

Assessing the Causes of Food Insecurity among College Students

by

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ABSTRACT

BACKGROUND: The purpose of this study was to gain a better understanding of what food insecurity among college students. Qualitative research regarding food insecurity on college campuses has been growing as we gain a better understanding of how prevalent this issue is and its broad impact on students. However, to our knowledge there are only a handful of studies that examined the student and university staff experience using mixed methods. Qualitative data is needed to gain a deeper understanding of the student experience. **OBJECTIVE:** To gain deeper insights about students' food insecurity experiences from students themselves and the university staff members who work with them. This insight is necessary to shift university's current policies and approach to helping students experiencing food insecurity and removing the stigma of the "starving student" experience. **METHODS:** Surveys and interviews were used to collect data from students to gain an understanding of their current living situations and understand their personal experiences accessing food. University staff completed surveys focused on understanding staff's experiences with student food insecurity as well as their attitudes and beliefs about students who experience hunger. **RESULTS:** The current study found that the financial burden of attending college along with student's food literacy level can contribute to student's food insecurity. Students identified barriers to food access, discussed their perceptions of their food experience, and also discussed who they lean on for support when struggling with food. Student's previous life experiences, food literacy, and social support systems all impact the student food experience. University staff identified similar barriers that they perceive students experience when struggling with hunger and also indicated that they have received little to no training or instruction on how to support students experiencing food insecurity. **CONCLUSION:** These findings can be used as a building block for developing interventions and the implementation of new resources to help minimize food insecurity on college campuses.

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CHAPTER 1

BACKGROUND AND SIGNIFICANCE

Food insecurity is of global, national, and local concern.¹ Recent studies have found food insecurity to be a growing problem among university students across the world including the United States²⁻⁷, Canada^{1,8-12}, Australia^{13,14}, and South Africa.¹⁵ In order to fully understand the current research, peer-reviewed articles that discuss food insecurity assessment techniques, food insecurity in college populations, and the effects of food insecurity on academic performance were reviewed.

Food Insecurity Definition and Measures

Food insecurity is often thought of on a scale or continuum that is influenced by hunger.¹ This concept led to the categorization of food security status that the USDA adopted in 2006. Food insecurity as defined by USDA is a household-level economic and social condition of limited or uncertain access to adequate food.¹⁶ The severity of food insecurity can be classified using the labels: high, marginal, low, or very low food security.¹⁶

- High food security status is characterized by an individual or household having no reported problems or limitations accessing food.¹⁶
- Marginal food security is when there are one or two reported indications but little or no indication of changes in diet or food intake.¹⁶
- Low food security is labeled by a reduced variety, quality, or desirability in the diet but little or no indication of reduced food intake.¹⁶ This term was previously classified as food insecurity without hunger.
- Very low food security is when multiple indications of disrupted eating patterns and reduced food intake are reported.¹⁶ This term was previously classified as food insecurity with hunger.

This U.S. Household Food Insecurity Scale and has become the most widely used scale in the U.S.⁷ The assessment can be done using an 18-item, 10-item, and 6-item scale. The 10-item survey module is often used in research among college students since it does not ask about specific information regarding the food security status of children in the household. Answers in these assessments are assigned scores from 0 to 10 and the total scores are then grouped into four separate categories: A score of 0 indicates high food security, 1-2 marginal food security, 3-5 low food security, and 6-10 very low food security status.¹⁶ This method of assessing food insecurity is considered the most comprehensive method and has been proven to be highly stable and consistent across diverse populations and time.⁷

The continued experiences of any form of food insecurity can eventually lead to the experience of hunger.¹⁷ Hunger is considered a lack of food that causes a painful or uneasy sensation.⁷ The signs of hunger can be assessed using the Hunger Sensitivity Scale. This scale is a validated measure of assessing how individuals perceive hunger and hunger cues.¹⁸ The term hunger sensitivity refers to the focus on negative stimuli related to hunger and the experience of hunger.¹⁸ The HSS can be used to assess a person's sensitivity to the cues of hunger.¹⁸ The focus for hunger sensitivity assessment is in relation to bodily sensations that cause an awareness, not necessarily the fear, of hunger.¹⁸ Hunger is associated with certain hunger cues such as irritability, discomfort, and difficulty concentrating. Individuals who have a high hunger sensitivity may overstate the occurrence of these hunger cues leading to the development of a negative schema.¹⁸ This experience of hunger or pain from lack of food access is significant when looking at academic performance and classroom learning.¹⁹ Students who experience these hunger cues are more likely to have their academics impacted negatively.¹⁹ An individual's self-reported food security status (high, marginal, low, or very low) may be impacted by their perception of these hunger cues. Those with a higher sensitivity to hunger may be more apt to avoid experiencing hunger by eating often or consuming larger quantities of food when available (binging) to avoid the cues of hunger.¹⁸ This behavior can create a cycle where an individual is not food insecure at the beginning of the month or pay-cycle but becomes food

insecure at the end of the month or pay-cycle.^{20,21} This idea of cyclic or episodic food insecurity is of interest among college student populations when trying to understand if food security status is impacted by the independence that college brings and student's inability to budget appropriately.²²

Further definitions for food insecurity include low quality foods and a lack of food variety, experiencing hunger, a reduced energy intake, or disrupted eating patterns.³ Other definitions include obtaining food in a manner that is considered socially acceptable and consuming foods that are considered acceptable and nutritionally adequate.⁶ This concept of social acceptability can be uniquely impacted in college settings where social constructs and social acceptability are often viewed as extremely important.²³ Being food secure can also include being able to secure and access food without using coping strategies such as stealing, scavenging, or resorting to emergency food supplies such as food banks.⁷ Even individuals experiencing marginal food security can experience significant negative impacts such as increased occurrences of stress, depression, anxiety and a reportedly lower mental health status.^{1,2,9} These negative impacts have been reported to affect unemployed, lower income, minority, and single parent households who are at a greater risk for experiencing food insecurity.¹³ In the United States a reported 12.3% (15.6 million) of households experienced food insecurity in 2016.²⁴ Of those 15.6 million food insecure household 9.4 million (7.4%) were classified as having low food security and 6.1 million (4.9%) very low food security.²⁴

Food security status has been identified as a social determinant of health and is a contributing factor to health inequities.⁹ Specifically, food insecurity is associated with an increased risk of chronic disease, poor cognitive function and health outcomes, and substandard academic achievement.¹³ These effects are seen in the current studies of college populations that report how food insecurity and hunger result in difficulties concentrating, irritability, anxiety, and fatigue.^{13,25} Additional consequences of food insecurity include behavioral difficulties, emotional problems, and a hindered ability to learn new material.²⁵ Any one of these effects on their own

can impact students' academic performance, when combined they can be detrimental to students mental, emotional, and physical wellbeing.

In the United States, many programs have been implemented to shield children from experiencing food insecurity. The Special Supplemental Nutrition Program for Women Infants and Children (WIC) is available for children from birth to age 5 and the National School Lunch Program and summer feeding programs are available to students K-12 grade. These programs offer a sort of protection for children that abruptly end after completing secondary education.

For many students attending college this will be the first time that they experience independence that may impact their food security.²⁶ Low-income students who may have participated in their school feeding programs their entire lives are now responsible for not only being able to purchase food but also navigating how to put together meals. However, research is needed to confirm what are the causes and situations that promote and enhance food insecurity among college students.

Prevalence of food insecurity among college students

Recently, the prevalence of food insecurity in college students has gained the attention of researchers. So far studies have reported food insecurity in college student populations as more than double the national average ranging anywhere from 12.2-72%.^{14,26-28} Even at these high rates there is still a potential underreporting and lack of visibility of those experiencing food insecurity on college campuses that may be contributed to the negative stigma and shame associated with being food insecure.^{3,29} Table 1. shows a range of the reported prevalence of food insecurity among various college populations.

Table 1. Food insecurity rates in college populations by study

Study	Food Insecurity Prevalence	Population	Sample Size (n)
Chaparro, 2009	21%	Students at the University of Hawai'i at Manoa	144
Munro, 2013	20.8%	Students at the University of KwaZulu-Natal, South Africa	1083
Micevski, 2013	47.6%	Students at Deakin University	124
Gaines, 2014	14.06%	College students in Alabama	557
Hanna, 2014	19.4%	California college campuses	67
Gallegos, 2014	26%	Brisbane college campuses	810
Patton-Lopez, 2014	58.8%	Rural university in Oregon	354
Silva, 2015	27%	University of Massachusetts Boston	390
Nur Atiqah, 2015	43.5%	Universiti Teknologi MARA Puncak Alam, Malaysia	124
Marototo, 2015	56%	Maryland community colleges	301
Van den Berg, 2015	65%	University of the Free State, South Africa	1416
Wood, 2016	12%	California Community Colleges	3647
Bruening, 2016	37%	Arizona State University	209
Morris, 2016	35%	Illinois public universities	1882
Farahbakhsh, 2016	83%	University of Alberta Canada	58
King, 2017	35.7%	Midwestern public university	4188
Knol, 2017	38%	College students in Alabama	351
Gilk, 2017	42%	University of California	82

The research that has been completed so far has explored how food security status is related to a variety of factors such as financial¹⁴, living^{4,25}, and employment status.²⁷

Changing needs of college students

The issue of food insecurity among college students may not have been studied earlier due to the belief that post-secondary education was considered an exclusive pursuit that students who do not have access to basic needs, such as food, would not consider.¹⁷ However, as post-secondary education becomes more inclusive college populations have increasingly diverse populations and include more individuals and groups that have been identified as being at an increased risks of experiencing some form food insecurity.^{2,30} This includes minority and non-

traditional age students that are rapidly increasing in college populations as well as undocumented, international and commuter students all of whom have been identified as being high risk populations for being food insecure.^{28,31} Not only has the total number of students enrolled in college increased the minority population enrollment has also increased. From 2000 to 2014 enrolled college students between the ages of 18-24 increased by 4.2 million from, the percentage of Hispanic students increased from 9.9% to 16.5%, and black student attendance grew from 11.7% to 14.5%.³¹ The increased access to post-secondary education has made college populations more inclusive and diverse but the college structure and environment is not adapting quick enough to their changing student bodies. Van de Berg's study of South African universities survey reported food insecurity to be associated with characteristics such as being a first-generation student, male, black, undergraduate, single or unemployed.¹⁷ The strongest of these food insecurity predictors were gender, race, and being a first-generation students.¹⁷ Currently a reported one third of college students in the U.S. are first generation college students and of those first generation students, Morris et al. reported that 24% of them represent a disadvantaged group that is at higher risk for food insecurity.³²

We know that minority populations are at a higher risk for food insecurity in the general population, and amongst students, food insecurity is 1.5 times higher among Hispanic and black students compared to Asian or white students.² As minority populations increase in attendance at higher education institutions, it is important to think about how the college population is changing and what changes should be made to address the problem of food insecurity.³²

SNAP Eligibility for College Students

In the United States individuals who are food insecure greatly benefit from the utilization of government food assistance programs like the Supplemental Nutrition Assistance Program (SNAP), but often times college students do not qualify for these programs based off their financial status. At least half of all enrolled college students are not eligible to receive SNAP benefits and those who do qualify may have difficulty understanding the long list of exemptions

and provisions.³³ In order for students to be SNAP eligible they must meet the standard requirements as well as one additional criteria to receive a maximum of \$189 a month.³³

Table 2. Additional criteria for student SNAP eligibility³³

Special Criteria for Students of Higher Education	
Students who are between the ages of 18 to 49 who attend higher education at least half time must meet additional special criteria to be eligible for SNAP. You must meet one of the following criteria to be an eligible student:	
1.	Receive public assistance benefits under a Title IV-A program
2.	Take part in a State or federally financed work study program
3.	Work at least 20 hours a week
4.	Are taking care of a dependent household member under the age of 6
5.	Are taking care of a dependent household member over the age of 5 but under 12 and do not have adequate child care to enable them to attend school and work a minimum of 20 hours, or to take part in a State or federally financed work study program
6.	Are assigned to or placed in a college or certain other schools through: <ul style="list-style-type: none"> • A program under the Workforce Investment Act of 1998; • A program under Section 236 of the Trade Act of 1974; • An employment and training program under the Food Stamp Act; or • An employment and training program operated by a State or local government.
Income: If you meet one of the criteria above and your monthly income is below the income limits, you may be eligible.	

These additional requirements restrict student's ability to qualify for SNAP benefits. In addition to these added requirements, students described by the following are considered ineligible. Students who live in dorms and receive more than half of their meals from a meal plan are not SNAP eligible.³³ Students have reported being less food secure during school sanctioned breaks and according the SNAP requirements students must still meet eligibility criteria when on break from school.^{28,33} Students who are under the age of 22 and are still living at home must apply from SNAP benefits with their family.³³ Additionally, any financial aid received from private scholarships or through the Veterans Administration count as income and may exclude students from qualify for SNAP benefits.³³ These additional eligibility requirements and restriction make it difficult for students to navigate how to receive government assistance and again puts them in a transitional period where they are no longer receiving meals from their schools and do not yet qualify for other government assistance.

Factors associated with food insecurity among college students

Factors such as finances, housing, and academic success may impact an individual's food security status. Financial status has been significantly linked to food habits and behaviors among college students.¹⁴ Student's educational outcomes have been reported to be impacted by food access or lack of food access.¹³ Support systems provided by students living at home with their families have been associated with decreased experiences of food insecurity but many college students live independently in college housing or in off-campus housing. In order to gain a comprehensive understanding of student's food insecurity experience, each of these factors should be explored further through qualitative research.

