 43% since 2018 to $1,652 and $1,616, respectively (United States Census Bureau; 2018 - 2022). Over that same time period, the Consumer Price Index for food rose 30 percentage points in the Phoenix-Mesa-Scottsdale area (United States Bureau of Labor Statistics Data, n.d.). Arizona State University reported the 2021 average resident undergraduate student's direct cost of attendance, which includes tuition, books, supplies, as well as room and board, as $26,000 per year (ABOR, 2021a). This amounts to an increase of 12.5% over the previous five years. The differences between the calculated cost of attendance compared to food and housing in the Tempe and Phoenix metropolitan areas are significant. The calculated cost of attendance determines students' financial needs and impacts the total amount of federal aid students may receive (Federal Student Aid, 2023). The 2021 Arizona Board of Regents Financial Aid Report notes:

> *Despite increases in the total amount of need-based aid and a decrease in the average award amount, the average percentage of needs met for resident students has remained relatively flat. Rising costs of attendance eroded the proportion of need met, despite more financial aid dollars awarded*. (ABOR, 2021a, p.7)

On average, ASU has met 53% of all students' financial aid needs between 2017 and 2022. Although the rate is slightly higher for resident students awarded Pell Grants. Approximately 40% of non-resident Pell Grant students' financial aid needs are met by the University.

Student enrollment at ASU has risen significantly overall, particularly within three key demographics in recent years. The number of non-resident students has grown by more than 27,000 in that time. The increase coincides with a sharp rise in digital immersion enrollment, accounting for approximately 34% of all ASU students in 2018 to nearly 44% in Fall 2022 (ASU, n.d.-c). Across all Arizona public universities, Pell-eligible students have also increased by 18% since 2017 (ABOR, 2021a). In addition to these growing demographics, a significant portion of ASU's student population is the first in their family to attend college. First-generation students account for 27% of all first year and 34% of all undergraduate students (ASU, n.d.-b).

These same groups of students are associated with higher rates of food insecurity than the overall rates of survey participants in our research. Food insecurity rates for respondents not living locally mirrored the results for digital immersion students. Food insecurity was more prevalent with digital immersion, and first-generation students, both groups being more likely classified as "very low food security". Among first-generation participants, 38.7% were found to be food insecure, whereas overall, 27% of students fell into this category.

We recommend that, given the confluence of circumstances noted above, greater effort to meet the financial aid needs of these student groups. A first step toward this goal should include reevaluating the methodology used to calculate the cost of attendance better to reflect food and housing costs and student financial needs. Recommended policies and programs that target these populations, with the objective of addressing factors affecting student food security unique to these students. For example, creating a digital immersion Dean of Students position to respond to the needs of online students in the same manner as the Dean of Students for the in-person students at the Downtown, Polytechnic, Tempe, West, and California Center campuses. Finally, representation for digital immersion and first-generation students in student government is essential given the organization's important advocacy role within ASU.

Information and resource access

Several reviewed studies found CSFS efforts were impeded as a result of underutilization of available support due to student lack of awareness and perceptions regarding the severity of need to qualify or justify their use. In another survey, when ASU students were asked why they did not use available resources, the vast majority felt others had greater need or did not believe they were eligible for campus support programs (S. Potts, personal communication, May 25, 2023). More than half of these students indicated they were unaware of or did not know how to apply for these resources. Students, faculty, and staff echoed such impressions in our interviews. The

lack of information pertaining to available campus resources is not isolated to students but also to faculty and administrators. This was demonstrated through interviews with participants citing the Pitchfork Pantry as the resource students were most often referred to, as opposed to the Office of the Dean of Students, which “serves as the primary lead for supporting and assisting students in need.”

Additional barriers to utilizing campus support identified by participants included time constraints or class schedule conflicts related to accessing resources provided by Pitchfork Pantry or community food banks with limited operating hours. Others remarked that already time-burdened students find navigating disparate sources of information on ASU’s website difficult and requiring substantial amounts of time. For example, the Basic Needs webpage provides the Dean of Students contact information, links for SNAP benefit applications and information, food banks, related student organizations, and the Garden Commons at the Polytechnic campus. Interviewees often refer students seeking assistance to Pitchfork Pantry, one of the student organizations with two links on the Educational Outreach and Student Services Dean of Students Basic Needs website. Currently, the first provided link redirects to a broken page. The Cultivate Downtown Garden Club link directs students to a Facebook page that has not been updated since August of 2020.

The barriers above underscore the need for accessible, centralized information and improved collaboration between the Office of the Dean of Students, Colleges and Schools faculty and administrators. Educational Outreach and Student Services has prioritized efforts to raise awareness and connect students with resources, such as creating the Basic Needs webpage and incorporating links to the website into the ASU mobile app. While the page directs students to organizations offering support services on and off campus, it is not optimized to function as a central resource hub for students. To do so, the website would need to provide current and accurate information for students to use these services, such as locations and times students may access the Pitchfork Pantry or directions and operating hours for the Garden Commons Farm Stand. If the Basic Needs website is intended to act as the information hub for student support, we recommend the page include current, detailed information for available programs and services, the specific form of support offered, and the criteria for students to qualify for receiving program benefits. While there is value in the individual and tailored plans of action provided through the Office of Dean of Students, students are reluctant to complete the Student Care Form to initiate the process without knowing its outcome.

Awareness and outreach efforts ought not to focus on students alone. Faculty, administrators, and staff are often the first to be aware of students’ struggles to meet

their basic needs. We recommend the Office of the Dean develop various educational instruments specifically for these initial points of contact, such as workshops, resource toolkits, or online training programs through platforms like Canvas. We further recommend establishing a liaison responsible for sharing information and collaborating between the Office of the Dean and the Deans of ASU's colleges.

