

Hidden Hunger: Understanding the complexity of food insecurity among college students

By

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ABSTRACT

Food insecurity among college students has become more widely recognized within recent years. This contributes to the need for additional research to understand the complexity of the student experience with food needs. The current study aimed to fill an even greater gap specifically utilizing qualitative research. The goal of this study is to understand the context of eating patterns, food assistance resources, and health and wellbeing for students classified with very low food security. By making use of survey research conducted in the spring of 2018, participants that met inclusion criteria for identifying as food insecure were recruited for the current study to reach data saturation with a final sample size of 30 participants. Investigator designed, study specific, measurement tools were created in the form of a supplemental survey and moderators guide. Seven focus groups and 11 individual interviews were conducted using two cofacilitators. SPSS software was used to provide output frequency data of supplemental survey results. These results show 77% (n= 23) of students reported getting enough calories to keep them satisfied but not getting the variety of food they should to eat a well-balanced diet, and 23% (n=7) reported not getting enough calories to keep them satisfied, and not getting the variety of food they should to eat a well-balanced diet. Seven percent (n=2) were currently enrolled in assistance (SNAP) and 30% (n=9) reported family enrollment growing up (WIC and SNAP). Manual open coding was used to analyze focus group and interview transcriptions and generate seven major themes. These major themes are: Eating and Shopping Habits, Food Experience Growing up, Health and Wellbeing, Food Assistance Use and Barriers, Adaptations and Coping Strategies, Campus Environment, and Future Program Interventions. Additional subthemes and categorical focus areas were established to further code participant responses and match them with corresponding participant quotes. Data collected was then used to inform future

campus recommendations. Key recommendations include; targeted programs and outreach addressing high risk populations on campus, expansion of life skills training programs related to nutrition, money, and time management, Addressing technical barriers and social stigmas associated with food assistance program use, creating a centralized coordinating office dedicated to food assistance work to streamline resources, and conducting further research focusing on the graduate student experience with food insecurity. The study findings and the current recommendations provide context to the student experience that is otherwise not captured in the research with a quantitative design. Data provided through this qualitative research not only fills gaps in the literature but can also be used to further understand the complexity of students experiencing food insecurity on campus. This understanding can be used to inform future programs relating to food assistance on campus; ultimately contributing to student success.

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PERSONAL STATEMENT

I have spent nearly seven years working in various facets of the nutrition and fitness industry. The topic of Food insecurity (FI) has always been something of particular interest to me, and I have built a lot of my professional experience in this realm. I began my career working with FI as the constituent relationships intern at Harvesters- Community Food Network in 2011. In this role I was introduced to the role community food pantries play within the larger network of food assistance programs in the United States. I learned about the gaps in federal food and nutrition assistance programs, the number of people being served by safety net programs such as food pantries and kitchens, and the demographics of those using these services as the working poor population was on the rise.

Harvesters is a food bank supported by Feeding America, which opens the doors to provide programs that stretched beyond supplying food. I was promoted to working in the position as the Nutrition Services Coordinator, which is one of the key programs Harvesters offers for nutrition among clients. This gave me exposure to supplementary resources clients accessing food assistance programs might need to increase self-sufficiency.

Food pantries at the beginning were around to simply address the gap by supplying food, any food. As they progress the need for additional services such as nutrition and cooking classes, and stocking the shelves with nutritionally dense options are being taken into consideration. This intersection of health and food assistance is where my passion really lies.

I hold a B.S.E. in Community Health which is where my desire for health prevention and promotion is rooted. The knowledge and literature of the impacts food and nutrition have on

chronic disease is overwhelming. We also know that health disparities are rampant among low SES groups, which are the same groups impacted by FI.

In 2013 I moved into a position as a Health Educator at Watkins Health Center at the University of Kansas (KU). I made it a personal goal to continue to fight for food justice on the KU campus in my new role and joined the campus organization KU Fights Hunger (KUFH). On campus we promoted awareness, research, and service of fighting FI at the University. Things such as hunger awareness month and staff Supplemental Nutrition Assistance Program (SNAP) trainings were implemented to complement the work of the campus food pantry.

In my role as president of KUFH we progressed our organizational structure from a campus organization to a standing committee appointed by Student Affairs. Charges established to address campus resources, policies, procedures, and research were outcomes of the work of this committee which further supported the work of this thesis project.

After working with FI on campus for nearly five years it has become apparent that both in the literature, and in the programs and resources, the college student demographic is left out of the equation. One of my key job responsibilities at Watkins Health Center was to provide nutritional consultations to students. This highlighted for me the student experience with food. Students were lacking knowledge, skills, and financial resources to acquire and prepare nutritionally dense foods.

Not only were students disclosing to me they didn't have the means to acquire nutritionally adequate foods, they were also cutting meal size or skipping meals all together. In my opinion it is far too often that this problem is overlooked and considered to be a part of the "college experience." In the academic environment the mind needs to be particularly active to

concentrate on the rigorous schedules and assignments. How can universities ask this of students when structurally we are setting them up for failure? What food resources need to be available to make students as successful as possible on our campus? How can we make foundational changes so the “college experience” reflects the diets needed to promote development and growth within an academic setting? These are all key areas I am hoping this thesis project will address.

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CHAPTER 1

INTRODUCTION

Food is used by the body to create energy that in turn fuels activities of daily living. Without fuel in the form of calories, daily life, or life at all, doesn't exist. Abraham Maslow's life work was built on the foundation that physiological needs are basic human needs that must be met before progressing to psychological or self-fulfillment needs. Maslow's Hierarchy of Needs (Maslow, 1987) made significant contribution to the psychology field by depicting levels humans must move through to achieve life satisfaction. The lowest level of the pyramid, and the most essential of all levels, is physiological needs. "The Physiological Needs such as breathing, food, drink, sleep, sex, excretion are largely (and obviously) biological and physical requirements. When they are not fulfilled, people become preoccupied with filling those needs above all else. For example, starving people in a war zone can be oblivious to danger when in search of food" (Maslow, 1987, pp. 15-17). Though the average American lacking food today isn't likely having that experience in a war zone, the concept of survival is there. Survival through meeting those physiological needs takes precedence over all other psychological and self-fulfillment needs. This paints an alarming picture regarding negative impacts to individual growth and development, mental and physical health, and the ability to live a thriving existence when access to adequate and healthy food is scarce.

The United States Department of Agriculture (USDA) 2015-2020 Dietary Guidelines for Americans recommend adults follow a healthy eating pattern consisting of a variety of foods within an appropriate calorie range. Key recommendations for a healthy eating pattern include a diet rich in nutrient-dense foods, including:

- Fruits and vegetables (should include a variety)

- Whole grains (at least 50% of grains consumed)
- Fat-free or low-fat dairy
- Lean protein (including seafood, beans, and nuts),
- healthy oils (unsaturated fats such as olive or seed oils).
- Limitations are recommended for foods containing saturated and trans fats, added sugars, and sodium (USDA, 2015b).

According to the National Health and Examination survey, three-fourths of the U.S. population are consuming diets low in fruits, vegetables, dairy, and oils. Over half are exceeding limits in total grains and total proteins, yet not meeting nutrient recommendations for the subgroups within these food categories (at least 50% whole grain, seafood, beans, nuts). Lastly, most Americans are exceeding recommendations for added sugars, saturated fats, and sodium (USDA, 2015a).