Financial Disparities

The cost of college and the associated expenses are rapidly rising and imposing large financial burdens on students.²⁷ The reported average student loan debt has continued to increase with a statewide average as high as \$36,350 in 2016, already a 20% increase since the reported \$30,000 average in 2013.^{32,34} The extreme financial pressure being created by the growing cost of higher education is putting students at an increased risk of being food insecure.¹⁰ Gaines et al. found that around 22% of students in the United States have had to borrow money in order to purchase food⁶, and a reported 68% of students nationally will graduate with some sort of student loan debt.³⁵ The cost of college is increasing so rapidly that financial assistance is necessary for a majority of students, not just those from a financially disadvantaged background.¹⁵ Student financial aid funds no longer stretch far enough to cover food needs and prevent food insecurity.³⁶ This disparity may contribute to the increased occurrence of food insecurity among college students who receive financial aid.^{6,37} When analyzing relationships, one study found that time management and personal finance habits were more significantly linked to food habits for food insecure individuals, as opposed to food secure individuals.¹⁴ Another found that increasing financial burden and stress can come in the form of student loans and credit card debt.⁸ Patton-Lopez et al reported only 12% of the students having no credit card debt.²⁷

Credit cards and lines of credit may provide food security short term, but if students are unable to payback their obligations, their food insecurity may persist in the long term.⁶

In response to non-academic problems students face, the University of Massachusetts Boston (UMass Boston) developed a program called U-ACCESS. When developing this program, they found that the average need-based award provided to students was \$9,847 annually, even though the cost of tuition was \$12,682.²⁵ This meant that the remaining balance of \$2,835 required to cover the remaining tuition expenses fell on the student's.²⁵ This amount is needed to cover tuition alone and does not include indirect costs such as housing, food, and transportation. After surveying 390 UMass Boston students, Silva et al. found that 1 out of 4 students either skip meals, are unable to eat balanced meals, or worried about having enough money to buy food.²⁵ Food insecurity has been directly related to a lack of sufficient student loan money or federal aid assistance necessary to obtain adequate amounts of food resulting in the decline of students' academic success.^{8,15} Although these cross sectional studies examine the association between food insecurity and financial security, more research is necessary to understand the student perspectives of financial stresses and their impact of these perspectives on food security status.

Living Status

Food insecurity has been previously associated with high housing costs.⁴ In an effort to save money, many students often live at home and commute instead of living on campus. Food insecurity risk is reported to be higher for students living off-campus with roommates (not family) or living on-campus compared to students living at home.^{4,26} Morris et al. reported that students living at home were more food secure than students living outside the home.³² Among students at Deakin University, Micevski et al. also found that students were more vulnerable to food insecurity when they were living away from their parents or families.¹ The results from these studies infer that living with a parent or guardian who may provide food and/or cook meals may result in decreased student food insecurity.¹⁴ More recently, a sample of 514 students from a university in the US Midwest was assessed and stratified by housing type to further investigate

this relationship.³⁹ This study found that students living in housing without food provisions (food that is provided with their housing) were more likely to experience food insecurity.³⁹

Many universities require students living on campus to purchase meal plans. Dining plans can be costly, and being enrolled in a meal plan does not create food security.¹⁹ Bruening et al. reported one-third of college freshman with meal plans still reported experiencing insufficient access to food.² Many meal plans operate by meals per week, month, or semester depending on the school. Some universities require students to purchase meal plans and a use-it or lose-it system is standard where students are not permitted to roll-over meals or share meals with other students. This policy on campuses can create cyclic food insecurity that occurs when the meals for the allotted period run out.¹⁵ University housing and meal plan policies can vary greatly. Qualitative research and student focus groups will help us understand how university policies might be better designed to increase student's food security status. For example, federal money or programs that provide food assistance have been positively associated with an increase in food security, as well as initiatives that increase food access and preparation.³⁸

Academic Outcomes Related to Food Insecurity

Food insecurity has been found to negatively impact academic performance in children and adolescents but the effects on young adults in college has not been as widely studied.^{3,27} According to Maroto et al., food insecure students reported lower GPA's (2.0-2.49) in comparison to food secure students who reported higher GPA's (3.4-4.0).²⁶ Farahbakhsh et al. found that students experiencing severe food insecurity reported failing or withdrawing from courses and not being able to concentrate during exams.⁹ Food insecure students were reported to be 6 times more likely to have withdrawn or failed to register for more courses and more likely to indicate that they intend to drop out of college in comparison to food secure students.^{8,39} Food insecure students were almost 15 times more likely to have failed a course and less likely to feel in control of their academics.^{9,39} Food insecure students' academics may also be impacted by their decreased sense of confidence which may impact their sense of belonging.³⁹ Students who are

food insecure report feeling a sense of not belonging from faculty and struggle to focus and engage in the classroom.³⁹

Graduation and retention rates are influenced by factors such as academic performance, behavior, wellness, and student engagement.^{3,36} The current body of literature regarding university food insecurity has indicated that all of those factors are negatively impacted by food insecurity which would indicate that graduation and retention rates would also be impacted negatively.³ The detrimental effects of food insecurity are well documented in the secondary education population. The pipeline nature of the education system would indicate that these negative impacts on academics would also be seen at the post-secondary education level.²⁹ Additional research is crucial to understanding the college students experience in regards to food security in order to better understand the severity to which academic achievement and success is being impacted.

Health Outcomes Related to Food Insecurity

Students facing food insecurity have lower self-reported health status and are often at an increased risk of malnutrition.^{13,38} Gallegos et al. reported social and mental health can be negatively associated with food insecurity.⁶ College students have been identified as having a poor self-image associated with food insecurity.³² College freshman who reported having a history of food insecurity were found to have higher incidences of disordered eating, stress, and depressive symptoms compared to students with no previous experiences of food insecurity.²² These freshman also on average had higher waist-to-height ratios, fat mass, and body mass indexes than food secure students.^{2,22,40} Stress, depression, and anxiety may be higher or more common in students who are experiencing food insecurity and mental health is self reportedly low in food insecure individuals.^{2,9,22} King found that students experiencing very low food security indicated that student's ability to access food caused nearly twice as much stress compared to the stress of tuition and housing.⁴¹ Children who experience food insecurity have been found to be more likely to internalize symptoms and experience lower psychosocial functioning compared

to food secure households.²² In addition to mental health disparities, chronic disease, and obesity have all been associated with food insecurity.³²

Interventions addressing food insecurity on college campuses

The College and University Food Bank Alliance (CUFBA) in the United States was created in 2012 to address the issue of food insecurity on college campuses, and is focused on alleviating food insecurity among college students. In North America alone there are over 450 food pantries operating on college campuses in order to address food insecurity.^{10,42} The proliferation of these food pantries across university campuses indicates the growing presence of food insecurity on college campuses.⁸ More research is being done and students have reported that on campus food banks may be beneficial for helping to provide supplemental food supplies.⁴³ However, food banks and food pantries often do not provide adequate food and nutrient composition and are usually limited to non-perishable food items.¹⁰ Since food pantries are non-governmental and rely on donations, they are often lacking in both quantity and quality. Jessri et al. assessed food bank composition and found campus food banks provided adequate calories, but there was a macronutrient imbalance due to the high carbohydrate content of provided foods and low fat content.¹⁰ These food bank provisions are currently designed as an emergency supply of food, not a daily supply representing a healthy balanced diet.¹² If campuses do provide food bank's there is also the issue of students knowing about the resource and feeling comfortable accessing it. Barriers to students seeking assistance include not wanting to be served by peers or wanting peers to know that they are in need.⁴¹ Students not only report not being aware of available resources such as campus food banks but also feeling embarrassed using such formal resources for food assistance.^{29,41} Utilizing informal resources such as borrowing from friends or attending events with food are often preferred by students.⁴¹

Some researchers have proposed the implementation of campus gardens or farms to increase food access.³⁸ Even with the implementation of these programs students may question their meal preparation skills and therefore choose low nutrient content convenient foods.⁶⁸ It has

been recommend that campus health centers implement food security screening to identify students with marginal, low, or very low food security to begin gaining a better understanding of food insecurity among their students.³⁸ Interventions are being developed and implemented without strong evidence on the cause of food insecurity on college campuses. Given the unique needs of college students struggling with food insecurity, we need to take a step back to better understand the problem in order to create more effective interventions. Qualitative research will provide rich data is necessary to provide innovative ideas that have not yet been considered or explored.

Summary

College is a time of transition for many students, involving developing autonomy and navigating financial decisions. This drastic change of environment can cause shifts in food and eating behaviors.⁶ Food insecurity among college students is complex because diet is not solely based on the individual but also their surrounding environment.²⁸ The college food environment and students individual food literacy are important components of the college experience and can effect students experience and relationship building.²⁸ Young adults may lack the time and self-efficacy necessary for obtaining and preparing nutritious cost effective meals.³⁷ College student's professed reputation of engaging in poor eating habits, often attributed to youthful behavior, along with the normalization of the idea of "starving student", may contribute to the lack of programming dedicated to supporting student's access to food.^{2,5,30} Understanding the components of food literacy and providing resources to bolster student's food literacy may be necessary. Each component of food literacy is important, when any one component is missing student's ability to respond to change is impacted and often results in a damaged relationship with food.⁴⁴ The abundance of institutional support provided by universities is lacking the personnel and programming dedicated to reducing food insecurity among college students.² More research that tells the student story is needed to push for university intervention to improve student's access to food, diet quality, and overall student experience.⁴⁵

The severity of food insecurity has just begun to be examined and there are gaps that need to be filled. The small body of research currently available makes tracking trends and assessing impacts difficult.³⁷ The current literature does note the serious negative impacts of food insecurity on the general population, but given the unique university setting, more research on university populations is crucial. Qualitative research is necessary due to the unique experience and environment that surrounds college students. This study is designed to gain an in-depth understanding of what food insecurity looks like for college students, the impacts of food insecurity for college students, and how to better create interventions for struggling students. Research questions for this study are the following: What are the factors contributing to college students' food insecurity rates being higher than the national average? Are the increasing financial burdens of attending college and the increased diversity of college enrollment contributing to increased food insecurity rates? What are university staff's attitudes and understanding of the student food insecurity experience?

CHAPTER 2

METHODS

Study design and participants

This was a mixed methods study that included surveys and qualitative interview with college students, and surveys with university staff members. The purpose of the qualitative interviews was to gain a better understanding of why students are experiencing food insecurity at higher rates than the national average in the United States. The purpose of the surveys with university staff was to better understand their beliefs and perceptions about food insecurity among college students.. The Arizona State University IRB approved all study protocols (appendix A).

Participants were recruited from Arizona State University and provided written consent to participate. Initial recruitment for the interviews was done using flyers, email, and word of mouth. Students were surveyed to identify their food security status. The initial screening survey included basic demographic questions and the 10-item United States Department of Agriculture adult food security module to assess food security status. Questions were altered to apply to the individual and not a household and the questionnaire took approximately 15 minutes to complete. Students were targeted for interviews based on their food security status. Any student who reported marginal, low, or very low food security were invited to participate in an interview. In order to participate, individuals must be currently enrolled undergraduate students ages 18 and older. Participants needed to have the ability to read and respond in English and have access to email. Graduate students or students not currently enrolled as full-time students were excluded.

Students who participated in the interviews were given an additional survey prior to the interview to gather additional demographic data including: age, gender, ethnicity, major, academic year (i.e. freshman, sophomore), living arrangement, and participation in a campus meal plan. Interviews were conducted by trained researchers and used qualitative research techniques and methods for guiding conversations without disrupting the process. Interviews

were conducted until all available participants had been interviewed. All interview sessions were recorded. Recorded sessions were transcribed and responses were coded in order to get a better understanding of the data.

Each participant was presented with questions to facilitate discussion on why they personally and/or college students in general are experiencing food insecurity. Based off the prior studies recommendations several topics were explored in the interviews including: dietary quality, food safety, shopping/resource management, and environmental change.⁷ The interviewer asked questions (Table 3) and then allowed participants the opportunity to respond and provide their experiences and opinions. The procedure for the interviews was as follows: confidentiality disclosure to participants, explanation of the goal of the interviews, introduction of topics, open conversation, wrap up discussion.

A survey was also administered to staff members at ASU who work with student populations (Appendix E). The survey asked staff member's questions about their current role and interaction with students, provided trainings, beliefs and attitudes regarding student support using a 4-point Likert scale, and possible strategies to address food insecurity in students.

Measures

Student Recruitment Survey

Participant eligibility was determined from a 15 question survey.

Sociodemographic

Date of birth, enrollment status, and food security status were the determining factors for participant eligibility. To verify that participants met the enrollment criteria three questions were asked: "Are you currently enrolled at Arizona State University?," "What is your enrollment status?" with response options "undergraduate," "graduate," "non-degree seeking," "doctoral," and "How many credits are you enrolled in for the Spring 2017 semester?"

Food insecurity

Interviews were composed of students who indicated marginal, low, or very low food security according to the USDA 10-item food security assessment. Food security status was determined based on the following questions. The first three questions asked: "In the last 12 months, I worried whether our food would run out before I got money to buy more." "In the last 12 months, the food that I bought just didn't last and I didn't have money to get more." "In the last 12 months, I couldn't afford to eat balanced meals." With answer choices "often true," "sometimes true," or "never true" for each question. Participants were asked "In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?" with answer options "yes" or "no." If participants answered "yes" an additional question presented asking "How often did this happen?" with answer choices: "almost every month," "some months but not every month," "in only 1 or 2 months." Questions 11-13 all had answer choices of "yes" or "no" and asked about food choices in the past 12 months.

"In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?" with answer choices "yes" or "no". "In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food?" with answer choices "yes" or "no". "In the last 12 months, did you lose weight because there wasn't enough money for food?" with answer choices "yes" or "no." The final food security question on the survey asked "In the last 12 months did you ever not eat for a whole day because there wasn't enough money for food?" with answer choices "yes" or "no." If participants answered "yes" an additional question presented asking "How often did this happen?" with answer choices: "almost every month," "some months but not every month," "in only 1 or 2 months."

Answers to the 10-item food security questions were assigned scores from 0 to 10 and the total scores are then grouped into four separate categories: A score of 0 indicates high food security, 1-2 marginal food security, 3-5 low food security, and 6-10 very low food security status.

Student Participant Survey

The survey was given to students who met the requirements and were interviewed. Participants were required to be 18 years of age or older, be enrolled full-time undergraduates, and be classified as marginal, low, or very low food security. The purpose of this survey was to gain more demographic information and information regarding participants housing and finances.

Demographics

Three demographic questions were asked: "What is your Sex?" answer options "male" or "female" and "What categories best describe you? (select all that apply)" with the possible responses of: "Caucasian," "Black," "Hispanic," "American Indian," "Alaska Native," "Asian," "Native Hawaiian," "Other Pacific Islander," and "Other" and "Which best describes your current enrollment status?" with answer choices: "freshman," "sophomore," "junior," or "senior."

Housing

Five questions regarding students current housing status were asked. These questions were: "Do you live on campus?" with answer choices "yes" or "no." If students selected "yes" an additional question presented asking "What dorm do you live in?" answer choices included all dorms located on all four Arizona State University campuses. If students answered "no" they were asked "What is your current living situation?" with answer choices "I live with my parents/guardians," "I privately rent my own apartment/house alone," "I privately rent a flat/house with roommate," or "Other." Three questions were asked regarding students food access all with "yes" or "no" answer choices: "Do you have an ASU dining plan?", "Do you have access to a kitchen or cooking facilities?", and "Do you think a food pantry on campus for students struggling with access to food would be beneficial?" Students who responded "yes" to having access to kitchen or cook facilities were asked an additional question "How comfortable do you feel using the cooking facilities to prepare meals?" with answer choices "extremely comfortable," "somewhat comfortable," "neither comfortable nor uncomfortable," "somewhat uncomfortable," or "extremely uncomfortable." Two questions were asked regarding income and included "Do you currently

have a job?" if students responded "yes" they were asked an additional question "How many hours per week on average do you work?"