Institutional support

Several reviewed studies noted the pervasive framing of food insecurity further harms students experiencing food insecurity as an issue of individual responsibility despite ample evidence that systemic structures have a major influence on food security status. This viewpoint exacerbates the stigma associated with food insecurity and hinders both those seeking and offering assistance. Students, faculty, and administrators interviewed shared the perception that efforts to improve student food security suffered with the absence of institutional and leadership support. One individual reflected, "It feels like anything we do has to come from the students and be owned by the students, which I think is…a mistake." Institutions of Higher Education play a pivotal role in either shifting the narrative of individual responsibility and fault or perpetuating the stigma of living with food insecurity. Whether deliberate or inadvertent, the actions of ASU leadership have given the impression of apathy at best or hostility at worst. Those interviewed expressed concern that ASU leadership appears to defer to or rely upon student-run organizations to respond to student food insecurity. Discussions centered around the seeming refusal of ASU leadership to acknowledge that food insecurity exists.

Arizona State University President Michael Crow, it has been observed, is an impressive figure. He has engaged stakeholders at every level, advancing his vision of a New American University dedicated to the pursuit of excellence, access to all, and meaningful contributions to the benefit of society. A Statement from the President acknowledging the nationwide issue of college student food insecurity and establishing the role of ASU in addressing the underlying causes would dispel perceptions of indifference or animosity. Allocation of resources would demonstrate institutional support, such as physical space in complement to the Educational Outreach and Student Services Basic Needs resource hub, screening and targeted assistance for food insecure students, or basic needs scholarships. Additionally, efforts to alleviate basic needs insecurity would greatly benefit from executive level collaboration with student-run organizations. Through these actions ASU leadership can shift the narrative of individual responsibility, breaking down the stigma of food insecurity while actively creating a more equitable and supportive campus community. Honoring ASU charter commitments to inclusivity must extend beyond student admissions. It requires providing the necessary support to ensure disadvantaged students succeed, thereby

“assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.”

Appendices

Appendix A: Student survey promotion

Canvas announcement:
Do you have 10-15 minutes to spare? We are looking for students of the College of Global Futures (CGF) to take our survey and share their experiences with food security/insecurity while being in school. This survey was created by a group of graduate students with the CGF as part of their research study into how food security/insecurity affects students in the CGF.

This survey will ask general questions about you, your living situation, and your food security/insecurity experiences. Your responses are confidential, anonymized, and each answer de-identified from all previous responses. Any collected data used in reports, presentations, or publications from this study will be reported in aggregate with no identifying information. For completing the whole survey, you will receive a $5 e-gift card within four weeks of the survey closing.

Participation in this survey is completely voluntary and is only open to students 18 years or older within the College of Global Futures. Click the link below to take the survey!

https://asu.co1.qualtrics.com/jfe/form/SV_bfQHKTSDD1MGvky

Direct email:
Good [morning, afternoon, evening] [NAME],

My name is [NAME], and I am a graduate student in the Sustainable Food Systems program at Arizona State University. I am reaching out to you today on behalf of my research team. We are studying college food security and are interested in evaluating students enrolled at the College of Global Futures.

We would truly appreciate your contribution to this study by sharing your experiences while attending ASU. Our team has prepared a brief survey linked below:
https://asu.co1.qualtrics.com/jfe/form/SV_bfQHKTSDD1MGvky

The survey asks general questions about your background, living situation, and experiences related to food security. Answering the questions takes approximately 10-15 minutes and can be done using your mobile device. Some of these questions may make you uncomfortable. You may choose not to answer some or all of these questions at any point. Your responses are confidential, anonymized, and each answer de-identified from all previous responses. Any collected data used in reports, presentations, or publications from this study will be reported in aggregate with no identifying information. The results of our research will only be shared in the aggregate form. Your name and email address information will be collected by Qualtrics and exported to an ASU representative with no knowledge of your survey responses in order to send you your compensation for participation. This information will be de-identified to the research team, and your confidential information will be kept confidential.

In appreciation of your time and contributions toward this research, students completing the survey in its entirety will receive a $5 e-gift card within four weeks of its closing.

With Gratitude,
[NAME}

Appendix B: Student survey consent form

This research group is composed of graduate students under the direction of Professor Kathleen Merrigan, Director of the Swette Center for Sustainable Food Systems at Arizona State University. We are conducting a research study to better understand how food insecurity affects students within ASU's College of Global Futures.

We are inviting your participation, which will involve approximately 10-15 minutes of your time to answer a series of questions via our online survey. Your participation in this study is completely voluntary. You must be a student of 18 years or older and a student of the College of Global Futures to participate. There are no foreseeable risks to your participation, however, some questions may make you uncomfortable. You have the right to answer any question with "Prefer to not answer", and to stop participation at any time.

For full participation in this study (completion of the entire survey) you will receive (1) $5 e-gift card as a thank you for your time.

Your responses are confidential, anonymized, and each answer de-identified from all previous responses. Any collected data used in reports, presentations, or publications from this study will be reported in aggregate with no identifying information. The results of our research will only be shared in the aggregate form. Your name and email address information will be collected by Qualtrics and exported to an ASU representative with no knowledge of your survey responses in order to send you your compensation for participation. This information will be de-identified to the research team, and your confidential information will be kept confidential.

If you have any questions concerning the research study, please contact the research team at: saelsaye@asu.edu - Sara Aly El Sayed, Principal Investigator. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

By checking this box, you give consent for this research team and Arizona State University to use your answers in this research study and to hold the data for five years following its publishing.

Appendix C: Student survey questions

Consent 1. Student Survey Statement of Consent

- I give my consent
- I do not give my consent*

Consent 2. Are you a student of the College of Global Futures?

- Yes
- No *

Consent 3. Are you 18 years of age or older?

- Yes
- No*

* If these responses are selected, the participant is directed to a page which states "Thank you for your interest in participating in this study. Unfortunately, at this time you do not meet the required criteria for participation." Followed by the end of survey notice "Your responses have been recorded. Thank you for your time."