These recommendations can be difficult to maintain for the average American, and even more so for those without the education, accessibility, and financial means to comply. American adults with low food security are at a larger disadvantage to meet these eating guidelines, ultimately putting them at higher risk for diet-related disease and malnutrition. The Academy of Nutrition and Dietetics (AND) issued a position paper focusing on food insecurity in the United States. Overall, those living in food insecure households often have disrupted eating patterns and diets that are inadequate in nutrient-dense foods, contributing to malnourishment and an increased risk for poor health and chronic disease (Holben & Marshall, 2017)

According to the USDA (2018) “Food insecurity (FI) is the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire

acceptable foods in socially acceptable ways” (USDA, 2018 “...and Food Insecurity”, para. 1) Food security ranges in severity from high food security (no indicators of food access issues), to very low food security (multiple indicators of food access issues (USDA, 2018b). The Feeding America 2018 Poverty and Hunger Facts sheet reports 12% of households are estimated to be food insecure. As of 2016, this accounts for 41.2 billion Americans, including 28.3 million adults. This publication also indicates that households with children, single mothers, single men, black non-Hispanics, and Hispanic households have higher rates of FI (FeedingAmerica, 2018). The 2014 Feeding America executive summary reports for the first time that 31% of food insecure households had to choose between food and education (FeedingAmerica, 2014). While data suggests that American adults face difficult decisions between putting food on the table and other basic needs, there is a paucity of data on food insecurity among college students.

Low budget, sleep deprivation, and poor diets characterize the college lifestyle. Often, it’s assumed that if students have the means to attend an institution of higher education then basic needs, such as food, are being met. The dynamic across U.S. college campuses has changed leading to an increased number of low socioeconomic status (SES) and first-generation college students. According to Forbes, high-income students are leading with 83% of recent high school graduates enrolling in college. However, low-income students have now surpassed the middle-income students by three percent in overall college enrollment rates (Cooper, 2018). Students with these SES identifiers may be in a compromised position to access the amount and/or variety of food they need in their diets.

According to recent research conducted on college campuses across the United States, food insecurity rates among college students range from 14 to 59 percent (Chaparro, Zaghloul, Holck, & Dobbs, 2009; Freudenberg et al., 2011; Gaines, Robb, Knol, & Sickler, 2014;

Goldrick-Rab, Broton, & Eisenberg, 2015; Patton-López, López-Cevallos, Cancel-Tirado, & Vazquez, 2014). The lack of FI data is largely responsible for this wide range in rates, further emphasizing the necessity for more research among college students. Additional research is necessary to understand which students are at the greatest risk of suffering from FI. For example, existing research indicates that race, Pell grant eligibility, parental education, place of residence, and grade point average (GPA) are s correlates with FI (El Zein et al., 2017). With the ability to better identify students at higher risk of experiencing FI, comes a greater ability to address this issue on college campuses. More research is required in order to gain a greater understanding of who these students are and their experience.

This research study utilizes qualitative methods supplemented by quantitative frequency data to understand the complexities of food insecurity among college students at the University of Kansas (KU). Eating patterns, access to food and food resources, programmatic recommendations, and impacts on health will be further explored using qualitative methodology. Focus group discussions/ individual interviews will assess student perceptions of their food insecure-status and provide critical information relating to student access to healthy foods. This study seeks to gain a valuable perspective on campus resources and limitations of accessing those resources through the lens of students currently in need. Feedback can be used by university administration for programmatic and policy changes to increase student success. The overarching research question of the current study is to understand how KU students are being impacted by FI and what resources are required to address that food need.

Given the paucity in research of FI among college students and the associated consequences, more work needs to be done to understand both prevalence and complexity surrounding food insecure college students. Currently, students struggle to qualify for

government-funded food assistance programs and have limited options for similar programs through university supported efforts. This leaves students falling through the cracks struggling to meet basic human needs during this critical developmental life stage. The research of this population is scarce; even scarcer in the qualitative realm. More qualitative research can increase contextual understanding of FI among college students, thereby aiding in better development of programs and resources offered by academic institutions.

GLOSSARY OF TERMS

Food Insecurity (FI)- The limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.

- **High food security**—Households had no problems, or anxiety about, consistently accessing adequate food.
- **Marginal food security**—Households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and quantity of their food intake were not substantially reduced.
- **Low food security**—Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted.
- **Very low food security**—At times during the year, eating patterns of one or more household members were disrupted and food intake reduced because the household lacked money and other resources for food (USDA, 2018a).

United States Department of Agriculture (USDA): the U.S. federal executive department responsible for developing and executing federal laws related to farming, forestry, and food ("United States Department of Agriculture," 2018).

U.S. Household Food Security Survey Module (HFSSM): (18-items) Three-stage design with screeners. Screening keeps respondent burden to the minimum needed to get reliable data. Most households in a general population survey are asked only three questions (five if there are children in the household). The questionnaire has been modified slightly from that in the *Guide*,

and the questions have been re-ordered to group the child-referenced questions after the adult-referenced questions (USDA, 2018d).

U.S. Adult Food Security Survey Module (AFSSD): (10 items) Three-stage design with screeners. Screening keeps respondent burden to the minimum needed to get reliable data. Most households in a general population survey are asked only three questions. The questionnaire has been modified very slightly from that specified for households without children in the *Guide* (USDA, 2018d).

U.S. Six-Item Short Form of the Food Security Survey Module (FSSM): (6 items) For surveys that cannot implement the 18-item or 10-item measures, this "Short Form" 6-item scale provides a reasonably reliable substitute. It uses a subset of the standard 18 items (USDA, 2018d).

Healthy Eating Pattern: support a healthy body weight and can help prevent and reduce the risk of chronic disease throughout periods of growth, development, and aging as well as during pregnancy. An eating pattern represents the totality of all foods and beverages consumed. All foods consumed as part of a healthy eating pattern fit together like a puzzle to meet nutritional needs without exceeding limits, such as those for saturated fats, added sugars, sodium, and total calories (USDA, 2015b).

Nutrient-Dense Foods: foods that contain vitamins, minerals, complex carbohydrates, lean protein, and healthy fats (USDA, 2018c).

College and University Food Bank Alliance (CUFBA): professional organization consisting of campus-based programs focused on alleviating food insecurity, hunger, and poverty among college and university students in the United States (CUFBA, n.d.)

ABBREVIATIONS

AFSSM	U.S. 10-item Adult Food Security Survey Module
BMI	Body Mass index
FI	Food Insecurity
FSSM	U.S. Six-item Short Form of the Food Security Survey Module
HFSSM	U.S. 18- item Household Food Security Survey Module
SES	Socio economic status
SNAP	Supplemental Nutrition Assistance Program
USDA	United States Department of Agriculture
NCES	National Center for Education Statistics

CHAPTER 2

LITERATURE REVIEW

Across the United States there are projected to be roughly 19.9 million students enrolled in college for the Fall 2018 semester (NCES, 2017). According to recent research being conducted on college campuses across the U.S., food insecurity rates among college students range from 14 to 59 percent (Chaparro et al., 2009; Freudenberg et al., 2011; Gaines et al., 2014; Goldrick-Rab et al., 2015; Patton-López et al., 2014). Given that this is the largest number of college student enrollment in history, it is important to understand the role food insecurity plays on college campuses. This literature review will focus on prevalence, predictors, potential health impacts, stigma, and resources pertaining to food insecure college students. These topics reflect relevant research as it applies to the research question and design of the current study.