Student Interview

Interview questions were presented by the moderator and 13 prompts were used to facilitate discussion (Table 3). The following eleven discussion topics were as follows: "Describe the affordability and variety of food on campus" with the additional prompt "What foods do you wish you had access to?" The next topic was designed to gain insight to student's perception of available resources and asked, "What resources are available to support students with limited access to food?" with the additional prompts "How comfortable do you think students are using these resources?" and "What resources do you think would be beneficial?" Next participants were asked to "Discuss your experience with accessing food during your college experience" with the additional prompts "What have been the greatest barriers and what has been the greatest support?" The remaining interview questions included: "Describe how becoming more independent when coming to college impacted your ability to access food.", "Hypothetically, if you didn't have enough money for food, who would you go to for help?" "What kind of places do people go to if they don't have enough?" with the prompt "What is your experience on how helpful these places are?" Due to the sensitive and private topic of financial support we asked students to "Describe the support you receive" in order to allow students to choose what information they feel comfortable sharing and to allow for a broader discussion of support not just financial support. To address social and peer pressures students were asked to "Discuss any pressure you have felt in deciding between purchasing food and other expenses." Students were then asked to discuss any anxiety or stress they experience when struggling with food access and were asked to identify how much time they think they spend worrying about food. Two questions addressed this by asking "Do you experience any anxiety when you are struggling to access food?" and "How much time do you spend worrying about food?" Students were then asked, "How do you think struggling with food impacts your academics?"

The final three topics were asked to help understand what interventions students who are experiencing food insecurity think would be beneficial and they were: “Let’s brainstorm the kinds of strategies are out there that work the best for people who don’t have enough money for food?”, “Discuss how you think life would be different for someone who didn’t have to worry about food.”, and “Lastly, if you had all of the money in the world, what programs or policies would be the most effective to making sure students had enough food?”

Table 3. Student Interview Questions

1. Describe the affordability and variety of food on campus a. What foods do you wish you had access to?
2. What resources are available to support students with limited access to food? a. How comfortable do you think students are using those resources? b. What resources do you think would be beneficial?
3. Discuss your experience with accessing food during your college experience. a. What have been the greatest barriers? b. What has been the greatest support?
4. Describe how becoming more independent when coming to college impacted your ability to access food.
5. Hypothetically, if you didn’t have enough money for food, who would you go to for help?
6. What kind of places do people go to if they don’t have enough? a. What is your experience on how helpful these places are?
7. Describe any support you receive.
8. Discuss any pressure you have felt in deciding between purchasing food and other expenses.
9. Do you experience any anxiety when you are struggling to access food? a. How much time do you spend worrying about food?
10. How do you think struggling with food impacts your academics?
11. Let’s brainstorm the kinds of strategies are out there that work the best for people who don’t have enough money for food?
12. Discuss how you think life would be different for someone who didn’t have to worry about food.
13. Lastly, if you had all of the money in the world, what programs or policies would be the most effective to making sure students had enough food?

University Staff Survey

A survey was sent to staff members who work with college students to gain an understanding of their experience and perceptions of student’s access to food.

Demographics

Demographic information was collected using the questions: “What is your age?” with answer choices “Under 21,” “21-34,” “35-44,” “45-54,” “55-64,” “65+,” “What is your Sex?” answer

options “male” or “female”, “What categories best describe you? (select all that apply)” with the possible responses of: “Caucasian,” “Black,” “Hispanic,” “American Indian,” “Alaska Native,” “Asian,” “Native Hawaiian,” “Other Pacific Islander,” and “Other,” and “What is the highest level of school you have completed or the highest degree you have received?” answer choices included “Less than high school degree,” “High school graduate (high school diploma or equivalent including GED),” “Some college but no degree,” “Associate degree in college (2-year),” “Bachelor's degree in college (4-year),” “Master's degree,” “Doctoral degree,” “Professional degree (JD, MD).”

Role within the Institution

The next series of questions pertained to employment status and interactions with students. The questions were as follows: “How long have you worked at ASU?” answer choices “Less than 1 year,” “1-2 years,” “3-5 years,” “6+ years,” “What is your current job title?”, “In your current job position how often do you interact with students?” answer choices “Daily,” “4-6 times a week,” “2-3 times a week”, “Once a week”, “Never”, and “Which best classifies the students you work with most often (Select all that apply)” answer choices included “freshmen,” “sophomores,” “juniors”, “seniors,” “graduate,” or “doctorate.”

Perception of student needs

In order to gain an understanding of staff members perception of student issues they were asked to “Identify the top three problems facing students” with answer choices “financial support,” “discrimination,” “homelessness/housing,” “family issues,” “hunger,” “food access,” “violence,” “sexual assault,” “employment/job,” “access to health care,” “academics/grades,” or “Other.” The next question asked, “Have you received any training related to student hunger and/or food access?” if answered “yes” an additional question was asked “How satisfied or dissatisfied are you with the training you’ve received?” with answer choices “Extremely satisfied,” “Moderately satisfied,” “Slightly satisfied,” “Slightly dissatisfied,” “Moderately dissatisfied,” “Extremely dissatisfied.” Followed by the question “If a student came to you because they were hungry who would you seek support from?” with answer choices “Supervisor,” “Coworker,” “Other

students," "Health center," "Dean(s)," "President Crow," "Food Bank," or "Other." Participants were then asked to rate "How easy or difficult is it to obtain the resources that you need from the university to help students?" with answer choices "Extremely easy," "Moderately easy," "Slightly easy," "Slightly difficult," "Moderately difficult," "Extremely difficult."

Perceptions of food insecurity on campus

To better understand staff members understanding and perception of the prevalence of student food insecurity the question "What percentage of students at ASU struggle with not having enough to eat?" was asked with answer choices "less than 10%," "10-20%," "21-30%," "31-40%," "41-50%," or "51% or more." Seven statements were provided in matrix format and staff members were provided a 4-point Likert scale with the instructions "Please choose the best answer ("Strongly agree," "Agree," "Disagree," "Strongly disagree") for each of the following statements:" "You feel it is your job to help students experiencing limited access to food." "It wouldn't be fair to help one student and not others." "You feel responsible for helping students experiencing limited access to food." "Students who don't have enough to eat are irresponsible." "There are resources available to help students experiencing hunger." "Students with meal plans don't struggle with access to food." "Students with meal plans don't struggle with access to food." Two open ended questions were asked at the end of the survey to give staff members an opportunity to discuss their experiences with student food insecurity "Briefly discuss any experiences you have had regarding students experiencing hunger" and for them to provide feedback for possible interventions "Based on the experiences addressed in the previous question, what kinds of resources would help students who are experiencing hunger?"

Analysis

An inductive approach was used for the qualitative data. After all participants had been interviewed the interviews were transcribed and organized. The framework was exploratory and each interview was coded in order to assess differences and identify themes and subthemes. A codebook was created from which interview responses were sorted into the framework. The

framework for the student interviews and staff free responses were guided by the data and an inductive approach was used to look for relationships and identify new emerging themes. Content was analyzed using a descriptive approach to identify recurrent themes. The code book design was coded once each time a codeable statement was stated. Student interviews were coded using Dedoose version 8.0.35, web application for managing, analyzing, and presenting qualitative and mixed method research data. This method of coding allows the frequency of codes to depict how many times a participant addresses a certain topic. The mean, standard deviation, and percent for each discrete question were analyzed to determine the distribution of university staff members experience related to supporting student food insecurity.

CHAPTER 3

RESULTS

Student Recruitment Survey

The initial student recruitment survey was sent out at random to 15,127 ASU students via their ASU email account. A total of 256 students accessed the survey and of that 195 completed the survey. Of the 195 completed surveys 2 were graduate students and 20 were part-time undergraduate students. The remaining full-time undergraduate students who completed the survey came to 173 completed surveys. The mean age of respondents was 21.7 years old. The proportion of respondents reported food security status was 7% high, 4.6% marginal and 12.1% low, and 76.3% very low (Table 4). Since students who completed the recruitment survey self-identified as food insecure the results are not indicative of the prevalence of food insecurity on campus, but rather the experience of students who self-identify as food insecure.

Table 4. Full-Time Undergraduate Student Recruitment Survey Results (n = 173)

Age mean \pm SD	21.7 \pm 3.11
Food Security Status	
High	7% (12)
Marginal	4.6% (8)
Low	12.1% (21)
Very low	76.3% (132)
"In the last 12 months, I worried whether our food would run out before I got money to buy more."	
Never True	14.5% (25)
Sometimes True	43.4% (75)
Often True	42.2% (73)
"In the last 12 months, the food that I bought just didn't last and I didn't have money to get more."	
Never True	15% (26)
Sometimes True	48% (83)
Often True	37% (64)
In the last 12 months, I couldn't afford to eat balanced meals.	
Never True	12.7% (22)
Sometimes True	27.2% (47)
Often True	60.1% (104)
In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?	
Yes	83% (144)
No	17% (29)
How often did this happen? (n = 144)	
Only one or two months	9% (13)
Some months but not every month	43.8% (63)
Almost every month	47.2% (68)
In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?	

	Yes	76.8% (133)
	No	23% (40)
In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food?		
	Yes	71% (123)
	No	29% (50)
In the last 12 months, did you lose weight because there wasn't enough money for food?		
	Yes	49% (85)
	No	51% (88)
In the last 12 months did you ever not eat for a whole day because there wasn't enough money for food?		
	Yes	29% (50)
	No	71% (123)
How often did this happen? (n = 50)		
	Only one or two months	2% (1)
	Some months but not every month	50% (25)
	Almost every month	26% (13)
	No Response	22% (11)

Student Participant Survey

From the 173 respondents 121 provided contact information. Those students were then emailed to set up an interview time. Of those students 16 responded and set up interview times. The 16 participants completed the follow-up survey (Table 5). Of the students who were interviewed one reported marginal food security and the remaining 15 reported a low or very low food security status which is a similar distribution to the responses from the recruitment survey above: 6.25% marginal, 18.75% low, and 75% very low food security status. There were slightly more females 62.5% than males and the sample was ethnically diverse with 12.5% of Black or African American decent, 25% of Hispanic/Latino decent, and 6.25% categorized into Other. None of the students were seniors, 18.75% were freshman, 43.75% were sophomores, and 37.5% were juniors. Thirty seven percent of students reported living on campus in the dorms and the remaining 62.5% students reported living off campus either in an apartment or house alone or with roommates or living at home with their parents. In response to the question "Do you have a job?" 56% of participants answered yes. Only 31% of participants reported having an ASU dining plan and only 1 participant reported not having access to a kitchen or cooking facilities. The remaining 15 participants were asked how comfortable they felt using their cooking facilities to prepare meals 66% reported being 'comfortable' (extremely or somewhat). When asked if they

thought a food pantry for ASU students on campus would be beneficial 100% of participants responded 'yes'.

Table 5. Student Participant Survey Results (n = 16)

Age <i>mean</i> \pm <i>SD</i>	23.5 \pm 2.4
Gender	
Female	62.5% (10)
Male	37.5% (6)
Food Security Status	
Marginal	6.3% (1)
Low	18.8% (3)
Very low	75% (12)
Race and Ethnicity	
Caucasian	56.3% (9)
Black	12.5% (2)
Hispanic	18.8% (3)
Other	12.5% (2)
Which best describes your current enrollment status?	
Freshman	18.75% (3)
Sophomore	43.75% (7)
Junior	37.5% (6)
Senior	0% (0)
Do you live on campus?	
Yes	37.5%(6)
What is your current living situation?	
I live on campus in a dorm	37.5% (6)
I rent a flat/house with roommate	31.25% (5)
I rent my own apartment/house alone	12.5% (2)
I live with my parents/guardians	18.75% (3)
Do you currently have a job?	
Yes	56% (9)
No	44% (7)
Do you have an ASU dining plan?	
Yes	31% (5)
No	69% (11)
Do you have access to a kitchen or cooking facilities?	
Yes	93.7% (15)
No	6.3% (1)
How comfortable do you feel using the cooking facilities to prepare meals? (n = 15)	
Extremely comfortable	33% (5)
Somewhat comfortable	33% (5)
Neither comfortable nor uncomfortable	7% (1)
Somewhat uncomfortable	20% (3)
Extremely uncomfortable	7% (1)
Do you think a food pantry on campus for students struggling with access to food would be beneficial?	
Yes	100% (16)

Student Interviews

A total of eight themes emerged: barriers, student perceptions, life experiences, wellbeing, self-efficacy, pressures, support, and potential solutions. There were a total of 21 subthemes that were related to those 8 themes (Table 6).

Table 6. Codes and excerpt count totals

Code	# codes	# of interviews (n =16)
Barriers		
Financial > Expenses	31	13 (81.3%)
Financial > Cost of Food	37	14 (87.5%)
Transportation	26	7 (43.8%)
Time	22	9 (56.3%)
Student Attitudes and Perceptions		
Normalization of FI experience	8	5 (31.3%)
Express not wanting to ask for help	14	9 (56.3%)
Shame or embarrassment	15	7 (43.8%)
Desired foods not available	27	11 (68.8%)
Life experiences		
Separation from family	14	8 (50%)
Previous FI experience	14	4 (25%)
Well-being		
Emotional	27	14 (87.5%)
Academic	24	14 (87.5%)
Physical > Health	14	11 (68.8%)
Physical > Unhealthy foods	12	11 (68.8%)
Self-efficacy		
Meal skills	15	9 (56.3%)
Resources unknown	25	13 (81.3%)
Pressures		
Coping Strategies	5	3 (18.8%)
Social	11	4 (25%)
Support		
Friends	28	13 (81.3%)
Family	24	13 (81.3%)
ASU	12	5 (31.3%)
Potential Solutions	38	13 (81.3%)

Barriers

Barriers were identified as perceived or actual barriers that students report facing in regard to food access during their college experience. Three sub-themes emerged when discussing barriers to students accessing food: financial barriers, transportation barriers, and time barriers. Financial barriers were the highest coded with a total of 68 coded excerpts from 88% of participants. Financial barriers were separated as either expenses or the cost of food. Expenses

was defined as: students' financial obligations, bills, cost of tuition, or school related expenses that impact food access or decision related to food. Students made comments such as "when it comes to my income-outcome ratio I'm either breaking even or coming out somewhat short so I have to cut corners elsewhere" and "when I started getting my own apartment it was a little harder because I have to pay for rent and things like that and parking paying for that everyday kind of drains you a little bit." Statements regarding the cost of food were related to student's comments that the cost of food impacts their food security status, access to food, or that healthy food is not affordable. Students made statements such as: "The cost, the cost of food and I could afford it but that money could of went to something else. You are paying for a meal \$10 why is it \$10 instead of \$5, \$8, or \$6 and its usually again the healthier places that overcharge this type of food and I feel it's as if they don't want people who don't have a lot of money to access that food for some reason."