Begin Student Demographics survey section:

Participants who meet the qualifications are directed to the student demographics section of the survey. This section begins with the following notice:

"This section of the survey asks questions regarding your background. You may choose not to answer some or all of these questions. However, the study researchers urge you to please consider providing this information in order to better understand and document how different groups experience various food situations. For instance, by allowing comparisons of digital immersion, on campus, and off campus students."

Participants may skip any or all question entirely by selecting "Next Page →"

SD1. What is your gender?

- Female
- Male
- Non-binary/third gender
- I prefer to self-describe (text space provided for response)
- I prefer not to answer

SD2. Do you identify as transgender?

- Yes
- No
- I prefer not to answer

SD3. What is your sexual orientation?

- Heterosexual or straight
- Gay or lesbian
- Bisexual
- I prefer to self-describe (text space provided for response)
- I prefer not to answer

SD4. In what year were you born?

- Dropdown menu option to select one year between 1900 - 2004 or I prefer not to answer

SD5. Are you a U.S. citizen or permanent resident?

- Yes
- No
- I prefer not to answer

SD6. Have you ever served in the U.S. Armed Forces, Military Reserves, or National Guard?

- Yes
- No
- I prefer not to answer

SD7. How do you usually describe your race and/or ethnicity? (Select all that apply if you identify with multiple groups)

- White or Caucasian
- African American or Black
- Middle Eastern or North African or Arab or Arab American
- Southeast Asian
- American Indian or Alaskan Native
- Indigenous
- Hispanic or Latinx/Latina/Latino or Chicanx/Chicana/Chicano
- Pacific Islander or Native Hawaiian
- Other Asian or Asian American
- Other (please specify) [text space provided for response]
- I prefer not to answer

SD8. What is the highest level of education completed by either of your parents/guardians?

- Eighth grade or lower
- Between 9th and 12th grade (but no high school diploma)
- High school diploma
- GED
- Some college (but no college degree)
- College or trade/vocational certificate
- Associate degree
- Bachelor’s degree
- Graduate degree
- I don’t know
- I prefer not to answer

SD9. In the last year, did a parent or guardian claim you as a “dependent” for tax purposes?

- Yes
- No
- I don’t know
- I prefer not to answer

SD10. How would you describe your current relationship status?

- Single
- In a relationship
- Married or domestic partnership
- Divorced
- Widowed
- I prefer not to answer

SD11. Do you have a spouse or partner that lives with you?

- Yes
- No
- I prefer not to answer

SD12. Have you ever been in foster care?

- Yes
- No
- I prefer not to answer

SD14. Have you ever been convicted of a crime? (Felony and misdemeanor convictions only. Don’t include violations or traffic infractions.)

- Yes
- No
- I prefer not to answer

SD15. Do you have any of the following disabilities or medical conditions? Participants may choose either yes or no for each statement. While there is not a “I prefer not to answer” option, the question may be skipped entirely by selecting “Next Page →”

- Cognitive, learning, or neurological disorders/disabilities (dyslexia, ADHD, autism spectrum disorder, epilepsy, etc.)
- Physical disability (speech, sight, mobility, hearing, etc.)
- Chronic illness (asthma, diabetes, autoimmune disorders, cancer, etc.)
- Psychological disorder (depression, anxiety, PTSD, etc.)
- Other (please specify) [text space provided for response]

SD16. Are you a varsity student-athlete on a team sponsored by your college or university's athletics department?

- Yes
- No
- I prefer not to answer

SD17. Are you considered an in person or online student?

- In person

- Online

SD18. Where are you living?

- On campus
- Locally & commute
- Not locally (please provide city and state of primary residence)[text space provided for response]
- I prefer not to answer

SD18a. (Directed here only if Question SD18 response “Locally & Commute” selected, all other responses skip question.) Which method of transportation do you use to commute to campus?

- Drive myself in a vehicle
- Driven by someone else in a vehicle
- Bus
- Train
- Bicycle/Scooter
- Other (please specify)
- I prefer not to answer

SD19. Do you find you have access to food on campus when you need it?

- Often
- Sometimes
- Never
- I prefer not to answer

SD20. Do you claim any dependents?

- Yes
- No
- I prefer not to answer

SD21. Are you the head of household (definition: head of household pays for more than half of household expenses?

- Yes
- No
- I prefer not to answer

Directed to Single Adult Household survey section

Participants are required to provide a response for each question in order to continue.

SD13. Are you the parent, primary caregiver, or guardian (legal or informal) of any children? A response is required as the survey questions vary for households where the student is the parent, primary caregiver, or guardian (legal or informal) of any children.

- Yes (Redirects to Household with Children Section)
- No*
- I prefer not to answer*

* If these responses are selected, the participant continues the Single Adult Household survey below
This section begins with the following instructions:
“In this section you will read statements that people have made about their food situation. For each statement, please choose whether the statement was often, sometimes, or never true for you over the past 12 months (that is since last June).”

HH2. In the past 12 months, I worried whether my food would run out before I got money to buy more.

- Often
- Sometimes
- Never
- I prefer not to answer

HH3. In the past 12 months, the food that I bought just didn’t last, and I didn’t have money to get more.

- Often
- Sometimes
- Never
- I prefer not to answer

HH4. Over the last 12 months, I couldn’t afford to eat balanced meals.

- Often
- Sometimes
- Never
- I prefer not to answer

AD1. In the last 12 months, since last June, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes
- No
- I don’t know
- I prefer not to answer

AD1a. (Directed here only if Question AD1 response yes selected, all other responses skip question.) Over the past year since last June, how often have you cut the size of your meals or skipped meals because there wasn't enough money for food?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- I don’t know
- I prefer not to answer

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money to buy food?

- Yes
- No
- I don’t know
- I prefer not to answer

AD3. In the last 12 months, were you ever hungry but didn't eat because you couldn't afford enough food?