What Is Food Insecurity?

“Food security means access by all people at all times to enough food for an active, healthy life.” Food security ranges in severity and should be thought of as occurring on a continuum from high food security (no indicators of food access issues), to very low food security (multiple indicators of food access issues) (USDA, 2018b). These indicators are based on the United States Department of Agriculture (USDA) Household Food Security Survey. This is a national survey conducted on an annual basis as a supplement to the Current Population Survey (CPS), which is a nationally representative survey measuring employment rates in the U.S. Based on responses, survey participants are categorized into one of four levels of food security:

1. **High food security**—Households had no problems, or anxiety about, consistently accessing adequate food.

2. **Marginal food security**—Households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and quantity of their food intake were not substantially reduced.
3. **Low food security**—Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted.
4. **Very low food security**—At times during the year, eating patterns of one or more household members were disrupted and food intake reduced because the household lacked money and other resources for food (USDA, 2018b).

These categories will act as a guiding foundation throughout this literature review. There are three forms of the USDA food security survey including: The Household Food Security Survey Module (HFSSM), Adult Food Security Survey Module (AFSSM), and the Six- Item Short Form Food Security Survey Module (FSSM). Many studies use one of these forms of the USDA food security survey as a reliable tool to measure food security status. Students falling into categories of low or very low food security will serve as the focus population for research highlighted in subtopics below.

Prevalence of Food Insecurity Among College Students in the United States

Research is ongoing to identify the prevalence of food insecurity (FI) rates among college students across the nation. There is little research on college students and FI rates; however, current data indicates rates may vary across the U.S. and may be higher than originally anticipated. For example, the University of Hawaii at Manoa conducted a cross-sectional study using survey questions from the USDA-AFSSM to assess student FI rates. Their sample of

students was identified by using a random selection of classes minus the freshman status students. Their findings indicated 24% of the student population identified as food insecure (Chaparro et al., 2009).

Hawaii at Manoa was the first to publish data regarding FI rates among college students in the U.S. This set the stage for many other Universities to begin looking into prevalence of FI among their students. The University of Appalachia also used a non-freshman nonprobability sample of 6,000 students via an email survey questionnaire. Their findings yielded an 18% response rate and identified roughly two percent of students in the low food security bracket and 24% in the very low food security bracket within the past 12 months. Food security status measurements were taken using the USDA-AFSSM (McArthur, Ball, Holbert, Dane, & Holbert, 2017)

Using a similar research methodology Paton-Lopez et. al. (2014) administered a cross-sectional nonprobability survey to 254 students at a midsize rural university in Oregon. Their research indicates 59% of students were food insecure at some point during the year. This survey was sent electronically using the USDA-FSSM to assess food security status (Patton-López et al., 2014)

The majority of studies used a survey format based on the USDA Household Food Security Survey. The University of Massachusetts Boston (UMass) administered a self-report survey to understand more about food and housing needs among students on a large urban campus. The survey was developed via combination of literature review and the assistance of UMass psychology students and program director. Surveys were administered to randomly selected classes from a master list of both undergraduate and graduate level classes. Faculty members of the classes were contacted for collaboration and surveys were disseminated in-

person to classes during both fall and Spring semesters. Student responses (n=390) indicate that 27% of students worry about having enough money for food, 27% skip meals due to lack of money, and 27% lack the ability to eat nutritious foods due to monetary struggles (Silva et al., 2017).

Gaines, Robb, Knol, and Sickler (2014) used a sample of sophomore to senior level students at the University of Alabama to distribute an in-person survey. Emails were sent to instructors of a random sample of courses stratified by academic division, department, and course level to solicit participation. Once permission was given, surveys were distributed in-person to 16 classrooms and 557 responses were collected (87.4% response rate). The survey asked questions regarding food security status, financial resources, food management skills and resources, and demographic information. Using the USDA-AFSSM nine percent of students were identified as low food security and five percent very low food security. In total, 20% of students reported experiencing anxiety due to lack of food supply (Gaines et al., 2014).

In addition to gathering data on food insecurity rates on college campuses, many research studies are assessing what sociodemographic factors might be correlated with food security status. For example, the University of Illinois aimed to understand prevalence, sociodemographic factors in relation to FI, and if region or hometown impacts FI. An electronic survey was sent to all undergraduate and graduate level students at four Illinois institutions (Eastern, Northern, Southern, and Western Illinois Universities). Survey tools consisted of USDA-AFSSM questions, plus additional sociodemographic questions. The response rate was roughly five percent, which indicates a limitation with generalizability of the findings. However, the total sample indicated that roughly 16% of students report low food security, while 15% report very low food security. All four institutions showed similar statistical results in food security status

categories (high- very low), indicating that data results are consistent across all four universities (Morris, 2014).

The Wisconsin HOPE Lab was founded in 2004 and is the first of its kind to look at equity in post-secondary education. FI and homelessness are two of their major research topics. In 2017 the HOPE lab released an executive summary containing survey results of 33,000 students at 70 community colleges in 24 states. The survey used the USDA- AFSSD to measure FI, along with additional questions relating to housing security. This study is the largest sample of community college students to-date. The Hope Lab worked directly with institutions to disseminate a survey and solicit responses. To capture a representative sample, surveys were sent to all students along with two reminders. The research findings indicate 33 percent of students experience very low levels of food security. This study also shows that 13 to 14% were homeless at some point during the past year (Goldrick-Rab et al., 2015).

As demonstrated by the brevity of this section, more research is required to understand FI prevalence among college students in the U.S. There are very few published studies using random sampling, and no known national studies that capture a representative sample of college students in America. However, current findings indicate a much higher rate of students categorized with a status of low or very low food security than originally thought. This shows, at the very least, that FI is a problem that needs to be addressed on college campuses. Table 1 below represents studies, tools, and FI rates as they relate to this section of the literature review. Detecting how widespread this issue is across the college student population is just the tip of the iceberg. Universities need to prioritize understanding the complexities of this issue to identify not only the prevalence, but who these students are, and what programs and services will best contribute to their academic success.

Table 1

College Food Insecurity Prevalence Table

Institution	Tool	FI rate
University of Hawaii at Manoa	USDA-AFSSM	24%
The University of Appalachia	USDA-AFSSM	24% (Very low)
midsize rural university in Oregon.	USDA-FSSM	59%
University of Massachusetts Boston (UMass)	Study Specific Tool	27% of students worry about having enough money for food, skip meals due to lack of money, and lack the ability to eat nutritious foods due to monetary struggles
University of Alabama	USDA-AFSSM	9% (low) 5% (very low)
Eastern, Northern, Southern, and Western Illinois Universities	USDA-AFSSM	16% (low) 15% (very low)
HOPE lab	USDA- AFSSM	33% (very low)

Predictors of Food Insecurity Among College Students in the United States

Understanding more about predictors of food-insecure students can be valuable as universities develop programs and interventions to address FI. Sociodemographic correlates and

predictors were assessed among eight universities which found associations between FI and race, Pell Grant eligibility, parental education, place of residence, and grade point average (GPA) (El Zein et al., 2017). These predictors are a common theme among most of the current literature focusing on FI among college students.