Transportation barriers were classified as issues that students have accessing food related to a lack of transportation or difficulty obtaining transportation. Any transportation issues that inhibit, deter, or prevent students from being able to access foods were included. Seven of the students referenced transportation as a barrier to accessing food a total of 26 times. Students made comments such as: "that's I think the biggest problem I have with the accessibility on the polytechnic campus is that the housing villages are almost completely inaccessible unless you have a vehicle."

Time barriers included issues regarding poor time management, time constraints, dining hall hours of operation, or any other time related issues that impacted student's access to food. Nine of the students mentioned time as a barrier to accessing food 22 total times. One student stated: "I have to here in Phoenix by 9:00am for class so as it is I have to get up at 6:00am leave the house by about 6:30am to get to the bus by 7:00am to get here by 8:30am to be here ahead of time for class at 9:00am. So, I don't have time to walk all the way over to the cafeteria unless I get up at 5 o'clock in the morning." Another student stated, "it's just that I have consistently missed breakfast because of time issues."

Student Attitudes and Perceptions

Perceptions that students hold associated with accessing food and the experience of accessing food during college were coded under the theme of student perceptions. Statements that were coded include student's interpretation of their experience and were categorized into four subthemes. The four subthemes were: the normalization of the FI experience, expressing not wanting to ask for help, feeling shame or embarrassment, or the belief that their desire foods are not available.

Students comments that indicated normalization of the college FI experience were coded under the subthemes "Normalizations of FI experience" and refer to the idea that not having access to food is a normal part of the college experience. This theme was explored in the literature as the idea of the "starving student" and normalization or acceptance of that as part of being a college student. Five of the students referenced this 8 times with comments such as "I just think it's just college and you just deal with it."

More than half of the students expressed not wanting to ask for help or voiced the belief that they need to figure it out themselves and they should not be asking for help. These comments included "I'm already a burden enough with like going to school and having my dad help me pay for school and I don't want to just keep adding to that so I just don't go to anyone I just fend for myself until I get the money." Another student stated, "I think that when it comes to like college students are like I can do it on my own and just try to tough it out."

Seven students specifically referenced feeling ashamed or embarrassed having to ask for help or use resources associated with needing help such as food banks or food assistance a total of 15 times. One student commented: "I think some people are just conscientious about going to food banks period. I know I was." Another student commented that "students feel ashamed by it cause it's like I notice, a lot of my friend group at least, they have no problem with the affordability and expenses and all that stuff so it's like just awkward I guess in a way to be like oh do you need to go grocery shop and be like oh no I'm just going to gonna hit up the Pitchfork [food] Pantry".

The code regarding students desired foods not being available was not applied based on the students' belief or perception that the foods they desired are available not if they are truly available or not. This accounted for the largest number of excerpts under the parent code of student perceptions with 27 excerpts from 11 students. Students indicated that the foods they desire are not available to them with statements such as: "like all of it is pre-prepared stuff there's no options for somebody that has the cooking skills to purchase like you know there's no way of purchasing any sort of vegetables....there's no fresh meats or anything like that you can purchase so with what is there you can't make a meal."

Life experiences

This theme identified student's statements regarding how their upbringing, home life, and separation from family has impacted their experience with food. The first subtheme was in regard to student's separation from their family. Under this code statements that students made regarding challenges or changes that occurred when leaving home for college that impacted their food access. Students expressed how becoming independent and being away from their families has impacted their experience with food. One student stated: "so I mean there's been a lot of adjustments that I have had to make on the type of food that I am eating now as far as like in the past. And also my mother, I lived with my parents so my mother usually cooked but so now I have to be the one that's responsible for cooking and what not, so just finding culturally my food that I'm so used to eating so I've had to change that a lot while being here in Phoenix." Another student commented: "when you live at home you have food at home that's usually offered and is always there. So, it was kind of hard at first, but you kind of just learn through, just like trial and error, you have to spend."

The second subtheme under this code was student's previous experience with food insecurity (FI). Students indicated during their interview that they had previously experienced FI, received some form of government aid, or expressed living in poverty or experiencing poverty growing up. Four of the students interviewed spoke openly referencing previous experiences with

limited resources. One student commented: "I think that when you live in poverty, when you see it, you kind of get an understanding of what that means and you're a little bit more creative and less picky on what you want to eat." While another student referred to their experience "my mom has food stamps so that was always nice because we would just get to go to the store and didn't have to worry about but like paying for the food because we would just be able to get whatever we wanted with the food stamps."

Wellbeing

Under this theme students expressed the experience of FI or not being able to access food as having an impact on their mental, emotional, or physical health and wellbeing. Statements under the wellbeing theme were divided based off student's references and three subthemes were developed that included emotional wellbeing, academic wellbeing, and physical health.

Emotional wellbeing was referenced the most of these subthemes from 14 students a total of 27 times. Students express that not having access to food or experiencing some level of FI impacting their emotional well-being. Students indicate that their ability to cope with stressors and/or their mood were affected. One student state that "it sometimes creates anxiety but not like full on where I can't function. It's just there on my mind it just never goes away." Another student commented "it's stressful especially like when I'm going to class and then to work and I'm like, seriously about to die because I'm so hungry. Then that's when I get really stressed out because I don't have enough, I don't have enough energy to move between a different phase of my day and focus."

The subtheme regarding academic wellbeing referenced students' belief that experiencing some level of FI impacts their academic success, academic abilities, cognition, ability to concentrate, or ability to achieve the grades they believe they could if they had access to food. This theme occurred 24 times from 14 of the students. One student stated, "when you are hungry it's really hard to focus on anything else and If you get to the point when you haven't

eaten enough, like over a long period of time your ability to function as a student and homework or think about I don't know math, or read a required book, you just don't have any energy to like focus or pay attention in class or have discussions, um which is like kind of what a student is." Another student stated, "I need to be able to eat so that I can get good grades so that I can graduate."

Physical health was divided into additional subthemes regarding student's comments that FI negatively impacting their physical health or students are having to choose unhealthy food options. Regarding the negative impact on physical health students express not having access to food impacting their physical health or make claims about behaviors that negatively affect their health. A total of 11 students referenced this theme 14 total times. One student stated, "the time as I started biking more I got more strength and I was able to cut the time but when I wasn't eating I was always hungry and when I was hungry I was also tired so I'm surprised I didn't even faint on my way over". Another student when discussing not having access to food stated, "I'm also worried about my health you know." When referencing the second subtheme 'choosing unhealthy foods' students expressed having to make sacrifices by choosing unhealthy foods. Eleven students addressed this issue. One student stated "until I get some money coming in it's like I gotta like live off the dollar menu or like buy like really cheap food and stuff and it's like I'm on a diet of like soda and like ramen noodles". Another student shared that "this semester I've been more likely to go and buy food, like my own food in my room but that's expensive after a while so I've been not as likely to make healthy decisions"

Self-Efficacy

Student's expressed that they lack the confidence in their ability to feed themselves, obtain food, prepare meals, knowing how to find resources, or feeling capable of using available resources. Two subthemes were developed, the first was that student's express that they do not believe they have the skills or knowledge to prepare meals. Students also express no prior experience preparing meals or that they have not learned the necessary skills to make meals for

themselves. Nine students indicated feeling this way with a total of 15 statements fitting this theme. A student stated “I’m just starting to learn and I’m not all that familiar with all the utensils that I need to use sometimes or what kind of knife to use or how long to cook things. So, most of the time my food is either going to be too bland, too salty, too something” The second theme identified when students express that they are not aware of available resources or how to find and utilize resources for preventing FI or providing food for students. This theme was much more prevalent with 13 students making 25 statements that fell under this theme. One student claimed, “I can’t even tell you a place on campus where I would think of being able to go and just ask for help just receive any kind of like beneficial thing let alone off campus.” Another stated “I don’t know, I never asked and I don’t get like emails that are tailored towards that so I don’t know.”

Pressures

Pressures students feel regarding accessing food included subthemes ‘coping practices’ and ‘social pressures’. Coping practices emerged as a theme when a few students mentioned using coping strategies to obtain food. While only three students discussed engaging in these coping strategies their statements were significant. Students discuss selling items or ways to get money in order to get food. Students feel pressured to sell belongings or find alternative means of accessing money or food. One student stated “you know, I don’t know, there’s always ways to make money that seem sketchy, but are ok like donating blood or plasma. Which is not great if you are super hungry, but if you need to make money, that’s always an option. “While another student said “I use food as a bargaining tool, I’ll be like I’ll help you but you need to buy me food. That’s kind of what I do...because a majority of people aren’t willing to give out completely free things without some form of strings attached to it.” The second subtheme addressed social pressures students feel. These pressures reference feeling like they need to keep up a certain lifestyle or appearance, make financial decisions based on others, or change food intake or purchases based on peers. One student stated, “I feel like here being in this campus they take the concept of healthy and healthy food out of proportion so then you feel like ok now you have to

think more about what you can eat because other people are watching.” Another student claimed, “Some weeks I just don’t go grocery shopping because it’s like I need to save this \$50 this week because I’m probably gonna have my mom or my sister coming next week and they’re gonna want to go out and do stuff.” This theme was discussed 11 times among 4 different students.

Support

Students identified different support systems they use when struggling with access to food or dealing with the experience of FI. Support fell into three subthemes: family, friends, and ASU.

Friends were the referenced the most of the three subthemes as student’s support system when it came to accessing food. Thirteen of the sixteen students indicated a total of 28 times they would go to their friends for help if they were hungry. Students indicated that their friends provide support for them in regard to accessing food or having enough to eat. One student commented “I would say that it was very, very like helpful because I mean you have friends, they look out for you so you if you need food you can ask them, so it’s like a safety barrier I guess too at the same time. Because no one wants their friend to starve.” Another student stated “if I was struggling and they kind of knew it they could help me out a little bit which was nice. I mean if I didn’t have anyone I probably would have starved.”

Family was also referenced by 13 of the 16 students only slightly less, 24 times. Students indicate that their family or certain family members are a support system for them and help them access food or deal with the struggles of not being able to access food. One student stated, “if I’m running out of money I know I will get to a point where I can’t buy food, I’d probably talk to my parents because I’m still pretty reliant on them.” Another commented “just having a family to help support me and friends. So, if I was struggling and they kind of knew it they could help me out a little bit which was nice. I mean if I didn’t have anyone I probably would have starved.”

The third theme was referenced 12 times by 5 students and was in reference to students using an ASU resource as a support for accessing food. These statements included support from

staff, faculty, the university, or any ASU affiliated programs. One student discussed how staff members support him saying “I know that even if you go to like USG or you go to your advisor. They will be like you haven’t eaten yet? Here take this.” Another student commented “sometimes I get really buddy buddy like with the dining hall ladies, the ones that swipe your card in or the one at the market place. They would say here just take an extra one, I’d definitely do that too. So that was really nice of them.”

Solutions

Students were asked what solutions they think would be helpful and 13 students provided 38 solutions. Examples of these solutions included: “I think having meal plans that like you can apply for, for your reduced or kinda like in elementary, middle and high school where you can get free or reduced lunch. Where it’s like a basic food plan where it doesn’t include like m and g, like anything extra where you can still eat in the dining halls, um, I think that would be very important to have an option for.” Another suggestion was “I think one of the things would be to honestly provide class because for somebody like me I’ve never lived on my own I’ve never had to do my own cooking and so I don’t have any idea what I’m doing so I can make like I can boil pasta I can like you know brown ground beef that’s about the extent of my cooking ability so having, knowing how to cook could encourage students to look at that as an option as opposed to just going down to the cafeteria and picking up whatever.” One student suggested allowing students to work for meal plans stating: “I think having like the option if you are getting an on-campus job to also potentially get a meal plan instead of having, you know paid money”

University Staff Survey

The staff survey that was sent out there were a total of 178 responses of which 139 were complete (Table 7). Of the 139 respondents about three-fourths were female and one-fourth male. A 66% of respondents were under the age of 44, 43.2% reported working at ASU for 6 or more years, and 65.5% of respondents reported having a master’s degree level of education. A

majority of respondents (90%) reported never having received any training regarding student hunger and/or food access and of the 10% that reported having received training about this issue 28.5% reported being either slightly or extremely dissatisfied with the training they received. Of the staff members who completed the survey, 33.8% of them reported working in some type of academic advising roll and 19.4% of respondents indicated that they were coordinators of programs. The remaining top job titles reported included director positions (12.2%), professors (5%), or dean or assistant deans (4.3%). The “other” responses for job titles included: Program Manager, Retention Specialist, Administrative Assistant, Research Technician, and Business Operations Specialist. Even with a range of job titles from staff employed in 12 of 13 colleges, 83% of all staff indicated that they work with students 4 or more times per week.