- Yes
- No
- I don’t know
- I prefer not to answer

AD4. In the last 12 months, did you lose weight because you didn't have enough money for food?

- Yes
- No
- I don’t know
- I prefer not to answer

This section ends with the following statement and instructions:
“Thank you for your participation in our research study. Your responses ensure decisions regarding student food needs at Arizona State University and other higher education institutions are data informed. From all of the study researchers, we appreciate your valuable contribution.
To receive your e-gift card, please enter your email address below:”(text space provided for response)
Directed to Household with Children survey section if “Yes” response to SD13
This section begins with the following instructions:
“In this section you will read statements that people have made about their food situation. For each statement, please choose whether the statement was often, sometimes, or never true for you over the past 12 months (that is since last June).”
HH2. In the past 12 months, I worried whether my food would run out before I got money to buy more.

- Often
- Sometimes
- Never
- I prefer not to answer this question

HH3. In the past 12 months, the food that I bought just didn’t last, and I didn’t have money to get more.

- Often
- Sometimes
- Never
- I prefer not to answer this question

HH4. Over the last 12 months, I couldn’t afford to eat balanced meals.

- Often
- Sometimes
- Never
- I prefer not to answer this question

This section continues with the following instructions:

“In this section you will read statements that people have made about the food situation of their children. For each statement, please choose whether the statement was often, sometimes, or never true for your child/children living in the household who are under 18 years old in the past 12 months.”

CH1. Since June of last year, I relied on only a few kinds of low-cost food to feed the child/children in our household because I was running out of money to buy food.

- Often
- Sometimes
- Never
- I don’t know
- I prefer not to answer this question

CH2. In the last 12 months, I couldn’t feed the child/children in our household a balanced meal, because I couldn’t afford that..

- Often
- Sometimes
- Never
- I don’t know
- I prefer not to answer this question

CH3. Over the last year, the child/children in our household did not eat enough because I just couldn't afford enough food.

- Often
- Sometimes
- Never
- I don’t know
- I prefer not to answer this question

CH4. Since June of last year, did you ever cut the size of the meals for the child/children in your household because there wasn't enough money for food?

- Yes
- No
- I don’t know
- I prefer not to answer this question

CH5. Did the child/children in your household ever skip meals because there wasn't enough money for food any time in the last 12 months?

- Yes

- No
- I don’t know
- I prefer not to answer this question

CH5a. How often did you have to cut the meal size or skip meals for the child/children in your household because there wasn't enough money for food?

- Almost every month
- Some months, but not every month
- Only 1 or 2 months
- I don’t know
- I prefer not to answer this question

CH6. In the last 12 months, did the child/any of the children in your household ever hungry but you just couldn't afford more food?

- Yes
- No
- I don’t know
- I prefer not to answer this question

CH7. Did the child/children in your household ever not eat for a whole day because there wasn't enough money for food any time over the past 12 months?

- Yes
- No
- I don’t know
- I prefer not to answer this question

Appendix D: Interview recruitment email

Subject: Interview Request for SFS 565 Capstone Group

Good [Morning, Afternoon, Evening] [NAME(S)],

I am reaching out on behalf of my graduate research group to see if you would be interested in letting us interview you on your experience with students facing food insecurity.

We are a group of students in the ASU Sustainable Food Systems Graduate program, and we are currently working on our capstone research project. Our capstone research this summer is focusing on food insecurity amongst students within the College of Global Futures, how it affects them, and the resources they have available to them.

We are inviting your participation, which will involve approximately an hour of your time answering a set of questions with us over Zoom/Google Meet. You have the right not to answer any question, and to stop participation at any time. Your interview will be confidential. The results of this study may be used in reports, presentations, or publications but your name will not be used.

We are also asking your permission to video record the interview. Only the research team will have access to the recordings. These recordings will be used for our research study only; de-identified data will not be shared with others. The recordings will be held in a secure digital folder with password protection for two months, and then deleted. The recordings will be transcribed and any published quotes will be anonymous. To protect your identity, please refrain from using names or other identifying information during the interview. Let us know if, at any time, you do not want to be recorded and we will stop.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, you may do so. You must be 18 or older to participate in the study. There are no foreseeable risks or discomforts to your participation.

Your work with [INSERT AREA OF FOCUS HERE] will be incredibly insightful for us and our research. We would greatly appreciate it if you could give about an hour of your time within the next few weeks for the interview which will have a predetermined set of questions that we can send beforehand. Thank you for your time, and I look forward to hearing back from you.

[Your name]

Appendix E: Interview consent form

This research team is made of graduate students within the College of Global Futures at Arizona State University conducting a research study of food insecurity affecting students of the College of Global Futures.

We are inviting your participation, which will involve approximately an hour of your time answering a set of questions with us over Zoom/Google Meet. You have the right not to answer any question, and to stop participation at any time. Your interview will be confidential. The results of this study may be used in reports, presentations, or publications but your name will not be used.

We are also asking your permission to video record the interview. Only the research team will have access to the recordings. These recordings will be used for our research study only; de-identified data will not be shared with others. The recordings will be held in a secure digital folder with password protection for two months, and then deleted. The recordings will be transcribed and any published quotes will be anonymous. To protect your identity, please refrain from using names or other identifying information during the interview. Let us know if, at any time, you do not want to be recorded and we will stop.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, you may do so. You must be 18 or older to participate in the study. There are no foreseeable risks or discomforts to your participation.

If you have any questions concerning the research study, please contact the research team at: saelsaye@asu.edu - Sara Aly El Sayed, Principal Investigator. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

By signing below you are agreeing to be part of the study.