McArthur et.al (2017) used a regression model to identify variables that predict FI. Higher money expenditures, lower GPA, male gender, financial aid recipients, fair or poor self-rated health status, and never cooking for self or others were found to be predictor variables among food insecure students (McArthur et al., 2017). These findings are similar across many studies previously referenced in the Prevalence of Food Insecurity section. According to Patton-Lopez et. al. (2014) significant associations were found between fair and poor health self-rating, employment status, and having an income less than 15,000 dollars per year with student FI (Patton-López et al., 2014). Hawaii at Manoa identified factors such as students living on campus, living off-campus with roommates, and race classified as Hawaiian and Pacific Islander, Filipinos, and mixed to be student populations experiencing higher rates of FI (Chaparro et al., 2009).

As mentioned previously, an assessment was conducted between eight universities using first year college students (n=859) to understand sociodemographic predictors and correlates. Significant associations between FI and sociodemographic predictors include race, Pell Grant recipients, level of parental education, place of residence, and grade point average (GPA). Compared to food secure students, those experiencing food insecurity more frequently are “identified as black (22% vs 10%), Hispanic/Latino (16.7% vs. 8.9%), living off campus (24% vs 13%), being Pell grant recipients (58% vs 35%), having one or both parents not educated

above high school (57% vs 41%), and having a GPA less than 3.0 (29% vs 18%)” (El Zein et al., 2017, pp. A-146).

Alaimo (2005) developed a conceptual framework to support these factors along with causes, experiences, coping mechanisms, and potential consequences. This can be pictured in Figure 1 below.

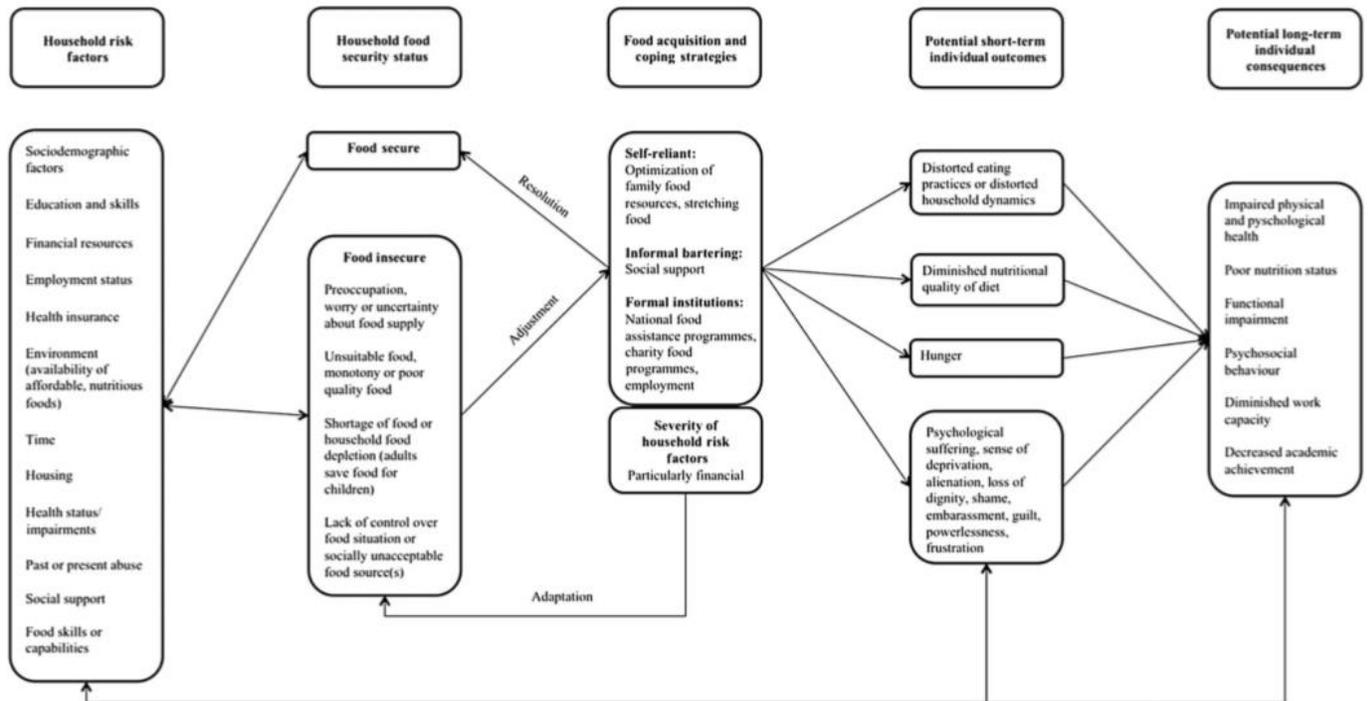


Figure 1. Adapted conceptual model of food insecurity (Alaimo, 2005, p. 285)

This framework is designed with the general population in mind, particularly those living in a low-income household. This figure demonstrates risk factors that may act as predictors leading to food security status. Experiences and coping mechanisms are also inputs effecting potential risk of FI. Lastly, potential consequence both short and long term are depicted as outcomes. Within the model individuals who are unemployed, low-income, and have poor cooking skills are at a higher risk of FI. However, previous research has focused on the food management decisions made by

individuals living in the general population and specifically, in low-income households (Alaimo, 2005).

Research surrounding the college student demographic specifically aims to create a more simplified model. Gaines et. al suggests making use of the model below Fig. 2 to understand contributing factors relating to FI risk among college students.

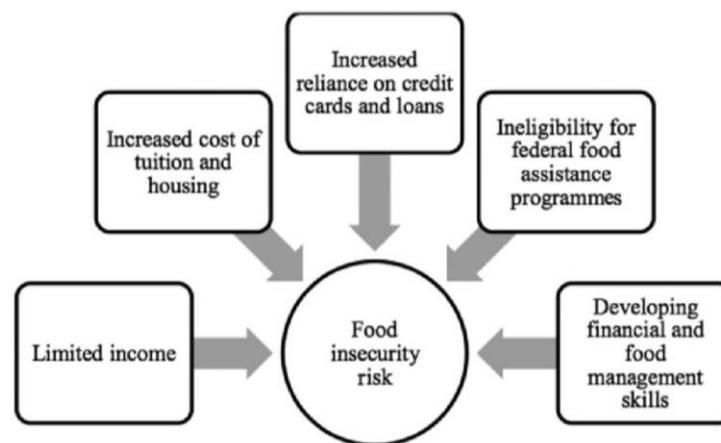


Figure 2. Student-specific risk factors for food insecurity (Gaines et. al. 2014, p. 377)

This model can be used by institutions and higher education professionals to identify and address populations on campus that are at higher risk for FI. This can also target high priority areas for additional interventions.