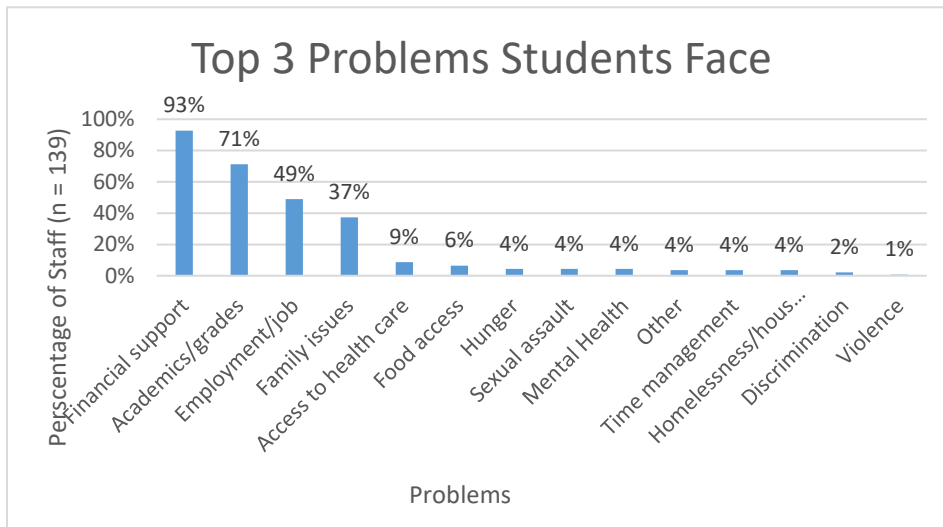
Table 7. University Staff Survey Responses (n=139)

Gender		
	Female	74% (103)
	Male	26% (36)
Age		
	21-34	39.6% (55)
	35-44	26.6% (37)
	45-54	18.7% (26)
	55-64	12.2% (17)
	65+	2.8% (4)
What categories best describe you?		
	Caucasian	72.6% (101)
	Hispanic	10.8% (15)
	Black	2.8% (4)
	Other	13.6% (19)
Education Level		
	Some college but no degree	2.2% (3)
	Associate degree in college (2-year)	2.2% (3)
	Bachelor's degree in college (4-year)	14.4% (20)
	Master's degree	65.5% (91)
	Doctoral degree	15% (21)
	Professional degree (JD, MD)	0.72% (1)
How long have you worked at ASU?		
	Less than 1 year	12.2% (17)
	1-2 years	13.6% (19)
	3-5 years	31% (43)
	6+ years	43.2% (60)
Are you currently enrolled as a student at ASU?		
	Yes	18.7% (26)
How many credit hours are you currently enrolled in? (n = 23)		
	2-4	39% (9)
	6-9	52% (12)
	19	4.3% (1)
What college do you work for?		
	College of Integrative Sciences and Arts	22.3% (31)

W. P. Carey School of Business	17.3% (24)
Ira A. Fulton Schools of Engineering	14.4% (20)
Mary Lou Fulton Teachers College	8.6% (12)
College of Liberal Arts and Sciences	8.6% (12)
Barrett Honors College	7.2% (10)
College of Health Solutions	6.5% (9)
Nursing and Health Innovation	2.9% (4)
Herberger Design Institute	2.1% (3)
Other	8.6% (12)
No Response	1.4% (2)
What is your current job title?	
Advisor	33.8% (47)
Coordinator	19.4% (27)
Director	12.2% (17)
Professor	5% (7)
Dean	4.3% (6)
Other	19.4% (27)
No Response	5.7% (8)
In your current job position how often do you interact with students?	
Daily	75.5% (105)
4-6 times a week	7.2% (10)
2-3 times a week	9.4% (13)
Once a week	6.5% (9)
Never	0.72% (1)
No response	0.72% (1)
Have you received any training related to student hunger and/or food access?	
Yes	10% (14)
How satisfied or dissatisfied are you with the training you've received? (n = 14)	
Extremely satisfied	14.3% (2)
Moderately satisfied	28.6% (4)
Slightly satisfied	28.6% (4)
Slightly dissatisfied	21.4%(3)
Moderately dissatisfied	0% (0)
Extremely dissatisfied	7.1% (1)
How easy or difficult is it to obtain the resources that you need from the university to help students?	
Extremely easy	3.6% (5)
Moderately easy	40.3% (56)
Slightly easy	31% (43)
Slightly difficult	20.8% (29)
Moderately difficult	2.8% (4)
Extremely difficult	0.72% (1)
No Response	0.72%(1)
On average, in a month how often do you provide food to students in need?	
0	82% (114)
1-3	13% (18)
4+	5% (7)
What percentage of students at ASU struggle with not having enough to eat?	
Less than 10%	23.7% (33)
10-20%	39.5% (55)
21-30%	21.5% (30)
31% or more	13% (18)
No Response	2.2%(3)

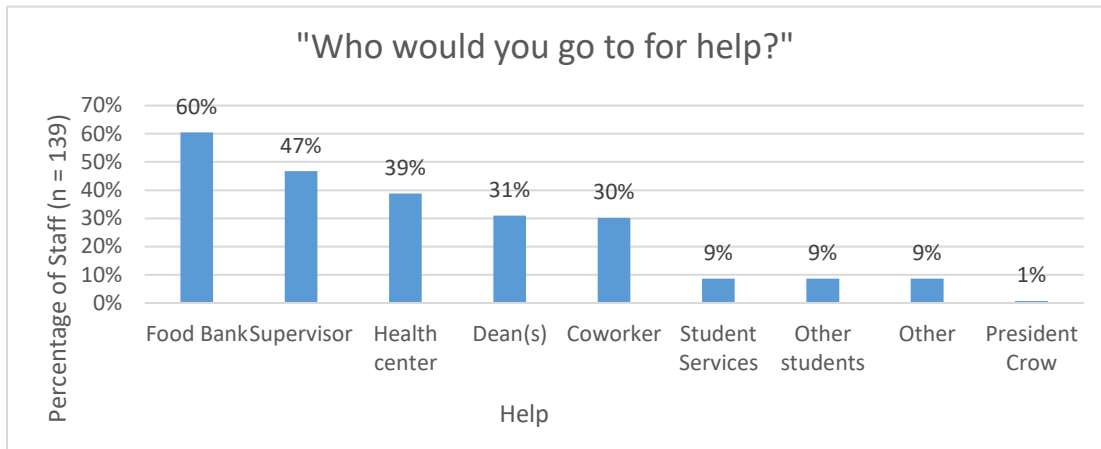
Staff members were asked to identify the top three problems they believe students face. The top problems that staff believe students face were financial support (93%), academics/grades (71%), employment/job (49%), and family issues (37%). The lowest barrier reported was violence (1%). Of the 4% that selected “other” responses included: “understanding commitment needed to earn a degree and balancing studies with other responsibilities”, “being prepared for the rigors of college”, “social pressures”, and “learning how to attend ASU.”

Figure 1. Staff Responses to top 3 problems students face



Staff members were also asked to identify who they would go to for help if students came to them experiencing food insecurity. The top resources that staff selected they would turn to included: food bank (60%), supervisor (47%), health center (39%), and dean(s) (31%). Of the 9% that selected “other” responses included: “Dietitian”, “School of Social Work”, “St. Vincent de Paul”, “Don’t know”, “I would buy food for them”, and “Community resources.”

Figure 2. Staff Responses to “Who would you go to for help?”



Responses from the two open ended questions of the staff survey asked staff to discuss any experiences they have had with students experiencing hunger and what solutions they think would be helpful to students experiencing hunger. These questions were coded based off three themes: causes of FI, conditions of FI, and solutions to FI (appendix E). Each category had additional subthemes (Table 7). Many of these issues and solutions overlapped with student responses and suggested solutions.

Table 8. Staff identified causes, conditions, and solutions

Code	# codes
Causes	
Finances	17
Access to Food	6
Time to obtain and prepare food	4
Conditions	
Families	3
Commuter Students	3
Unstable Housing	5
Non-residents	2
Solutions	
Emergency Food	33
Resources available	26
Dining services	13
Free and Reduced	9
Training	4

Causes

Causes referred to staff responses that indicated specific factors that were directly impacting or causing student's food insecurity and were broken down into subthemes that referenced finances, access to food, and lack of time to obtain or prepare food.

Staff responses cited financial issues as the biggest cause of student's food insecurity. Student's financial situation includes but is not limited to: the cost of tuition and related expenses, lack of financial aid or support, or not enough money for food. One staff member stated "I have been told of students who receive a minimal financial aid refund that they have to make last until the next semester. They were constantly thinking about how they were going to afford anything; after bills, there wasn't much left for food. Even when I was a student, I had many friends who would use their meal plans to help those who couldn't afford to eat lunch/dinner." Another staff member state "most of the students I've interacted with are hungry simply because they don't have enough money to get groceries or grab something to eat."

Staff responses under the access to food subtheme indicate that student's do not have access to food. Access refers to but is not limited to physically being able to access food and/or having access to healthy foods. One staff member stated that "access to healthy food and time to cook has also been something my students struggle with." Another staff member said "working on the Poly Campus I have found there are very limited food resources. The food locations that are open have limited hours. During the summer semester it is even more limited."

Under the time subtheme staff response indicate that student's time constraints or lack of time causes them to be experience hunger. Time constraints refer to student's time that they have available to obtain food and/or prepare food. One staff member shared their story stating "not all undergrad degrees are created equal, I used to work in Engineering and I can honestly that the students in actual engineering programs are overworked. So this kid was having to deal with this insane engineering schedule and on top of it, would MAYBE eat one meal a day if he was lucky. There were times when he went without food for days at a time. He wouldn't accept help though. At that time I wasn't aware that ASU had a food bank; fairly sure he didn't either.

When he went home for the winter break, he decided not to return to ASU. His is not the first story I've heard like this."

Conditions

Conditions referred to the situations or circumstances of students who experienced food insecurity or limited food access. The condition may not be the cause of the students FI but repeating conditions may indicate that certain students are more likely to be food insecure. Themes under the conditions header included families, commuter students, unstable housing, and non-resident students.

Several staff members shared stories of food insecure students who were supporting families. One staff member talked about a student who was a "single mom, full-time student who often experiences gaps in SNAP program, the re-approval process seems to leave a gap." Two other staff members expressed the family population at the Polytechnic campus experiencing food insecurity. One staff members shared "when I worked at the Polytechnic campus, I feel like students experiencing hunger is more visible, especially because we had families living on campus." Staff members referenced commuter students or students living off-campus who experienced food insecurity. One staff members stated, "I've also encountered off-campus students who could not afford to eat on campus or during the day." Another mentioned "Students are not always taught how to budget out their meal plans and end up not having enough to get through the semester. Also, students who live off campus often have difficulty." Unstable housing was referenced the most of the sub themes and staff shared experiences of students who were homeless or struggling with homelessness also sharing with them their struggles to access food. Staff shared "I had one student who had both housing and food issues because they were homeless they were unable to buy and store food to meet their needs." Another staff member stated "I have occasionally had students who have been homeless or otherwise experiencing poverty. Often they are responsible to support family members and take out student loans and then send those disbursements to family -- because of those obligations, they are short

themselves on resources.” The fourth subtheme was in reference to non-resident students. Non-resident students include students who are out-of-state students or international students. Two staff members shared stories that mentioned non-resident students.

Solutions

Staff recommended resources and solutions that they think would help increase students’ food security. These solutions were classified based of the following themes: dining services and meal plans, free and reduced, FI training, resources made more available or known, and emergency food. The largest portion of responses (33) fell under the theme of emergency food and mostly referenced a university food pantry or food bank on campus. “A food bank on campus would be extremely helpful in providing food for students who do not have the financial resources to purchase food especially over breaks when there are limited options on campus.” Other staff members specifically addressed the ASU food bank as a valuable resource for students stating, “I contributed on a regular basis to the Tempe campus food pantry until it was shut down - students need this resource.”

The next most common response was under the header of making resources more available and known with 26 total references. Staff shared that they are not aware of resources or even aware of somewhere to find out about resources. Staff responses indicated their willingness to help students but they are unsure how to. One staff member state “I would love to know of a resource guide for faculty, staff. Signs we may look for, questions we can ask. Ways we can support students having this need.” Another stated “It would be helpful for all staff to know where to direct students who may be having food insecurity issues.” This resource deficit was also echoed by students who stated they were not aware of available resources.

Dining services and meal plans made up 12 of the responses. Solutions included ideas for extending dining hall hours, staying open over breaks, and providing a wider variety of food. Staff members also suggested expanding the free and reduced lunch program that is used in elementary and secondary education into post-secondary education. Four staff members also

cited that training around student hunger and food insecurity would be beneficial. One staff member stated, "I wish there were known resources or I would like to see more of a training for faculty and staff to look out for signs or to know how to provide students with the resources that are locally available."

CHAPTER 4

DISCUSSION

The purpose of this study was to gain a better understanding of what food insecurity among college students looks like. Research regarding food insecurity on college campuses has been growing. However, there have only a handful of studies to our knowledge that examine the student and university staff experience using qualitative data from both staff and student perspective. The current study found that food security status among college students is unique and can impact individuals in variety of ways. Student's previous life experiences, food literacy, and social support systems all impact the student food experience. The staff responses and findings indicated that staff are willing to help students but currently feel they lack the resources to do so. Staff responses indicated that they are willing to learn more about student's experiences with hunger and want to find solutions. These findings can be used to gain a better understanding of the bigger picture of what is causing students to be food insecure and change the perception or belief of what the college student experience is supposed to look like.

The student interviews that were conducted indicated that the financial demands of college shift their available resources to being able to cover for school and housing. Students indicated that paying for college and a place to live are valued higher than obtaining consistent or nutritious food that is necessary for academic success and health. Students also indicated that due to this prioritization of resources they feel their academics are impacted as well as their mental and physical health. This information aligns with the research discussed that addresses the rising costs of not only tuition but housing and other college related expenses.^{10,15,27,37} Student's indicated that the financial pressure along with the lack of transportation and time were a perfect storm for a food insecure environment. These very real barriers combined with students' low food literacy and perception that asking for help and utilizing resources is considered a weakness makes the college food environment particularly difficult to navigate. The findings indicated that financial burdens and lack of funds are a primary barrier to students accessing

food. The increasing cost of attending college and financial burdens associated were contributing factors to student's disproportionate experience of food insecurity.

College students are often confined to their campus and resources on campus and must rely on their surrounding food environment to dictate their food choices. The student's social constructs and perceptions of what their peers view as socially acceptable may contribute heavily to their food choices. Previous studies have found the varying experiences for students living on campus versus living on campus.^{1,4,14,36} However, few if any research has addressed the on-campus food environment, where students are spending large portions of their days. More research is necessary to develop ideas for increasing food access while on campus, particularly for students living on campus.

The majority of participants in this study stated that they heavily rely on their friends and social circles as their support systems. Students indicated that they lean on friends and people close to them and do not seek out or utilize available emergency food resources. These findings align with the literature that discusses students feeling a sense of shame or fear of being stigmatized for struggling with hunger.^{3,46} Universities need to work with students and staff to remove the stigma around utilizing resources and encourage students to support one another using these resources. Furthermore, being food secure includes being able to secure and access food without using coping strategies such as stealing, scavenging, or resorting to emergency food supplies such as food banks which several students reported having to use a coping strategy as means for getting food. The body of literature available defines food insecurity in terms of being able to access healthy, socially acceptable foods, in a non-compromising manner.^{6,23} Students in this study reported not having access to healthy affordable foods, food decisions being impacted by feeling pressure to consume foods that are socially acceptable, and even in some cases using unhealthy coping strategies to obtain food. Universities need to be aware of students experience and work to increase resource awareness and utilization to provide students a safe space for accessing help.