Name:
Signature: Date:

Appendix F: Institutional staff and faculty interview questions

1. Please share your role at the university.
2. Please describe your experience responding to student food needs.
3. What resources are available to you to support your work?
4. How would you describe ASU student food security from your perspective?
5. What ASU policies or programs have you found to be successful in alleviating hunger among college students?
6. Where do these policies or programs fall short and what changes can ASU implement to improve student food security?
7. What barriers have you encountered and how have they affected your work?
8. In your work, are there any interactions with students that have left a lasting impression you feel comfortable sharing?
9. Have you ever experienced food insecurity in the past or present?
10. Have you ever had a time in which a student confided in you their struggles with food insecurity? If so, please share this experience.
11. Are there any signs you look for or might be aware of to identify students facing food insecurity?
12. For students you have spoken with that are facing food insecurity, what resources did you direct these students to on or off campus?
13. Have you witnessed any decrease in academic performance or involvement in on-campus activities for students facing food insecurity?

Appendix G: Acronyms

AFSSM	Adult Food Security Survey Module, 10-item
ASU	Arizona State University
BNI	Basic Needs Insecurity
CGF	College of Global Futures
CSFI	College Student Food Insecurity
CSFS	College Student Food Security
ERS	Economic Research Service
FI	Food Insecure
FS	Food Secure
FSSM	Food Security Survey Module
HBCU	Historically Black Colleges and Universities
IHE	Institutions of Higher Education
SNAP	Supplemental Nutrition Assistance Program
TEFAP	The Emergency Food Assistance Program
USDA	United States Department of Agriculture
HFSSM	Household Food Security Survey Module, 18-item

Appendix H: ASU CGF Demographic Info Sheet

Term
Fall 2022

Department
All

Race/Ethnicity Inclusive
(All)

College
Global Futures

Plan
All

Barrett
All

Campus
All

Degree Level
All

First Generation
All

Fall 2022 Enrollment

1,319

Undergraduate/Graduate

Campus Immersion/Digital Immersion

Resident/Non-Resident

Female/Male

Minority/Non-Minority

Underrepresented Minority/Other

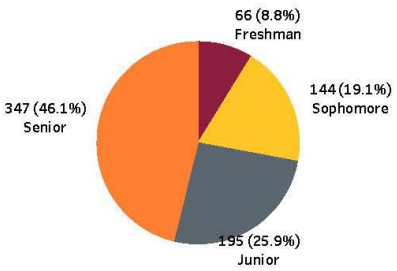
Full-Time/Part-Time

Ethnicity	Undergraduate #	Undergraduate %	Graduate #	Graduate %	Total #	Total %
American Indian/Alaska Native	6	0.8%	4	0.7%	10	0.8%
Asian	25	3.3%	16	2.8%	41	3.1%
Black/African American	15	2.0%	26	4.6%	41	3.1%
Hispanic/Latino	143	19.0%	55	9.7%	198	15.0%
Native Hawaiian/Pacific Islander	3	0.4%	3	0.5%	6	0.5%
Two or More Races	56	7.4%	17	3.0%	73	5.5%
White	473	62.9%	309	54.5%	782	59.3%
International	12	1.6%	117	20.6%	129	9.8%
Unspecified	19	2.5%	20	3.5%	39	3.0%

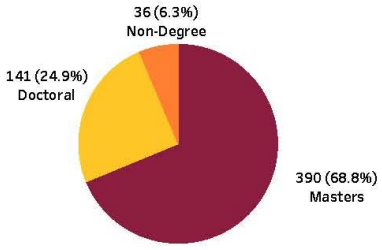
Ethnicity	Female #	Female %	Male #	Male %	Total #	Total %
American Indian/Alaska Native	6	0.7%	4	0.9%	10	0.8%
Asian	28	3.2%	13	3.0%	41	3.1%
Black/African American	24	2.7%	17	3.9%	41	3.1%
Hispanic/Latino	128	14.5%	70	15.9%	198	15.0%
Native Hawaiian/Pacific Islander	4	0.5%	2	0.5%	6	0.5%
Two or More Races	53	6.0%	20	4.6%	73	5.5%
White	538	61.1%	244	55.6%	782	59.3%
International	75	8.5%	54	12.3%	129	9.8%
Unspecified	24	2.7%	15	3.4%	39	3.0%

Ethnicity	Resident #	Resident %	Non-Resident #	Non-Resident %	Total #	Total %
American Indian/Alaska Native	6	1.3%	4	0.5%	10	0.8%
Asian	18	3.9%	23	2.7%	41	3.1%
Black/African American	14	3.0%	27	3.2%	41	3.1%
Hispanic/Latino	101	21.9%	97	11.3%	198	15.0%
Native Hawaiian/Pacific Islander	1	0.2%	5	0.6%	6	0.5%
Two or More Races	27	5.8%	46	5.4%	73	5.5%
White	288	62.3%	494	57.6%	782	59.3%
International	2	0.4%	127	14.8%	129	9.8%
Unspecified	5	1.1%	34	4.0%	39	3.0%

Undergraduates by Level



Graduates by Level



Appendix I: Student survey results

1	***Participants Overall Food Security Status***							
			Total	% Participants			Total	% Participants
		Food Secure	110	72.37%		High	74	48.68%
		Food Insecure	42	27.63%		Marginal	36	23.68%
			152			Low	27	17.76%
						Very Low	15	9.87%
2	***Gender***							
	Female		Total	% Participants	% of Group		Total	% Participants
		Food Secure	82	53.9%	75.93%	High	53	34.87%
		Food Insecure	26	17.1%	24.07%	Marginal	29	19.08%
			108	71.1%		Low	12	7.89%
						Very Low	14	9.21%

2	***Gender***							
	Male		Total	% Participants	% of Group		Total	% Participants
		Food Secure	26	17.1%	72.22%	High	21	13.82%
		Food Insecure	10	6.6%	27.78%	Marginal	5	3.29%
			36	23.7%		Low	10	6.58%
						Very Low	0	0.00%