Gaines and colleagues used a sample of 557 University of Alabama students to understand more about the connection between FI and specific risk factor variables. Findings show students who received financial aid ($P = 0.011$), some form of food assistance, ($P = 0.003$), or who were financially independent ($P = 0.001$) were at significantly greater risk for FI. Similar results were noted for students who actively budgeted ($P = 0.001$) or who had experienced an

economic shock (ex: loss of financial scholarship) within the past year ($P < 0.001$). Individuals scoring higher on the measure of resource adequacy, but not cooking self-efficacy, were less likely to be food insecure ($P = 0.001$) (Gaines et al., 2014).

Previous and recent financial status, low SES background, parental education and income status, and race and ethnicity are indicating predictors of FI in college students. Development of programming contributing to financial and food management skills could have a positive impact on the food security status of students. As research continues to develop across campuses, predictors of FI are important elements to consider for both identification of target populations and development of intervention programming.

Potential Impacts on Health of Food-Insecure College Students in the United States

Given that food is such a vital need, both the quantity and the nutritional quality of food consumed are important factors. Without adequate nutrition, the impact on health and disease can be detrimental. This section will discuss how FI can impact the physical, mental, and emotional health of college students.

Payne et. al (2017) used the HFSSM to assess food insecurity in the form of an electronic survey with 237 students at a mid-Atlantic University. This measure was then compared with demographics, housing stability, living arrangements, academic performance, and self-rated physical health. Results showed food insecure students as more likely to report their overall health as fair, poor, or very poor. These students also reported lower energy, and more frequent depressive symptoms, which translated into disruptions in academic work. Food insecure students also reported eating less and lack of the ability to eat balanced meals during the past year (Payne-Sturges, Tjaden, Caldeira, Vincent, & Arria, 2017).

Student intake and how it compares to healthy eating patterns is an important consideration. Gaines et. al (2014) used a sample of sophomore to senior level students at the University of Alabama. Students were assessed on their food security status in the past 12 months. Students reported altered intake due to limited resources and anxiety relating to their food supply. These alterations consisted of lower caloric intake or less nutritious foods. Disruptions to eating patterns such as altered intake contributes to a diet low in nutrients, which could lead to malnourishment. Students in this study not only reported making alterations to eating which caused disruptions to healthy eating patterns, but also negative psychological impacts due to food.

Studies are further finding negative impacts in both psychological and physical health. Hagedorn & Olfert (2018) conducted a cross-sectional study using a sample of currently enrolled college students at seven universities in the Appalachians and Southeastern regions of the U.S. The 56-item survey was administered to students electronically and used the USDA-AFSS to assess food security prevalence along with the money expenditure scale (MES), coping strategies scale (CSS), and academic progress scale (APS). Questions assessing economic status, culinary skills, demographics, and health were also included. Responses from undergraduate and graduate students (n=692) were analyzed. Higher proportions of food insecure students reported fair or poor health compared to food secure peers. There was also a larger percentage of food insecure students (20%) categorized as obese according to body mass index (BMI) as compared to their food secure peers (13%) (Hagedorn & Olfert, 2018).

Appalachian University did additional research with students to understand the relationship between diet and mental health in young college students. A convenience sample (n=1956) of university students completed a 116-item survey developed by a multistate,

collaborative university research group. The USDA AFSSM, the CDC Healthy Days Measure, and the Dietary Screener Questionnaire (DSQ), were tools utilized in the survey to measure FI status, depression and anxiety symptoms, and dietary intake. Students identified as food insecure demonstrated a higher prevalence of depression and anxiety. Findings also indicated that fruit and vegetable intake was lower in males with depression, and sugar intake was higher for women with depression (Wattick, Hagedorn, & Olfert, 2018). Given that FI status was associated with higher prevalence of depression and anxiety, there may also be an association between these eating patterns among food insecure students.

Across the literature, disruptions in healthy eating patterns, unhealthy BMIs, and higher rates of depressive and anxiety symptoms are more prevalent among food insecure students. Due to these negative impacts on psychological and physical health, food insecure students are also more likely than food secure peers to self-rate health as poor. College students are in a prime developmental phase to build health behaviors that contribute to a healthy lifestyle. FI is leaving deficits in this development, contributing to poorer mental and physical health conditions.

Academic Impact

The primary goal of students attending an institution of higher education is to remain in good academic standing, ultimately leading graduation. The previous section pointed to research indicating food insecure students may be experiencing greater negative health impacts due to their food security status. Health is often interconnected with other areas of wellness, such as academic success. Not only are students reporting disruptions to academic work, they are also reporting disruptions in concentration and lower GPA's.

This can be demonstrated through a recent study aiming to understand the relationship between academics and FI. Hagedorn & Olfert (2018) collected responses from undergraduate and graduate students (n=692) using a cross-sectional study design. The academic progress scale (APS) was used to understand academics in relation to FI. Findings indicated that high academic progress scores (OR = 0.79; 95% CI 0.73–0.86) were inversely related to food insecurity. Food insecure students show greater odds of receiving lower APS and GPA scores, contributing to poorer academic outcomes (Hagedorn & Olfert, 2018).

It is important to understand both what the academic impacts are, as well as the conditions that create this negative impact in food insecure students. Payne et. al (2017) used the HFSSM to assess food insecurity in the form of an electronic survey with 237 students at a mid-Atlantic University. This measure was then compared to a variety of variables including health markers and academic performance. Students reported more frequent depressive symptoms including: little interest, feeling down, feeling tired, and feeling bad about oneself. Food insecure students reported having trouble concentrating (49%), restlessness (29%), and suffering from depressive symptoms, thereby having a negative impact on school performance (80%) (Payne-Sturges et al., 2017).

Disruptions to class participation in the form of restlessness and concentration can impact performance on assignments. Data collected through an electronic survey using a convenience sample of San Jose State University students (N=2057) looked at the impact food insufficiency has on academic performance. FI among college students indicated a statistically significant relationship with poorer academic performance. Food insecure students were more likely to experience disruptions on theses, dissertations, practicums, or research projects, lowered grades on exams or within a course, and were more likely to drop a course (Dudley, 2017).

Given that retention and graduation rates are critical priorities for institutions across the U.S., these findings should be regarded with heavy weight. Students experiencing FI are falling behind food secure peers in the classroom. Not only is this negatively impacting student performance at the student level, but lower academic performance can impact the institution's retention and graduation rates at the university level.

Resources on College Campuses in the United States

The College and University Food Bank Alliance (CUFBA) was founded in 2012 by representatives from Michigan State University and Oregon State University food pantries. CUFBA is a professional organization consisting of campus-based programs focused on alleviating food insecurity, hunger, and poverty among college and university students in the United States. As of September 2017 over 500 universities are enrolled as alliance members of CUFBA (CUFBA, n.d.). On-campus food pantries are just one piece of the puzzle to help decrease FI prevalence on college campuses. By combining additional resources such as food literacy, money management workshops, campus gardens, and food recovery programs with emergency food assistance programs, there is greater opportunity for student success.