By including university staff in the study, the aim was to gain an understanding of university staff's awareness of the student FI experience. Questions were developed to understand if staff felt are they equipped to handle this issue and better understand their attitudes and beliefs about the student FI experience. In order to see if university staff were aware of how many students experience food insecurity and how prevalent the issue of student hunger is staff were asked to identify what percentage of students they believe struggle with not having enough to eat. Previous studies at Arizona State University indicated that 38% of students may be food insecure.² Only 13% of staff selected that 31% or more of students experience food insecurity which may indicate that staff are not aware of the severity of this issue and have not received adequate information regarding student food access. Only 7% of the surveyed staff indicated that they had received any training regarding student hunger or food access and were satisfied with the training. When asked to provide solutions to reducing student FI staff also indicated that training on this issue would be helpful. Although staff members did not select food access or hunger as a top problem students face they did select numerous of the factors that research so far has identified as impacting food security. A majority of staff members chose factors that have been clearly identified and discussed in the literature regarding post-secondary student's limited food access: finances, housing, and academics.^{1,2,4,14,25} A total of 93% indicated financial support as top problem student's face, 49% chose employment/jobs, and 4% selected homelessness/housing. Staff also selected factors that research has shown to be impacted by food insecurity such as 71% selecting academics as a top problem.^{9,25,32,36} Training for university staff may help bridge the gap between what they know and understand to be a problem and how food insecurity is either part of those problems or in some cases contributing to those problems. Training for staff should include information on the prevalence of FI on college campuses and the negative impacts as well as available resources and how to connect students to those resources.

One recurring theme among both students and university staff was that they did not feel they were aware of the available resources or how to access those resources. Understanding the barriers to student's food access will help make it possible for schools to gain support in

establishing resources for students and allow authorities to recognize potential barriers that students may encounter. Future studies need to explore the student experience both from the students' perspective as well as the university administrations perspective to gain a better perspective of the bigger picture. Exploratory studies that probe university personnel's attitudes and beliefs about the student FI experience are necessary.

Strengths and Limitations

Strengths and limitations of this study were taken into account when interpreting the findings. One of the main limitations to this study was that it a convenience sample of the students and staff at Arizona State University and may not be a good depiction of all barriers, students, and staff across the U.S. Strengths of this study consist of the inclusion of university staff; whereas, most other studies on FI have focused on students only. The qualitative data gained from both students and staff provides a more in depth understanding of the food insecurity experience in a post-secondary setting.

CHAPTER 5

CONCLUSION

FI among college students and on college campuses is becoming an increasing concern and area of research. As college becomes more inclusive it is important that universities structure, policies, and resources adapt to the changing demographic of college students. There is extensive research regarding the impacts of food insecurity on children from birth through secondary education. The consensus of the literature supports the ideas that food insecurity negatively impacts children's ability to learn and succeed in the classroom. Instead of a pipeline application regarding the impacts of food insecurity on young adults in a post-secondary education setting more research is being developed daily on the growing problem of food insecurity on college campuses.

This study suggests that FI among college students is pervasive and increasing problem. The overarching themes are that the financial demands of not only college but also the additional living expenses that occur create a volatile food environment where students struggle to be food secure. Students are relying on friends and social networks as a support system instead of receiving the support from their educational institutions. Additionally, many of the behavioral, health, and academic effects are being seen on college students who experience food insecurity. College enrollment numbers continue to increase and college students are spending crucial years of their lives in the university setting and it is important that universities understand how their students are being impacted by this problem.

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APPENDIX A
IRB APPROVAL

EXEMPTION GRANTED

Meredith Bruening
 SNHP: Nutrition
 602/827-2266
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Dear Meredith Bruening:

On 3/7/2017 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Assessing food insecurity among college students and their perceptions of why they are experiencing food insecurity
Investigator:	Meredith Bruening
IRB ID:	STUDY00005679
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • IRB_updated.docx, Category: IRB Protocol; • Focus_Group_Participant_Survey IRB.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Focus Group Consent_MMB.pdf, Category: Consent Form; • InviteScript.pdf, Category: Recruitment Materials; • Focus Group Prompts.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Focus_Group_Recruitment_Survey IRB.pdf, Category: Screening forms; • Focus_Group_Recruitment_Survey_Consent_IRB.pdf, Category: Consent Form; • Interview Consent_MMB.pdf, Category: Consent Form; • Recruitment-Email.pdf, Category: Recruitment

	Materials; • Staff_Survey IRB.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Recruitment Flyer2.pdf, Category: Recruitment Materials; • Staff_Survey Consent_IRB_MMB.pdf, Category: Consent Form;
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The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 3/7/2017.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc:

Briana Garcia
Erika Brown
Nico De Bruyn

APPENDIX B
STUDENT RECRUITMENT SURVEY

Student Recruitment Survey

Q1

Welcome!

I am a master's student under the direction of Dr. Meg Bruening in the College of Health Solutions at Arizona State University. I am conducting a research study to gain a better understanding of the prevalence of food insecurity among college students. We are recruiting students to participate in focus group sessions to discuss their experiences with limited access to food and why you think students struggle with food access in college. You are invited to complete the following survey to see if you are eligible to participate in this study. Your participation in this survey will require approximately 10-15 minutes and is completed online at your computer. You have the right not to answer any question, and to stop participation at any time. Your participation in this survey is voluntary. If you choose not to participate or to withdraw from the survey at any time, there will be no penalty. Your responses will be confidential. The results of this survey may be used in reports, presentations, or publications but your name will not be used. All identifiable information will be removed from the transcriptions. If you have any questions concerning the research study, please contact the research team Kat Wingate: ekbrown1@asu.edu or 602-496-0362 and Dr. Meg Bruening at meg.bruening@asu.edu. 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. Thank you in advance for your participation and help. Choosing "I consent" indicates your consent to participate in this survey. (Consent is only for filling out the survey, individuals will be contacted separately with an additional consent form if they are eligible for the focus group).

☐ I consent, begin the survey

Q2 What is your date of birth?

Q3 Are you currently enrolled at Arizona State University?

☐ Yes

☐ No

Q4 What is your enrollment status?

☐ Undergraduate

☐ Graduate

☐ Non-degree seeking

☐ Doctoral

Q5 How many credits are you enrolled in for the Spring 2017 semester?

Q6 In the last 12 months, I worried whether our food would run out before I got money to buy more.

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true

Q7 In the last 12 months, the food that I bought just didn't last and I didn't have money to get more.

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true

Q8 In the last 12 months, I couldn't afford to eat balanced meals.

- ☐ Often true
- ☐ Sometimes true
- ☐ Never true

Q9 In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

- ☐ Yes
- ☐ No

Display This Question:

If In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't... = Yes

Q10 How often did this happen?

- ☐ Almost every month
- ☐ Some months but not every month
- ☐ In only 1 or 2 months

Q11 In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

☐ Yes

☐ No

Q12 In the last 12 months, were you ever hungry, but didn't eat, because there wasn't enough money for food?

☐ Yes

☐ No

Q13 In the last 12 months, did you lose weight because there wasn't enough money for food?

☐ Yes

☐ No

Q14 In the last 12 months did you ever not eat for a whole day because there wasn't enough money for food?

☐ Yes

☐ No

Display This Question:

If In the last 12 months did you ever not eat for a whole day because there wasn't enough money for... = Yes

Q15 How often did this happen?

☐ Almost every month

☐ Some months but not every month

☐ Only 1 or 2 months

Q17 If chosen to participate in this study would you prefer to share your experiences in a focus group with other students or in a one-on-one interview?

- ☐ Focus Group
- ☐ One-on-one interview
- ☐ No preference

Q23 Thank you for your participation! Please provide an email address and phone number you can be reached at if you qualify to participate in this research study:

- ☐ Email: _____
 - ☐ Phone: _____
-

APPENDIX C

STUDENT INTERVIEW PARTICIPANT SURVEY

Student Interview Participant Survey

Q1

Welcome to the research study!

I am a master's student under the direction of Professor Dr. Meg Bruening in the College of Health Solutions at Arizona State University. I am conducting a research study to gain a better understanding of the prevalence of food insecurity among college students. I am inviting your participation, which will involve attending focus group sessions to discuss your experiences with limited access to food and why you think students struggle with food access in college. The focus groups of 8-12 students will meet once for 90 minutes to discuss why food insecurity occurs in college populations. You have the right not to answer any question, and to stop participation at any time. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. Attendance of the focus group implies consent and participants must be enrolled undergraduate students ages 18 and older. Possible benefits of your participation are bringing increased awareness and insight to the issue of food access on college campuses. There are no foreseeable risks or discomforts to your participation. Your responses will be confidential. The results of this study may be used in reports, presentations, or publications but your name will not be used. All members of the focus group will be required to uphold the confidentiality of all information discussed during focus groups. If at any time you become uncomfortable with a topic you may choose to withdraw from the conversation. Due to the nature of the focus group complete confidentiality cannot be guaranteed. The focus group sessions will be recorded and transcribed. All identifiable information will be removed from the transcriptions.

If you have any questions concerning the research study, please contact the research team Kat Wingate: ekbrown1@asu.edu or 602-496-0362 and Dr. Meg Bruening at meg.bruening@asu.edu. 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.

Thank you in advance for your participation and help. Consenting below you indicates your consent to participate in this survey. Additional consent will be forms will be provided for focus group discussions.

☐ I consent, begin the survey

Q2 What is your sex?

☐ Male

☐ Female

Q3 What categories best describe you? (select all that apply)

- ☐ Caucasian
- ☐ Black
- ☐ Hispanic
- ☐ American Indian
- ☐ Alaskan Native
- ☐ Asian
- ☐ Native Hawaiian
- ☐ Other Pacific Islander
- ☐ Other

Q4 Which best describes your current enrollment status?

- ☐ freshman
- ☐ sophomore
- ☐ junior
- ☐ senior

Q5 Do you live on campus?

- ☐ Yes
- ☐ No

Skip To: If Do you live on campus? = Yes

Display This Question:

If Do you live on campus? = Yes

Q6 What dorm do you live in?

- ☐ Manzanita hall
- ☐ McClintock hall
- ☐ Palo Verde West
- ☐ San Pablo
- ☐ Hayden hall
- ☐ Best Hall
- ☐ Irish Hall
- ☐ Vista del Sol
- ☐ University towers
- ☐ Adelphi Commons I/II
- ☐ Sonoral Center
- ☐ Hassayampa Academic Village
- ☐ Taylor Place
- ☐ Casa de Oro
- ☐ Las Casas
- ☐ Century Hall
- ☐ North Residence Halls
- ☐ Others

Q7 What is your current living situation?

- ☐ I live with my parents/guardians
- ☐ I privately rent my own apartment/house alone
- ☐ I privately rent a flat/house with roommate
- ☐ Others

Q8 Do you currently have a job?

- ☐ Yes
- ☐ No

Skip To: If Do you currently have a job? = Yes

Display This Question:

If Do you currently have a job? = Yes

Q9 How many hours per week on average do you work?

Q10 Do you have an ASU dining plan?

- ☐ Yes
- ☐ No

Q11 Do you have access to a kitchen or cooking facilities?

- ☐ Yes
- ☐ No

Display This Question:

If Do you have access to a kitchen or cooking facilities? = Yes

Q12 How comfortable do you feel using the cooking facilities to prepare meals?

- ☐ Extremely comfortable
- ☐ Somewhat comfortable
- ☐ Neither comfortable nor uncomfortable
- ☐ Somewhat uncomfortable
- ☐ Extremely uncomfortable

Q13 Do you think a food pantry on campus for students struggling with access to food would be beneficial?

- ☐ Yes
- ☐ No

APPENDIX D
STUDENT INTERVIEW RESPONSES

Student Participant Interview Codes and Examples of Codes

I.	Barriers to accessing food Perceived or actual barriers that students report facing in regards to food access during their college experience.		
A.	Financial Financial barrier that inhibit, deter, or prevent students from being able to have enough food to eat. These barriers include cost of food, financial obligations, financial aid, or any monetary barriers.		
	Expenses Students financial obligations, bills, cost of tuition, school related expenses. These expenses impact food access or decisions related to food.	<p>“when it comes to my income-outcome ratio I’m either breaking even or coming out somewhat short so I have to cut corners elsewhere”</p> <p>“Then when I started getting my own apartment it was a little harder because I have to pay for rent and things like that and parking paying for that everyday kind of drains you a little bit.”</p> <p>“Yeah because there was a couple of times I would have to come home from school late so I hadn’t eaten all day so I would have to decide either buy a bus pass or eat something.”</p>	31 excerpts from 13 interviews
	Cost of Food The cost of food is a barrier to access, healthy food is expensive or unaffordable.	<p>“But, like when I am here and I don’t have my lunch I am really crushed down to like do I want to spend almost \$10 on a salad or do I want, or do I want to pay like maybe \$4 for Chick-fil-A.”</p> <p>“The prices for the frozen meals and stuff like that are exorbitant they are twice what you would pay at Walmart or a grocery store and it’s the only option.”</p> <p>“The cost, the cost of food and I could afford it but that money could of went to something else. You are paying for a meal \$10 why is it \$10 instead of \$5, \$8, or \$6 and its usually again the healthier places that overcharge this type of food and I feel it’s as if they don’t want people who don’t have a lot of money to access that food for some reason.”</p>	37 excerpt from 14 interviews

B.	Transportation		
	<p>Transportation barriers are issues that students have accessing food related to a lack of transportation or difficulty obtaining transportation. Any transportation issues that inhibit, deter, or prevent students from being able to access foods.</p>	<p>“Ya know it’s just hard, ya know it’s really hard because ya know it’s like you know like the distances you have to walk to get stuff that is affordable”</p> <p>“Like the distance you have to walk to get something affordable and it’s like how time consuming it is because I need to focus on homework and stuff and it just really sucks”</p> <p>“That’s I think the biggest problem I have with the accessibility on the polytechnic campus is that the housing villages are almost completely inaccessible unless you have a vehicle.”</p>	26 excerpts from 7 interviews
C.	Time		
	<p>Barriers to accessing food, obtaining food, or preparing meals based on time restrictions, time constraints, time management, dining hall hours of operation, or any other time issues.</p>	<p>“so um specifically here I’ve noticed that I’ve had a problem as far as the time that it takes me to be able to go grocery shopping to the time it takes me to actually cook the food.”</p> <p>“I have to here in phoenix by 9am for class so I have to as it is I have to get up at 6am leave the house by about 6:30am to get to the bus by 7am to get here by 8:30am to be here ahead of time for class at 9am. So I don’t have time to walk all the way over to the cafeteria unless I get up at 5 o’clock in the morning.”</p> <p>“It’s just that I have consistently missed breakfast because of time issues”</p>	22 excerpts from 9 interviews