2	***Gender***							
	Transgender		Total	% Participants	% of Group		Total	% Participants
		Food Secure	0	0.0%	0.0%	High	0	0.0%
		Food Insecure	4	2.6%	100.0%	Marginal	0	0.0%
			4			Low	3	2.0%
						Very Low	1	0.7%

2	***Gender***							
	Non-Binary		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.7%	16.67%	High	0	0.00%

		Food Insecure	5	3.3%	83.33%	Marginal	1	0.66%
			6			Low	4	2.63%
						Very Low	1	0.66%

2	***Gender***							
	Self-Describe		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.7%	50.00%	High	0	0.00%
		Food Insecure	1	0.7%	50.00%	Marginal	1	0.66%
			2			Low	1	0.66%
						Very Low	0	0.00%
3	***Immersion***							
	Campus		Total	% Participants	% of Group		Total	% Participants
		Food Secure	58	38.16%	80.56%	High	35	23.03%
		Food Insecure	14	9.21%	19.44%	Marginal	23	15.13%
			72	47.4%		Low	11	7.24%
						Very Low	3	1.97%

3	***Immersion***							
	Digital		Total	% Participants	% of Group		Total	% Participants
		Food Secure	52	34.21%	65.00%	High	39	25.66%
		Food Insecure	28	18.42%	35.00%	Marginal	13	8.55%
			80	52.6%		Low	16	10.53%
						Very Low	12	7.89%

4	***Race***							
	White or Caucasian		Total	% Participants	% of Group		Total	% Participants
		Food Secure	64	42.11%	73.56%	High	47	30.92%
		Food Insecure	23	15.13%	26.44%	Marginal	17	11.18%
			87			Low	13	8.55%
						Very Low	10	6.58%

4	***Race***							
	African American		Total	% Participants	% of Group		Total	% Participants

		Food Secure	3	1.97%	50.00%	High	1	0.66%
		Food Insecure	3	1.97%	50.00%	Marginal	2	1.32%
			6			Low	2	1.32%
						Very Low	1	0.66%

4	***Race***							
	Asian American		Total	% Participants	% of Group		Total	% Participants
		Food Secure	8	5.26%	72.73%	High	6	3.95%
		Food Insecure	3	1.97%	27.27%	Marginal	2	1.32%
			11			Low	3	1.97%
						Very Low	0	0.00%
4	***Race***							
	Hispanic or LatinX		Total	% Participants	% of Group		Total	% Participants
		Food Secure	12	7.89%	75.00%	High	9	5.92%
		Food Insecure	4	2.63%	25.00%	Marginal	3	1.97%
			16			Low	3	1.97%
						Very Low	1	0.66%

4	***Race***							
	American Indian or Alaskan Native		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.66%	50.00%	High	1	0.66%
		Food Insecure	1	0.66%	50.00%	Marginal	0	0.00%
			2			Low	0	0.00%
						Very Low	1	0.66%

4	***Race***							
	Pacific Islander or Native Hawaiian		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.66%	100.00%	High	1	0.66%
		Food Insecure	0	0.00%	0.00%	Marginal	0	0.00%
			1			Low	0	0.00%

						Very Low	0	0.00%

4	***Race***							
	Middle Eastern		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.66%	50.00%	High	0	0.00%
		Food Insecure	1	0.66%	50.00%	Marginal	1	0.66%
			2			Low	1	0.66%
						Very Low	0	0.00%

4	***Race***							
	Multiple		Total	% Participants	% of Group		Total	% Participants
		Food Secure	19	12.50%	73.08%	High	9	5.92%
		Food Insecure	7	4.61%	26.92%	Marginal	10	6.58%
			26			Low	5	3.29%
						Very Low	2	1.32%

4	***Race***							
	Prefer not to answer		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.66%	100.00%	High	0	0.00%
		Food Insecure	0	0.00%	0.00%	Marginal	1	0.66%
			1			Low	0	0.00%
						Very Low	0	0.00%

5	***Households with Children***							
	Caretakers		Total	% Participants	% of Group		Total	% Participants
		Food Secure	18	11.84%	75.00%	High	13	8.55%
		Food Insecure	6	3.95%	25.00%	Marginal	5	3.29%
			24			Low	4	2.63%
						Very Low	2	1.32%

5	***Households without Children***							
			Total	% Participants	% of Group		Total	% Participants
		Food Secure	92	60.53%	71.88%	High	61	40.13%

		Food Insecure	36	23.68%	28.13%	Marginal	31	20.39%
			128			Low	23	15.13%
						Very Low	13	8.55%

6	***Sexuality***							
	Heterosexual		Total	% Participants	% of Group		Total	% Participants
		Food Secure	69	45.39%	72.63%	High	52	34.21%
		Food Insecure	26	17.11%	27.37%	Marginal	17	11.18%
			95			Low	17	11.18%
						Very Low	9	5.92%

6	***Sexuality***							
	LGBTQIA+		Total	% Participants	% of Group		Total	% Participants
		Food Secure	31	20.39%	67.39%	High	19	12.50%
		Food Insecure	15	9.87%	32.61%	Marginal	12	7.89%
			46			Low	9	5.92%
						Very Low	6	3.95%
6	***Sexuality***							
	Prefer to not answer		Total	% Participants	% of Group		Total	% Participants
		Food Secure	10	6.58%	90.91%	High	3	1.97%
		Food Insecure	1	0.66%	9.09%	Marginal	7	4.61%
			11			Low	1	0.66%
						Very Low	0	0.00%

7	***First Generation***							
			Total	% Participants	% of Group		Total	% Participants
		Food Secure	19	12.50%	61.29%	High	9	5.92%
		Food Insecure	12	7.89%	38.71%	Marginal	10	6.58%
			31			Low	8	5.26%
						Very Low	4	2.63%
8	***Age***							
	<20		Total	% Participants	% of Group		Total	% Participants