Understanding what resources are most beneficial to students can improve program success. The University of California (UC) conducted 11 focus groups using four subpopulations of students. These subpopulations consisted of residential undergraduates (living on campus with a meal plan), nonresidential undergraduates (living off campus), graduate/professional students, and students using free food resources (e.g. food pantry). Focus group discussions centered around questions regarding student experience, perceptions and concerns relating to FI, and food literacy. Students indicated the campus food environment did not meet student needs. Food on campus that was perceived as healthy was too expensive or did not keep students feeling

satisfied. This led to students skipping meals or traveling beyond campus limits to find more affordable food options. Students expressed a desire for “life skills” training in the form of financial and food literacy courses. College was viewed as an appropriate setting to learn practical life skills in the form of food education. Examples discussed include practical food instruction courses ranging from general education, in the form of a required freshman course, to pop-up cooking demonstrations (Watson, 2018).

Food pantries are quickly becoming the most commonly offered food assistance resource available on college campuses. Kim (2018) sought out to understand the acceptability and feasibility of two ASU food pantries. High levels of support in the form of financial assistance, volunteer services, and food is critical to the feasibility of developing and maintaining a food pantry on a college campus. Support came from students, university staff, and the community. Surveys requesting satisfaction and future recommendations were conducted with a sample of current pantry users. Students reported high satisfaction with pantry services, hours, and location. Convenience of location and within walking distance were critical factors for student access. High numbers of students (86%) reported being in need of at least one additional resource such as financial aid, career center support, and access to health services. Though there are limitations with these findings due to the small sample size (n=46), these findings are critical as there is little to no impact data available on college student campus food pantry use (Kim, 2018).

The research is scarce relating to food assistance programs and interventions across college campuses. The studies that do exist point to the need for a more holistic approach to providing student services. As food pantries increase in popularity, more needs to be done to understand what programs students are interested in utilizing, and the effectiveness of those

programs. The most important piece to the puzzle is making sure that students that do experience FI are utilizing resources available.

Barriers to Accessing Food Assistance Resources

Universities are beginning to recognize the prevalence of FI among students and are working to provide some resources to address food needs. However, what good are resources if students don't utilize them? Both technical (e.g. hours, location, awareness) and social (e.g. stigma, fear, shame) barriers should be considered during the development and implementation of food assistance programming efforts across campuses.

Strong consideration for motivators and barriers to students accessing resources can impact program success. A cross-sectional, non-probability survey was sent electronically to all students attending the University of Florida in the fall of 2017. Measures were taken on prevalence and severity of FI, sociodemographic variables, and food pantry awareness, usage, and barriers. Responses were collected from 899 undergraduate and graduate students. Although 70% of students were aware of the food pantry, only 16% reported using the pantry to acquire food. Students experiencing FI were more likely to use the pantry, and one-third reported the pantry as their sole source of food. Students were asked to provide qualitative responses pertaining to barriers associated with food pantry use. Sixty-eight responses were collected and categorized into four themes, including social stigma, lacking information need to access pantry (location, how to use, who can use), lack of self-identity conflicting with use of assistance program (not poor enough, others are worse off), hours of operation. The main impediments were associated with social stigma and embarrassment (El Zein, Mathews, House, & Shelnut, 2018).

Understanding barriers to accessing resources is just as important as understanding what facilitators might make students more inclined to access services. King (2017) conducted research to understand factors that facilitate or inhibit food assistance resource use among college students. Methodology consisted of a cross-sectional study using students from two mid-Atlantic Universities that have existing food pantries. An electronic survey was sent to all currently enrolled students yielding a 14% response rate from undergraduate students (N=4,188). Of the students that participated in the survey, a subpopulation of students that reported being aware of resources but not using them (23%) were asked to report barriers to program use. Seventy-seven percent reported being unaware of how to use the resource, 50% reported not wanting to be served by peers, 59.5% reported not wanting others to know they were in need of assistance, and 47.7% reported restraints due to scheduling. Resources students were most likely to utilize include informal resources such as attending events serving food. Predictors of students accessing formal resources, such as food pantries, was one and a half times more likely in students with stress associated with worrying about getting enough food. Higher rates of stress relating to financial need, poor health and wellness, social pressures, and employment increased the odds of students using multiple methods of food assistance. Additionally, there was a significant association between resource use and current/previous SNAP use and campus location of the resource (King, 2017).

The research is minimal in understanding barriers to accessing food resources for food insecure college students. The more that can be done to identify and address barriers, the more students the resources can help. Technical factors such as hours, location, and availability of pantry staff should be considered in the development of food assistance programming. There

should also be a strong consideration given to messaging around food assistance programs to limit the impact of negative social stigmas.

CHAPTER 3

METHODS AND PROCEDURES

Study Design

This is a qualitative method study that is supplemented by quantitative frequency data to understand more about current circumstances of University of Kansas (KU) students with very low food security. Data collected from a survey administered to a random sample of KU students in the spring of 2017 was used to identify students who had very low food security based on their survey responses. Students were contacted via email to solicit participation in a focus group/individual interview. In addition to the qualitative study, participants were asked to complete an investigator-designed survey to elicit additional feedback regarding their diet, overall quality of health, and demographic information. Participants then received an incentive of a 50-dollar gift card to be used on campus at any KU Dining location. Both quantitative and qualitative data was collected and analyzed. Quantitative data was used analyzing frequencies data to further describe the sample. This study was approved by the University of Kansas Human Subjects Committee STUDY0142264.

Participants

Participants for this study included currently enrolled KU students that are English speakers. Those classified with very low food security using the USDA Six-Item Short Form of the Food Security Survey Module (FSSM) and indicating a willingness to participate in a focus group discussion were recruited for participation.

Sampling Method

During the spring 2018 semester, the USDA-FSSM was used to assess food security status with a random sample of 6,000 KU students. The sample included freshman to graduate level students. Once students completed the survey, they were asked to indicate willingness to participate in a follow-up focus group discussion based on their survey responses. Based on the survey results, students were categorized into one of four levels of food security status using the USDA- FSSM, ranging from high food security to very low food security. Campus Labs analytics was used to filter students that matched the criteria of both very low food security status and willingness to participate in focus group discussions. Using this criteria, 90 participants met these conditions.

Participant Recruitment

Participants were contacted directly via email to request participation in focus group discussions. The recruitment email (Appendix A) included the following information:

- Request for focus group participation as a follow-up to the spring 2018 survey.
- Detailed activities students will be asked to participate in as a part of the study. This includes completion of the supplemental survey and completion of a series of focus group questioning.
- Calendar of focus group sessions available for participant registration.
- The amount of time estimated for participation in the study.
- Information regarding compensation for participation in the study.

30 food-insecure students were retained for participation and included students from freshman to graduate level. Participants received a \$50 gift card to KU Dining services upon completion of study. Fig. 3 demonstrates the sampling framework.