II.	Student Attitudes and Perceptions Perceptions that students hold that are associated with accessing food or the experience of accessing food during college or as a college student. Student's interpretation of their experience.	Count
A.	Normalization of FI experience	
	<p>Express the normalization of FI experience and the idea that not having access to food is part of the college experience. The idea of the "starving student" is normalized or accepted as part of being at college.</p> <p>"you know the theory is you should take care of yourself that way you are able to be a student but, sometimes being a student means not being able to take care of yourself."</p> <p>"I just think it's just college and you just deal with it"</p> <p>"I guess it's just something you have to deal with in life where you might be hungry for a little bit. It's not permanent but it's awful though because um you figure that you pay 20k to go to school and there's no food and there's no alternative unless you come across an event that has free food which is kind of rare so It's just something that I've learned that you just have to deal with."</p>	8 excerpts from 5 interviews
B.	Express not wanting to ask for help	
	<p>Student's express not wanting to ask for help or express the belief that they need to figure it out themselves or that they should not be asking for help.</p> <p>"I'm already a burden enough with like going to school and having my dad help me pay for school and I don't want to just keep adding to that so I just don't go to anyone I just fend for myself until I get the money"</p> <p>"If I didn't have enough money for food who would I go to, I wouldn't go to anybody. I would either use loan money or charge it on my card."</p> <p>"So I think that when it comes to like college students are like I can do it on my own and just try to tough it out"</p>	14 excerpts from 9 interviews

C.	Associate embarrassment or shame with using resources for food or asking for help		
	<p>Express a negative connotation or a feeling of less than for needing to ask for help. Students express a feeling of shame, burden, or embarrassment with needing to use resources for food or needing to ask for help.</p>	<p>"I think some people are just conscientious about going to food banks period. I know I was"</p> <p>"students feel ashamed by it cause it's like I notice a lot of my friend group at least They're all like they have no problem with the affordability and expenses and all that stuff so it's like just awkward I guess in a way to be like oh do you need to go grocery shop and be like oh no I'm just going to gonna hit up the Pitchfork Pantry"</p> <p>"Um I would feel some, it would feel weird I don't know, my first time I would think it would be weird because it's like a new setting and I would kind of feel bad that I had to go there to get free food"</p>	15 excerpts from 7 interviews
D.	Desired Foods not available		
	<p>Student's belief or perception that the foods they desire are not available. May be true or not true coded by the student's belief that the foods they desire are not available or accessible.</p>	<p>"Like all of it is pre-prepared stuff there's no options for somebody that has the cooking skills to purchase like you know there's no way of purchasing any sort of vegetables....there's no fresh meats or anything like that you can purchase so with what is there you can't make a meal."</p> <p>"I would defiantly like more access to, you know raw ingredients like vegetables and what not."</p> <p>"I don't have a problem with affording it, it's that it isn't healthy and when it is healthy it gets more expensive. And then I start to struggle to find food that I am going to enjoy and be good for me."</p>	27 excerpts from 11 interviews

III.	Life Experiences		Count
	How students upbringing, home life, and separation from family has impacted their experience with food.		
A.	Separation from family		
	<p>Issues that students express, challenges or changes that occurred when leaving home for college. Students express becoming independent and being away from their families has impacted their access to food or experience with food.</p>	<p>“So I mean there’s been a lot of adjustments that I have had to make on the type of food that I am eating now as far as like in the past and also my mother, I lived with my parents so my mother usually cooked but so now I have to be the one that’s responsible for cooking and what not, so just find the um, just finding culturally my food that I’m so used to eating so I’ve had to change that a lot while being, um, being here in Phoenix.”</p> <p>“Because when you live at home you have food at home that’s usually offered and is always there. So it was kind of hard at first, but you kind of just learn through, just like trial and error, you have to spend.”</p> <p>“At least when I lived at home I never had to think about it because like you go to the grocery store with your parents and you never actually think about how much food they are actually paying for you kind of just put food in the basket and their normally like ok cool maybe yes you can have this.”</p>	<p>14 excerpts from 8 interviews</p>
B.	Previous experience with FI		
	<p>Students indicate that they had previously experienced FI, accessing resources for food, receiving government aid, or expressed living in poverty or experiencing poverty growing up. Students express viewing previous FI experiences as providing skills for dealing with it now.</p>	<p>“I think that when you live in poverty, when you see it, you kind of get an understanding of what that means and you’re a little bit more creative and less picky on what you want to eat.”</p> <p>“I my mom has food stamps in a little way so that was always nice cuz we would just get to go to the store and didn’t have to worry about but like paying for the food cuz we would just be able to get whatever we wanted with the food stamps”</p> <p>“Probably a food bank because my dad lost his job recently and that’s what we’ve been doing”</p>	<p>14 excerpts from 4 interviews</p>

IV.	Wellbeing Students express the experience of FI or not being able to access food having an impact on their mental, emotional, or physical health and well-being.	Count
A.	Emotional Wellbeing	
	<p>Students express that not having access to food or experiencing some level of FI impacting their emotional well-being. Their ability to cope with stressors and/or their mood were affected.</p> <p>“it sometimes creates anxiety but not like full on where I can’t function. It’s just there on my mind it just never goes away.”</p> <p>“So I don’t know, its stressful especially like like when I’m going to class and then to work and I’m like, like seriously about to die because I’m so hungry, then that’s when I get really stressed out. Cause I don’t have enough, I don’t have enough energy to move between a different phase of my day and focus so“</p> <p>“I deal with a lot of anxiety it’s very hard. And I’m dealing with it in therapy ya know and I’m trying to make my life better but it’s like really hard because I’m alone”</p>	27 excerpt from 14 interviews
B.	Academic Wellbeing	
	<p>Student belief that experiencing some level of FI impacts their academic success and abilities, cognition, ability to concentrate, or ability to achieve the grades they believe they could if they had access to food.</p> <p>“I need to be able to eat so that I can get good grades so that I can graduate”</p> <p>“I think it’s stressful when you are not eating enough because you know if you do not eat enough you can’t focus on school and you can’t like work to the best of your abilities.”</p> <p>“there have been times when I am in class and I get distracted because my stomach is rumbling”</p> <p>“when you are hungry it’s really hard to focus on anything else, um, and If you get to the point when you haven’t eaten enough, like over a long period of time your ability to function as a student and homework or think about I don’t know math, or read a required book, you just don’t have any energy to like focus or pay attention in class or have discussions, um which is like kind of what a student is.”</p>	24 excerpts from 14 interviews

C.	Physical Health		
	<p>Negative impact on physical health Students express not having access to food impacting their physical health or make claims about behaviors or experiences that would negatively affect their health.</p>	<p>“The time as I started biking more I got more strength and I was able to cut the time but when I wasn’t eating I was always hungry and when I was hungry I was also tired so I’m surprised I didn’t even faint on my way over”</p> <p>“but sometimes I won’t have leftovers so I won’t actually eat anything and I won’t want to spend money here so sometimes I’ll go maybe a whole day without eating”</p> <p>“I’m also worried about my health you know”</p>	<p>14 excerpts from 11 interviews</p>
	<p>Choosing unhealthy foods Express having to make sacrifices that are unhealthy or choose unhealthy options.</p>	<p>“events on campus that provide free food so taking advantage of those is huge, is it the most nutritional food at those events, not necessarily but its food so it’s better than nothing.”</p> <p>“until I get some money coming in it’s like I gotta like live off the dollar menu or like buy like really cheap food and stuff and it’s like I’m on a diet of like soda and like ramen noodles”</p> <p>“so this semester I’ve been more likely to go and buy food, like my own food in my room but that’s expensive after a while so I’ve been not as likely to make healthy decisions”</p>	<p>12 excerpts from 11 interviews</p>

V.	Self-efficacy Student's express that they lack the belief in their ability to feed themselves or being able to obtain food or prepare meals.	Count
A.	Students do not believe that they have the skills to prepare meals.	
	<p>Students express no prior experience preparing meals and have not learned to the skills to create meals.</p> <p>"I'm just starting to learn and I'm not all that familiar with all the utensils that I need to use sometimes or what kind of knife to use or how long to cook things. So most of the time my food is either going to be too bland, too salty, too something"</p> <p>"as far as that goes for me, admitted I'm not really much of a chef. I couldn't cook my way out of a wet paper bag unless it's one of a few limited things."</p> <p>"I don't feel comfortable cooking and cross contaminating anything so I have had to resort to eating out more."</p>	15 excerpts from 9 interviews
B.	Students express they do not know how to find resources that help provide food and/or do not know how utilize any available resources.	
	<p>Students express that they are not aware of available resources or how to find and utilize resources for preventing FI or providing food for students.</p> <p>"if there's like any markets there is probably only like one. I've never been there so I don't know about it."</p> <p>"no I am not aware of anything on campus. I think I did see something about a food pantry in this area for students but I'm not familiar with where it might be or what the situation is with that and as far as I'm aware there's nothing on the campus I'm on."</p> <p>"I can't even tell you a place on campus where I would think of being able to go and just ask for help just receive any kind of like beneficial thing let alone off campus"</p> <p>"I don't I don't know, I never asked and I don't get like emails that are tailored towards that so I don't know, I want to say no."</p>	25 excerpts from 13 interviews

VI.	Pressures Pressures students feel regarding decisions to accessing food.	Count
A.	Coping Practices	
	<p>Students discuss selling items or ways to get money in order to get food. Students feel pressured to sell belongings or find alternative means of accessing money or food.</p> <p>“go out for walk every night and get aluminum cans and plastic bottles and recycle those and you get a little money but not much. I used to sell my plasma but I can't do that anymore because of like of the medication I was taking.”</p> <p>“I was thinking of selling stuff off”</p> <p>“You know, I don't know, there's always ways to make money that seem sketchy, but are ok like donating blood or plasma. Which is not great if you are super hungry, but if you need to make money, that's always an option.”</p> <p>“I use food as a bargaining tool, I'll be like I'll help you but you need to buy me food. That's kind of what I do... because a majority of people aren't willing to give out completely free things without some form of strings attached to it.”</p>	5 excerpts from 3 interviews
B.	Social Pressure	
	<p>Students feel pressure to keep up a certain lifestyle or appearance, make financial decisions based on others, change food intake or purchases based on peers.</p> <p>“I feel less pressured when I'm in Yuma or in Mexico to want to try to eat the way other people do just because everybody eats that way”</p> <p>“Like I feel like here being in this campus they take the concept of healthy and healthy food out of proportion so then you feel like ok now you have to think more about what you can eat because other people are watching.”</p> <p>“Some weeks I just don't go grocery shopping because it's like I need to save this \$50 this week because I'm probably gonna have my mom or my sister coming next week and they're gonna want to go out and do stuff”</p>	11 excerpts from 4 interviews

	Support Things that students identified as providing support for them to access food or dealing with the experience of FI.		Count
A.	Friends		
	Students indicated that their friends provide support for them in regards to accessing food or having enough to eat.	<p>"I would say that it was very, very like helpful because I mean you have friends, they look out for you so you if you need food you can ask them, so it's like a safety barrier I guess too at the same time. Because no one wants their friend to starve"</p> <p>"Um probably friends, I've done that a couple of times. I didn't have money for dinner and we always kind of switch off, ok ill spot you this time and next time if she doesn't have food I will help her. Its kind off a friend thing."</p> <p>"A majority of the time honestly I went to my friends and I kind of just stayed with them because that was like the only means to find that I had at all"</p> <p>"So if I was struggling and they kind of knew it they could help me out a little bit which was nice. I mean if I didn't have anyone I probably would have starved."</p>	28 excerpts from 13 interviews
B.	Family		
	Students indicate that their family or certain family members are a support system for them and help them access food or deal with the struggles of not being able to access food.	<p>"I would go to my aunt and uncle...they said if I don't have anything they would come and bring me something. So I can always go to them."</p> <p>"But like if I'm running out of money I know I will get to a point where I can't buy food, I'd probably talk to my parents because I'm still pretty reliant on them."</p> <p>"Just having a family to help support me and friends. So if I was struggling and they kind of knew it they could help me out a little bit which was nice. I mean if I didn't have anyone I probably would have starved"</p>	24 excerpts form 13 interviews

C.	ASU		
	Resources provided by ASU. This includes support from staff, faculty, the university, or any ASU affiliated programs.	<p>"I know that even if you go to like USG or you go to your advisor. They will be like you haven't eaten yet? Here take this."</p> <p>"sometimes I get really buddy buddy like with the dining hall ladies, the ones that swipe your card in or the one at the market place. They would say here just take an extra one, I'd definitely do that too. So that was really nice of them."</p> <p>"I feel if you like talked to any ASU representatives on campus kinda give you the ins and outs and I know that they have like a book of student discounts that I have used a couple of times that definitely helps with restaurants and stuff like that."</p>	12 excerpts from 5 interviews

VIII.	Potential Solutions		
	Solutions that students offered for reducing food insecurity among college students.		
	Support that students believe would be helpful in reducing FI for college students. Resources that students identified that could be helpful in decreasing students experience of FI.	<p>"I think having meal plans that like you can apply for, for your reduced or kinda like in elementary, middle and high school where you can get free or reduced lunch. Where it's like a basic food plan where it doesn't include like m and g, like anything extra where you can still eat in the dining halls, um, I think that would be very important to have an option for."</p> <p>"I think having like the option if you are getting an on campus job to also potentially get a meal plan instead of having , you know paid money"</p> <p>"I think one of the things would be to honestly provide class because for somebody like me I've never lived on my own I've never had to do my own cooking and so I don't have any idea what I'm doing so I can make like I can boil pasta I can like you know brown ground beef that's about the extent of my cooking ability so having, knowing how to cook could encourage students to look at that as an option as opposed to just going down to the cafeteria and picking up whatever"</p>	38 excerpts from 13 interviews

APPENDIX E
UNIVERSITY STAFF SURVEY

University Staff Survey

Q1

Welcome to the research study!

You are invited to complete the following survey. Your participation will require approximately 15-25 minutes and is completed online at your computer. You have the right not to answer any question, and to stop participation at any time. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. Your responses will be confidential and all identifying information will be removed.