		Food Secure	15	9.87%	88.24%	High	9	5.92%
		Food Insecure	2	1.32%	11.76%	Marginal	6	3.95%
			17			Low	1	0.66%
						Very Low	1	0.66%

8	***Age***							
	20-30		Total	% Participants	% of Group		Total	% Participants
		Food Secure	50	32.89%	64.94%	High	28	18.42%
		Food Insecure	27	17.76%	35.06%	Marginal	22	14.47%
			77			Low	16	10.53%
						Very Low	9	5.92%

8	***Age***							
	>30		Total	% Participants	% of Group		Total	% Participants
		Food Secure	39	25.66%	72.22%	High	33	21.71%
		Food Insecure	15	9.87%	27.78%	Marginal	6	3.95%
			54			Low	10	6.58%
						Very Low	5	3.29%

9	***Relationship Status***							
	Single		Total	% Participants	% of Group		Total	% Participants
		Food Secure	41	26.97%	74.55%	High	23	15.13%
		Food Insecure	14	9.21%	25.45%	Marginal	18	11.84%
			55			Low	9	5.92%
						Very Low	5	3.29%

9	***Relationship Status***							
	Married/Domestic Partnership		Total	% Participants	% of Group		Total	% Participants
		Food Secure	28	18.42%	82.35%	High	23	15.13%
		Food Insecure	6	3.95%	17.65%	Marginal	5	3.29%
			34			Low	5	3.29%
						Very Low	1	0.66%

9	***Relationship Status***							
	In a relationship (not married)		Total	% Participants	% of Group		Total	% Participants
		Food Secure	39	25.66%	65.00%	High	26	17.11%
		Food Insecure	21	13.82%	35.00%	Marginal	13	8.55%
			60			Low	13	8.55%
						Very Low	8	5.26%
9	***Relationship Status***							
	Divorced		Total	% Participants	% of Group		Total	% Participants
		Food Secure	1	0.66%	50.00%	High	1	0.66%
		Food Insecure	1	0.66%	50.00%	Marginal	0	0.00%
			2			Low	0	0.00%
						Very Low	1	0.66%

10	***Residence***							
	Local to ASU		Total	% Participants	% of Group		Total	% Participants
		Food Secure	49	32.24%	73.13%	High	32	21.05%
		Food Insecure	18	11.84%	26.87%	Marginal	17	11.18%
			67			Low	14	9.21%
						Very Low	4	2.63%

10	***Residence***							
	On campus		Total	% Participants	% of Group		Total	% Participants
		Food Secure	19	12.50%	100.00%	High	12	7.89%
		Food Insecure	0	0.00%	0.00%	Marginal	7	4.61%
			19			Low	0	0.00%
						Very Low	0	0.00%

10	***Residence***							
	Not locally		Total	% Participants	% of Group		Total	% Participants
		Food Secure	42	27.63%	64.62%	High	30	19.74%

		Food Insecure	23	15.13%	35.38%	Marginal	12	7.89%
			65			Low	13	8.55%
						Very Low	10	6.58%

11	***Armed Forces***							
	Have served		Total	% Participants	% of Group		Total	% Participants
		Food Secure	3	1.97%	75.00%	High	3	1.97%
		Food Insecure	1	0.66%	25.00%	Marginal	0	0.00%
			4			Low	1	0.66%
						Very Low	0	0.00%

12	***Head of Household***							
	Is the head of Household		Total	% Participants	% of Group		Total	% Participants
		Food Secure	47	30.92%	66.20%	High	34	22.37%
		Food Insecure	24	15.79%	33.80%	Marginal	13	8.55%
			71			Low	14	9.21%
						Very Low	10	6.58%

13	***Living with Someone***							
	Living with a spouse or partner		Total	% Participants	% of Group		Total	% Participants
		Food Secure	42	27.63%	68.85%	High	34	22.37%
		Food Insecure	19	12.50%	31.15%	Marginal	8	5.26%
			61			Low	14	9.21%
						Very Low	5	3.29%
14	***Reported Disability(ies)***							
			Total	% Participants	% of Group		Total	% Participants
		Food Secure	62	40.79%	70.45%	High	42	27.63%
		Food Insecure	26	17.11%	29.55%	Marginal	20	13.16%
			88			Low	17	11.18%
						Very Low	9	5.92%

14	***No Reported Disability(ies)***					

			Total	% Participants	% of Group		Total	% Participants
		Food Secure	48	31.58%	75.00%	High	32	21.05%
		Food Insecure	16	10.53%	25.00%	Marginal	16	10.53%
			64			Low	10	6.58%
						Very Low	6	3.95%

Appendix J: Codebook

Area	Code	Definition	Example
Challenges	Affordability	Individuals facing financial constraints that limit their ability to purchase nutritious food consistently	unable to afford what's available on/near campus, prices of nutritious food increase, purchasing utensils and cooking tools is a constraint
	Allergies/Dietary Restrictions	Individuals with allergies or specific dietary requirements may find it even more challenging to access affordable and suitable food options	gluten-free, dairy free, vegetarian/vegan diets
	Balancing School/Work	Individuals juggling work and school	requiring quick meals in between classes and work or finding there is no time for meals, less time available to grocery shop, plan and prep nutritious meals, increased reliance on quick, often unhealthy, and costly food choices
	Cooking Limitations	Limited access to cooking facilities or culinary skills and equipment	dorms often only include microwaves, preparation of healthy meals can often require specific utensils (ex. knives & cutting board), cooking utensils, pots, and pans require finances as well
	Difficulty Asking for Support	Individuals may face social and psychological barriers when seeking help or utilizing available support services	stigma/shame, unaware they are food insecure
	Stigma/Shame	Refers to the negative perceptions, attitudes, and emotional experiences that individuals may face when they are unable to consistently access an adequate supply of food	unfair labels, discrimination, or viewed as somehow responsible for their situation
	Food Accessibility	the ease with which individuals can obtain and access a sufficient quantity of safe, nutritious, and culturally appropriate food to meet their dietary needs and preferences	physical proximity of food sources (such as grocery stores, farmers' markets, and food banks), affordability of food, transportation options, and the