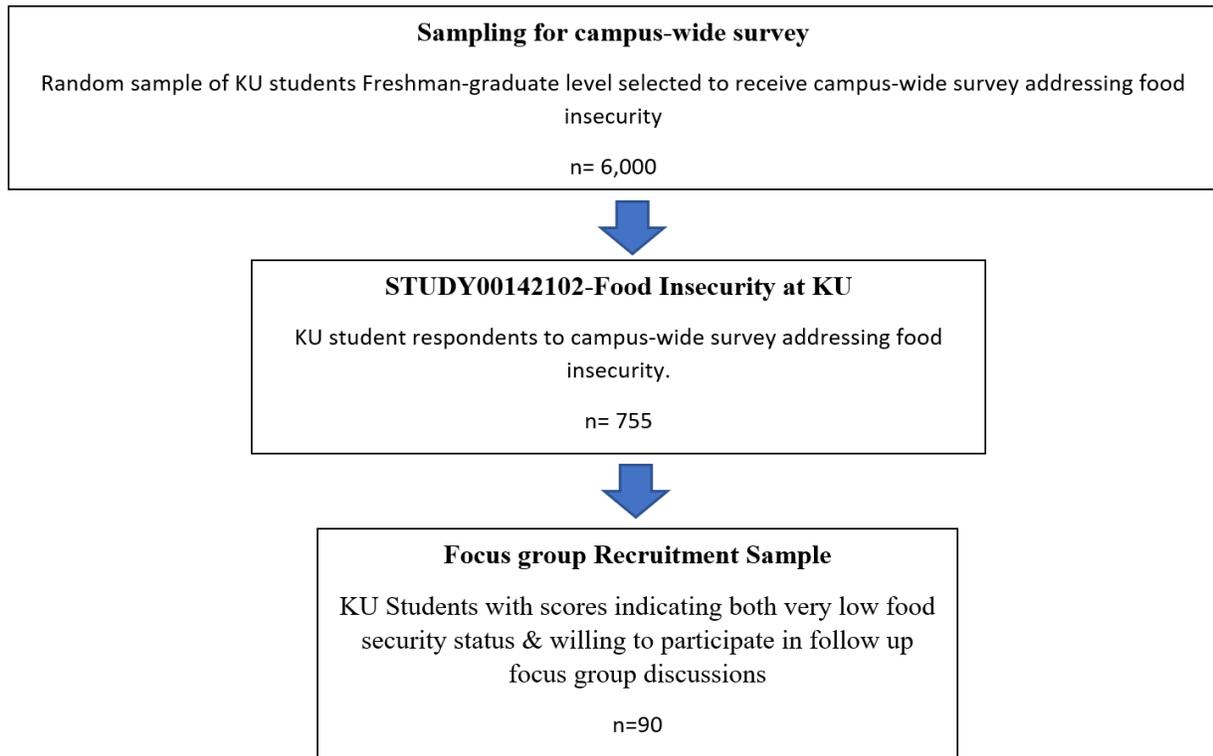


Figure 3. Study sample framework

Measures

Data collection measures included a focus group moderator's guide and supplemental investigator-designed survey. These documents can be referenced using Appendices B and C. Participants were asked to complete the supplemental survey questions prior to the start of focus group conversations. Moderators utilized a moderator's guide to ensure consistent questioning

across participant conversations. Both measurement tools were developed using the current study's research question as a guide to question development.

Supplemental Survey

The supplemental survey was developed in collaboration with advisory faculty members possessing knowledge and skill pertaining to food insecurity. Survey questions were organized into the following sections (Appendix B):

- **Nutritional needs:** Students were asked to best describe current nutritional habits as they relate to what would be considered consistent with healthy eating patterns according to the 2015-2020 Dietary Guidelines for Americans.
- **Health impacts:** Students were asked questions regarding the degree they believe food needs have an impact on mental and physical health, stress levels, and academic performance.
- **Assistance programs:** Students were asked about enrollment status in federally funded food assistance programs, if thought has been given to program enrollment, and if their families were enrolled growing up. There were also be an open-ended portion to these questions to allow students the opportunity to provide additional context.

As this is a specially-designed survey developed for the purpose of this study, no validity or reliability properties of the survey exist.

Moderators Guide

A moderator's guide was used to maintain consistent questioning across focus group sections. As with the supplemental survey, the development of the moderator's guide was in collaboration with a faculty advisory committee, as well as information collected through a

comprehensive literature review. The moderator's guide was categorized into subtopics including the following sections (Appendix C):

- Nutritional habits: Students were asked to describe current eating habits (number of meals per day, what influenced where they eat, and what foods are chosen), how these habits compare to habits before being a KU student, changes to how and what is eaten, limitations with eating the amount or variety of foods consistent with a healthy eating pattern, and what strategies are used if money to purchase food isn't consistent with food needs.
- Health impacts: Students were asked the level of impact they believe food needs have on mental, physical, and emotional health, stress levels, and academic performance.
- Assistance programs: Students were asked to identify resources they are currently aware of to help with food needs both on campus and within the community. They were asked if they have used any resources, the experience using these resources, hesitations that might prevent students from using resources, and ways to help increase likelihood of student participation in resources. Students will also be asked specific questions in relation to current and future (food pantry and meal swipe program) food assistance programs to inform best practices and increase student participation. Lastly, students were asked to reflect on additional programming KU can offer to assist students with healthy eating patterns.

Procedures

Utilizing the spring 2018 survey results, students with very low food security and willingness to participate in focus group conversations were contacted via an email correspondence.

Participant recruitment emails (Appendix A) were sent to all 90 identified students scoring at a

very low food security status according to the USDA FSSM, and those opting into participation of a follow-up focus group discussion. The recruitment email consisted of key information relating to the current study, participant incentive information, and focus group session details.

Once focus group participation was confirmed, participants received a confirmation email with detailed location, date, and time of focus groups session. Upon arrival participants were asked to complete a consent form (Appendix D) and the supplemental survey (Appendix B). Refreshments were provided during the focus group discussions. All focus group sessions were held in a confidential conference room on the KU campus.

All focus groups were audio recorded to ensure accuracy of student statements and discussions. The moderators guide (Appendix C) directed focus group questioning, and field notes were taken by facilitators for cross reference during the debriefing and analysis. For each focus group a moderator and assistant moderator was present. Member checks took place during focus group questioning with participants, and facilitators debriefed following focus group sessions to discuss common themes. Succeeding focus group sessions, all recordings were uploaded to a secure electronic file under password protection. Participant consent and supplemental surveys were stored in a locked office to guard participant privacy.

Individual Interviews

In order to meet the goal sample size of 30 participants, 11 individual interviews were conducted following the same procedures as focus groups. Targeted emails were sent to students of freshman and graduate level class status to fill gaps in these two representative groups. Remaining slots were filled quickly by students once an individual interview was available which should be noted regarding future study design. Barriers relating to social stigmas and

scheduling could prevent participation in group style data collection such as focus groups. Interviews had the presence of only one facilitator.

Validity

To establish construct validity of the moderator's guide, the concepts and terms as they relate to diet, nutrition, and food security status are consistent between the original research questions and questions asked in the moderator's guide. Content and face validity were established through the use of qualitative research methodology to elicit further information regarding food security status, health, nutrition, eating patterns, and food assistance programming (Kirk & Miller, 1986).

To ensure trustworthiness and credibility (Lincoln & Guba, 1985) of data collection, and consequently data analyses, debriefings between the moderator and assistant moderator took place immediately following each focus group to discuss common themes. In addition, member checks were performed with participants during focus group questioning. Member checks help to establish the credibility and trustworthiness of the data to ensure adequate representation of participant feedback. Moderators guide questions can be found on Appendix C.

Data Collection Procedures

Upon completion of informed consent, participants were asked to complete the supplemental survey individually. Once all participants completed the supplemental survey, focus group questioning facilitated by the moderators began. Focus group and interview questioning was organized by a facilitator following a constructed moderator's guide. Two researchers were present taking field notes during focus group sessions for cross comparison

during analysis. One facilitator was present and taking field notes for individual interviews. All focus group and interview conversations were audio recorded to later be transcribed verbatim.