Any questions regarding this study can be directed to any member of the research team: Kat Brown at ekbrown1@asu.edu or Dr. Meg Bruening at meg.bruening@asu.edu. Any questions regarding your rights as a participant can be answered by contacting the IRB Administrator at ASU:

Chair of the Human Subjects Institutional Review Board ASU Office of Research Integrity and Assurance CenterPoint, 660 S. Mill Avenue Suite 315, Mail Code 6111 Te: 480-965-6788 Email: research.integrity@asu.edu. Thank you in advance for your participation and help. Choosing "I consent" indicates your consent to participate in this survey

☐ I consent, begin the survey

Q2 What is your age?

☐ 18-21

☐ 21-34

☐ 35-44

☐ 45-54

☐ 55-64

☐ 65+

Q3 What is your sex?

☐ Male

☐ Female

Q4 What categories best describe you? (select all that apply)

- ☐ Caucasian
- ☐ Black
- ☐ Hispanic
- ☐ American Indian
- ☐ Alaskan Native
- ☐ Asian
- ☐ Native Hawaiian
- ☐ Other Pacific Islander
- ☐ Other

Q5 What is the highest level of school you have completed or the highest degree you have received?

- ☐ Less than high school degree
- ☐ High school graduate (high school diploma or equivalent including GED)
- ☐ Some college but no degree
- ☐ Associate degree in college (2-year)
- ☐ Bachelor's degree in college (4-year)
- ☐ Master's degree
- ☐ Doctoral degree
- ☐ Professional degree (JD, MD)

Q6 How long have you worked at ASU?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6+ years

Q7 Are you currently enrolled as a student at ASU?

☐ Yes

☐ No

Display This Question:

If Are you currently enrolled as a student at ASU? = Yes

Q8 How many credit hours are you currently enrolled in?

Q9 What department/college do you work for?

Q10 What is your current job title?

Q11 In your current job position how often do you interact with students?

☐ Daily

☐ 4-6 times a week

☐ 2-3 times a week

☐ Once a week

☐ Never

Q12 During a 40 hour work week, how many hours on average do you spend working with students?

Q13 Which best classifies the students you work with most often (Select all that apply)

☐ freshmen

☐ sophomores

☐ juniors

☐ seniors

☐ graduate

☐ doctorate

Q14 Identify the top three problems you think students face.

- ☐ financial support
- ☐ discrimination
- ☐ homelessness/housing
- ☐ family issues
- ☐ hunger
- ☐ food access
- ☐ violence
- ☐ sexual assault
- ☐ employment/job
- ☐ access to health care
- ☐ academics/grades
- ☐ Other

Q15 Have you received any training related to student hunger and/or food access?

- ☐ Yes
- ☐ No

Display This Question:

If Have you received any training related to student hunger and/or food access? = Yes

Q16 How satisfied or dissatisfied are you with the training you've received?

- ☐ Extremely satisfied
- ☐ Moderately satisfied
- ☐ Slightly satisfied
- ☐ Slightly dissatisfied
- ☐ Moderately dissatisfied
- ☐ Extremely dissatisfied

Q17 If a student came to you because they were hungry who would you seek support from?

- ☐ Supervisor
- ☐ Coworker
- ☐ Other students
- ☐ Health center
- ☐ Dean(s)
- ☐ President Crow
- ☐ Food Bank
- ☐ Other

Q18 How easy or difficult is it to obtain the resources that you need from the university to help students?

- ☐ Extremely easy
- ☐ Moderately easy
- ☐ Slightly easy
- ☐ Slightly difficult
- ☐ Moderately difficult
- ☐ Extremely difficult

Q19 On average, in a month how often do you provide food to students in need?

- ☐ 0
- ☐ 1-3
- ☐ 4-6
- ☐ 7-9
- ☐ 10+

Q20 What percentage of students at ASU struggle with not having enough to eat?

- ☐ less than 10%
- ☐ 10-20%
- ☐ 21-30%
- ☐ 31-40%
- ☐ 41-50%
- ☐ 51% or more

Q21 Please choose the best answer for each of the following statements.

	Strongly agree	Agree	Disagree	Strongly disagree
You feel it is your job to help students experiencing limited access to food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It wouldn't be fair to help one student and not others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You feel responsible for helping students experiencing limited access to food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students who don't have enough to eat are irresponsible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are resources available to help students experiencing hunger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students with meal plans don't struggle with access to food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q22 Briefly discuss any experiences you have had regarding students experiencing hunger.

Q23 Based on the experiences addressed in the previous question, what kinds of resources would help students who are experiencing hunger?

APPENDIX F
STAFF CODED RESPONSES

Staff Responses to opened-questions: Causes, Conditions, and Solutions.

I.	Staff Responses to opened-questions		
	<p>Causes Responses from staff regarding their experiences with students and causes of student food insecurity. Something that makes students FI.</p>		
	<p><i>Finances</i></p> <p>Staff response indicates that student's financial situation causes them to be FI. Student's financial situation includes but is not limited to: the cost of tuition and related expenses, lack of financial aid or support, or not enough money for food.</p>	<p>Single mom, full-time student who often experiences gaps in SNAP program, the re-approval process seems to leave a gap.</p> <p>I have had limited experience with this issue, but have been told of students who receive a minimal financial aid refund that they have to make last until the next semester. They were constantly thinking about how they were going to afford anything; after bills, there wasn't much left for food. Even when I was a student, I had many friends who would use their meal plans to help those who couldn't afford to eat lunch/dinner.</p> <p>Most of the students I've interacted with are hungry simply because they don't have enough money to get groceries or grab something to eat.</p> <p>The food lines are long at the beginning of the semester, and students skip meals or buy food they can't afford to be able to eat, then have no money later. Hunger is hidden later on, and students don't know who or when to ask for help.</p> <p>I've had students who were struggling financially and could not afford to eat.</p> <p>Students that come into my office to talk with mention that they don't have food or are hungry because they don't get paid in time.</p>	17

	<p><i>Access to Food</i></p> <p>Staff response indicates that student's do not have access to food. Access refers to but is not limited to physically being able to access food and/or having access to healthy foods.</p>	<p>Having worked at a smaller campus where there are less options and also where we have more families it seems like I saw more of this but that's not say we don't see it at Tempe as well but I think it is less known.</p> <p>Most of the students I've interacted with are hungry simply because they don't have enough money to get groceries or grab something to eat. They consistently complain about the dining hall hours because some of them close too early for them to grab something to eat. Students who work are left to find ways to eat when the dining hall is closed, which can be hard if they don't have enough money to get food.</p> <p>Access to healthy food and time to cook has also been something my students struggle with.</p> <p>Working on the Poly Campus I have found there are very limited food resources. The food locations that are open have limited hours. During the summer semester it is even more limited.</p>	6
	<p><i>Time to obtain or prepare food</i></p> <p>Staff response indicates that student's time constraints or lack of time causes them to be FI. Time constraints refer to student's time that they have available to obtain food and/or prepare food.</p>	<p>Not all undergrad degrees are created equal, I used to work in Engineering and I can honestly that the students in actual engineering programs are overworked. So this kid was having to deal with this insane engineering schedule and on top of it, would MAYBE eat one meal a day if he was lucky. There were times when he went without food for days at a time. He wouldn't accept help though. At that time I wasn't aware that ASU had a food bank; fairly sure he didn't either. When he went home for the winter break, he decided not to return to ASU. His is not the first story I've heard like this.</p> <p>The food lines are long at the beginning of the semester, and students skip meals or buy food they can't afford to be able to eat, then have no money later. Hunger is hidden later on, and students don't know who or when to ask for help.</p>	4

II.	Conditions (Circumstance) Responses from staff regarding their experiences with students and food insecurity where staff identify or indicate <i>conditions</i> under which students experience food insecurity. The condition is the circumstance affecting the way in which student's access food. Under these conditions students experience FI or these conditions result in students being food insecure.	
	<p><i>Families</i></p> <p>Staff identify that students that are supporting families also reported experiencing FI.</p> <p>Single mom, full-time student who often experiences gaps in SNAP program, the re-approval process seems to leave a gap.</p> <p>Having worked at a smaller campus where there are less options and also where we have more families it seems like I saw more of this but that's not say we don't see it at Tempe as well but I think it is less known.</p> <p>When I worked at the Polytechnic campus, I feel like students experiencing hunger is more visible, especially because we had families living on campus. We also had a food bank on campus and staff were made more aware about students experiencing hunger than what we may know at other campuses, especially at Tempe.</p>	3
	<p><i>Commuter Students</i></p> <p>This refers to students living off-campus and indicates that students with housing but not located on campus experienced FI.</p> <p>Students are not always taught how to budget out their meal plans and end up not having enough to get through the semester. Also, students who live off campus often have difficulty.</p> <p>At ASU, I have encountered students who thought they couldn't use their meal plan because they had an overdue balance on their student account. I've also encountered off-campus students who could not afford to eat on campus or during the day.</p> <p>Upperclassman students and commuter student often experience this challenge. I have a meal card that I keep in my mail box for students to check out</p>	3

	<p><i>Unstable Housing</i></p> <p>Staff indicated that students with unstable housing and/or experiencing homelessness also reported being FI or experiencing hunger.</p>	<p>I have occasionally had students who have been homeless or otherwise experiencing poverty. Often they are responsible to support family members and take out student loans and then send those disbursements to family -- because of those obligations, they are short themselves on resources.</p> <p>I have a student who I am currently working with who lives in Vista on the Tempe campus and has a meal plan. The student has struggles with homelessness in the past and only has access to food through his meal plan. On the weekends and during breaks when the dining hall is closed or hours are limited, he struggles with having food to eat.</p> <p>I had one student who had both housing and food issues because they were homeless they were unable to buy and store food to meet their needs.</p>	5
	<p><i>Non-resident students</i></p> <p>Staff indicated that non-resident students (out-of-state or international students) indicated they had experienced FI or hunger.</p>	<p>He was an out of state student, his parents were paying something like 60K a year for him to attend ASU, so he was trying to take care of food on his own. ... So this kid was having to deal with this insane engineering schedule and on top of it, would MAYBE eat one meal a day if he was lucky. There were times when he went without food for days at a time. He wouldn't accept help though. At that time I wasn't aware that ASU had a food bank; fairly sure he didn't either. When he went home for the winter break, he decided not to return to ASU.</p> <p>I have not personally had a student tell me they did not have enough food, but my graduate advisor co-workers have said that their graduate students, especially international students who are paying very expensive tuition rates, report not having enough food, or they will take large amounts of snacks we leave out for students during finals week. I am not knowledgeable about ASU's policies for helping hungry students, but I know of local food banks and would direct students to access them if it came up.</p>	2

III.	Solutions Staff recommend solutions that may be implemented to help reduce or prevent student food insecurity.		Count
	Dining services and meal plans		
	Staff members site changes to on-campus dining service or university meals plans as a solution to student food insecurity.	<p>I also think that especially on the Poly Campus we should make sure that even over breaks at least one dining facility stays open.</p> <p>More grab & go options from campus dining, such as a reusable box that can be taken from the dining hall.</p> <p>Ideally the dining halls should be open a bit later, but this may never happen.</p> <p>Better access to nutritious choices, since most students don't have cars on campus and it's more difficult to get to a grocery store to purchase fruits and vegetables.</p>	13
	Free and Reduced		
	Staff member's reports that providing a free and reduced model similar to school lunch programs or other government assistance programs as a solution for student food insecurity.	<p>I think it would be good to have a way for students to access meals/food without having to "prove" their need, have a "special" card, or similar. Would a few take advantage who shouldn't? Perhaps. But as someone who has had to go through the humiliation of food stamps, my children potentially lining up first because they were on free lunches, and similar, I firmly believe that those who are hungry in the way this survey means it should not have to be embarrassed and there must be ways to do this.</p> <p>I'm not sure how feasible it would be, especially at such a large university, but I would love to see students having access to one free meal a day, especially those who do not have meal plans. This could be a simple paper bag lunch (i.e. sandwich and chips). Not every student will utilize this option (there are much more attractive options for \$\$), but those who need it would be aware it is available.</p>	9

	Training	
	<p>Staff members state that training regarding how to handle food access issues or how to help students experiencing food insecurity would be helpful.</p> <p>Education at the beginning of the year of how to prioritize their living experience and life as a student.</p> <p>I have received no training on how to help students who are hungry and need help.</p> <p>Resource training (understanding what food resources are available on/off campus), Nutritional training</p> <p>I wish there were known resources or I would like to see more of a training for faculty and staff to look out for signs or to know how to provide students with the resources that are locally available.</p>	4
	Resources made more available or known	
	<p>Staff members state that having more access to available resources or knowing about available resources would be helpful for students experiencing food insecurity.</p> <p>Resources that are available to students should be posted where students can see them. It would also be beneficial to provide flyers for Advising offices and other student service centers on campus.</p> <p>I wish there were known resources or I would like to see more of a training for faculty and staff to look out for signs or to know how to provide students with the resources that are locally available.</p> <p>If there is a specific webpage on ASU with food resources, I am unaware of it, but if it exists and am made aware of it, I would be happy to add it to the links I share with students when presenting the services they can turn to for support.</p> <p>I would love to know of a resource guide for faculty, staff. Signs we may look for, questions we can ask. Ways we can support students having this need.</p> <p>It would be helpful for all staff to know where to direct students who may be having food insecurity issues.</p>	26

	Emergency Food		
	<p>Staff members state that a campus food bank would be a valuable resource for assisting students experiencing food insecurity.</p>	<p>The food bank at Sonora is great start! How can we place centers like these at different parts of campus. Bring other organizations such as POWWOW to campus for students to purchase cheap produce.</p> <p>A food bank on campus would be extremely helpful in providing food for students who do not have the financial resources to purchase food especially over breaks when there are limited options on campus.</p> <p>I contributed on a regular basis to the Tempe campus food pantry until it was shut down - students need this resource</p> <p>Information to food banks, anonymous on campus food drives, resource fairs, pamphlets in lobbies for students, training to staff that interact with students on the signs that at student may be struggling with food stability, etcetera.</p> <p>This is the first year I have heard of the food bank. There needs to be more publicity to faculty/staff to know where to refer students.</p> <p>Food bank and I would try to contact the student advocate here in Tempe for assistance.</p> <p>Food programs! I saw a news report not long after my experience with this student about an ASU Food bank. I had never heard of an ASU food bank before and I've worked on campus on and off for 12 years. It needs to be part of the new student welcome, and students need to be made aware of it over and over again throughout their time here.</p> <p>Food pantry on each campus. Information available on the website about community resources like food pantries and also nutrition tips.</p>	33