			availability of diverse and healthy food choices
Challenges	Food Availability	the physical availability of nutritious food w/ sufficient quantities required for the population	nutritious food requires a certain level of preservation, otherwise will not stay fresh, that some places do not have, vending machines are often supplied with preservatives and nutritious food can be absent
	Lack of Awareness	Individuals may not be aware of the available resources or programs designed to alleviate food insecurity, leading to unmet needs	emergency funding/scholarships, SNAP
	Providing for Family	Individuals responsible for providing for family members	working to fund needs (tuition, food, transportation)
	Time	time constraints due to work, school, or family responsibilities	can limit individuals' ability to shop for groceries, cook, or access food resources during their operating hours
	Transportation	Individuals without reliable transportation to food resources	relying on rides from others, Uber/Lyft, riding the bus or train
Experienced Food Insecurity	"Experienced Food Insecurity"	If the interviewee answered yes to the question: Have you ever experienced food insecurity in the past or present? Interpretation of "food insecurity" was made by the interviewee	finding food is not affordable where they live, finding reliable transportation is necessary to access affordable food, skipping meals
Potential Solutions	App announcements	Announcements generated in instances where excess food is available, either through a created app or form of social media announcement	Prior to events, talks, seminars, announced via popular social media platforms (X, Instagram, Snapchat, or via University)
	Better Information Available	Refers to the need for improved data, knowledge or facts and ability of students to access this information	Informational Seminars/Panels, easier access to resources on ASU website
	Better Institutional Support	Refers to assistance or resources provided by the institution to initiatives	Pitchfork Pantry
	Funding	Refers to available financial resources available to students	Emergency Scholarships
	Progressive/Running Dinner	Refers to an initiative that is student led and would plan and organize, people would sign up to host. Then preparations for different stages of meals (Appetizers, Main Course, and	

		Dessert) would occur. Each dish is enjoyed at a different house and host.	
Recommended Resources	College of Global Futures	Referring to ASU's College of Global Futures	
	Community/On Campus Garden	Refers to an area that is collectively cultivated by communities or individuals	
	Emergency Scholarships/funding	Referring to financial assistance offered by the university in unforeseen or urgent situations	
	Farmers Market Double Up Bucks	Refers to the program if students are also enrolled in SNAP, you can double SNAP dollars when purchasing produce at local farmer's markets	
	Food Banks/Pantries	A non-profit organization or charitable institution that collects and distributes food to communities	Pitchfork Pantry
	Office of the Dean of Students	Refers to the administration at Universities that oversees student support and experiences	
Recommended Resources	Pitchfork Pantry	Student-led food pantry	Located in Tempe, Downtown, West, and Polytechnic
	SNAP	Supplemental Nutrition Assistance Program	
Role at ASU	Administrator	Referring to an individual responsible for overseeing operations and making decisions in educational institutions	College of Global Futures, Dean of Students
	Faculty	Refers to scholars and educators, teaching, conducting research, or providing expertise or support at the university	Professors, JEDI Members
	Student	Referring to individuals enrolled and attending or have attended classes at the university	
Students Shared their Insecurity	"Students Shared their Insecurity"	If students felt comfortable enough with the role or position of the interviewee that they reliably could receive support or be pointed towards resources for food insecurity challenges	Pitchfork Pantry, SNAP, emergency funding/scholarships

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Kaysey is originally from Northern California, but moved to Arizona to pursue his bachelor's degrees in Business Sustainability and Global Logistics Management at ASU. His passion for sustainability started while living in Davis, California and grew further at ASU when he served as a Program Specialist for Arizona State University Sustainability Practices. There, Kaysey and his team partnered with Borderlands Produce Rescue, a non-profit organization that rescues produce normally destined for the landfill from the Arizona/Mexico border that were rejected due to surplus and/or minor imperfections, and distributes healthy produce to members of the Phoenix Metropolitan Area community. Kaysey currently serves as a Zero Waste Specialist for the City of Phoenix where he and his team aim to lead Phoenix to its Zero Waste Goal by 2050. He loves educating others on adopting a new mindset to live a zero-waste, sustainable lifestyle.

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Payton was originally born in Arizona, though she has lived in Oregon the majority of her life. Having achieved a bachelor's degree in Environmental Science at the University of Oregon, her interest in sustainability, more specifically food systems, was found through this program. Beyond her dedication to food systems, Payton's experiences with the absolute wonder and beauty of the Pacific Northwest much of her life has fueled her commitment to advocating for communities and preserving ecosystems. Currently working towards a master's degree in Sustainable Food Systems at Arizona State University, she has found other interests surrounding environmental injustice, food sovereignty, and culinary pursuits.

Sarah Williams
Sarah is currently the Sustainability Manager at Whitman College in Southeastern Washington. With extensive experience in sustainability for higher education

nationwide, Sarah is dedicated to fostering environmental stewardship and social responsibility. Having earned her Bachelor of Science in Sustainability and a certificate in Sustainable Food Systems from Arizona State University, Sarah developed a passion for addressing food insecurity among students. Her journey includes roles such as Sustainability and Marketing Manager for Seminole Dining at Florida State University before joining Whitman College in December 2022. Currently pursuing a Master of Science in Sustainable Food Systems from Arizona State University with a political focus, Sarah specializes in environmental and climate justice, greenhouse gas tracking, sustainable food practices, student outreach, waste minimization, and energy efficiency. Her expertise positions Whitman College to lead in sustainability within higher education. Beyond her professional commitments, Sarah enjoys hiking the Blue Mountains and exploring true crime literature. A published poet and amateur artist, she balances her academic pursuits with quality time spent traveling, gaming, and celebrating National Parks with her wife and son.

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