Data Analysis

Data analysis for this study included both quantitative and qualitative data. A description of data analysis for both the supplemental survey and focus group discussions is included below.

Demographic Analysis

Demographic information was collected as a component of the spring 2018 survey. Once participants attended a focus group or individual interview session, they were added to a final participant list. This final list used email addresses as identifiers to separate current study participant responses from the aggregate. SPSS software was then used to provide frequency output data within each demographic category.

Supplemental Survey Analysis

Once collected, participant survey responses were reviewed for completion of answers and entered into an excel spreadsheet. The spreadsheet was then transferred to SPSS software to tabulate descriptive statistics. Frequency tables were created for each survey question to quantify participant responses.

Focus Group Analysis

All focus group and interview sessions were audio recorded and transcribed verbatim. At the conclusion of each focus group session, a debriefing occurred between co-facilitators to discuss recurrent themes. Once transcribed, common themes and subthemes were coded. The constant comparative method was used during analysis to code and categorize the data into

themes and subthemes. Making use of this analysis method allows application of themes identified through focus group discussions to be compared across groups and with other literature, integrated, and then translated into categorical properties relating to developmental theory (Glaser & Strauss, 1999). This adds to increased internal reliability and validity. Data triangulation was also used in the analyses of qualitative data by making use of member checks, facilitator debriefing, and facilitator field note comparison (Miles & Huberman, 1994).

Coding

Manual open coding occurred through the process of breaking apart data, building and coding continually, and bring data back together. Data coding began with the process of data reduction. Data was then organized, and themes were coded into a priori or exploratory code categories. The a priori category includes predetermined subtopics within the focus group questioning (nutritional needs, health impacts, and assistance programs). Exploratory coding consisted of any new themes that emerged outside of the a priori codes (Marlow, 1993). By making use of this open coding strategy transcripts were broken down and interpreted to establish key concepts. These concepts are then relate to theory as it pertains to the study research question (Corbin & Strauss, 2008).

CHAPTER 4

RESULTS AND DISCUSSION

Results

Using analysis methods discussed in chapter three, this chapter will report results relating to the demographic makeup of participants, supplemental survey responses, and focus group/ individual interview discussions.

Demographics

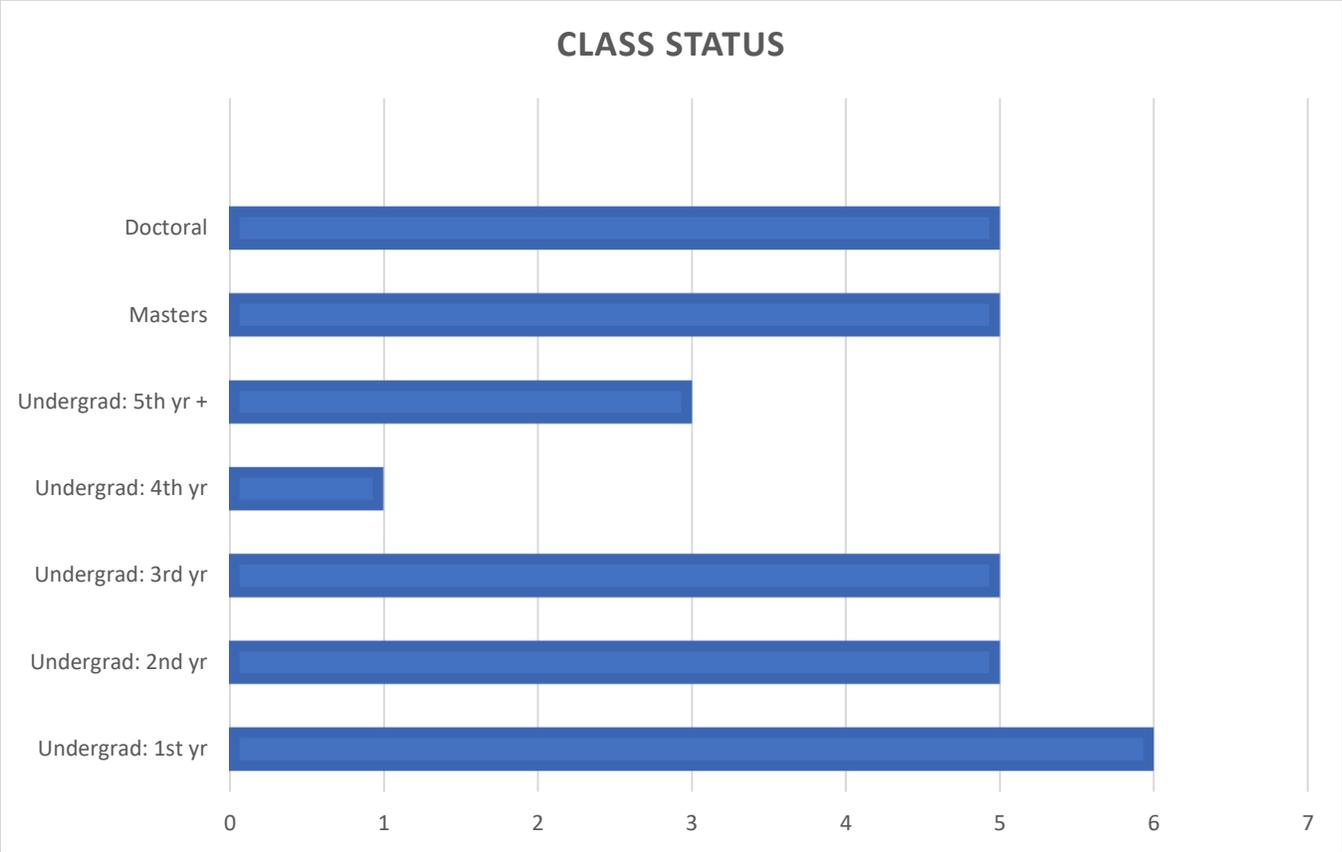
Participant demographic information was taken using the spring 2018 survey. Once participants were filtered according to the predetermined criteria of both very low food security and willingness to participate in a follow-up focus group they were contacted for participation. Once confirmed through partaking in either a focus group or individual interview, students were added to a final participant list using an indicated email address. Data collected from the spring 2018 survey was then used to match the final participant list (by email address) with corresponding participant demographic identifiers. Results for school class status, gender, race, and use of food assistance programs within the last six months are reported below.

School Class Status

Of the 30 students that participated in the current study, roughly one-third of the participants were first- or second-year undergraduate students (n=11), one-third were third, fourth, or fifth year or more undergraduate students (n= 9), and roughly one-third were graduate level students (n=10). Specific breakdowns by class can be demonstrated in Table 2 below:

Table 2

Participant School Class Status



Gender

There were roughly double the number of female participants (n=19) as male participants (n=10). There was one participant that gender identifies as transgendered.

Race/Ethnicity

Nearly half of participants identified race/ethnicity as white (n=14). This was followed by Hispanic/ Latino (n=6), Black/African American (n=3), Asian (n=3), Mixed race (n=2), and American Indian/Alaskan (n=1). One participant chose not to disclose race information.

Student Nationality Status

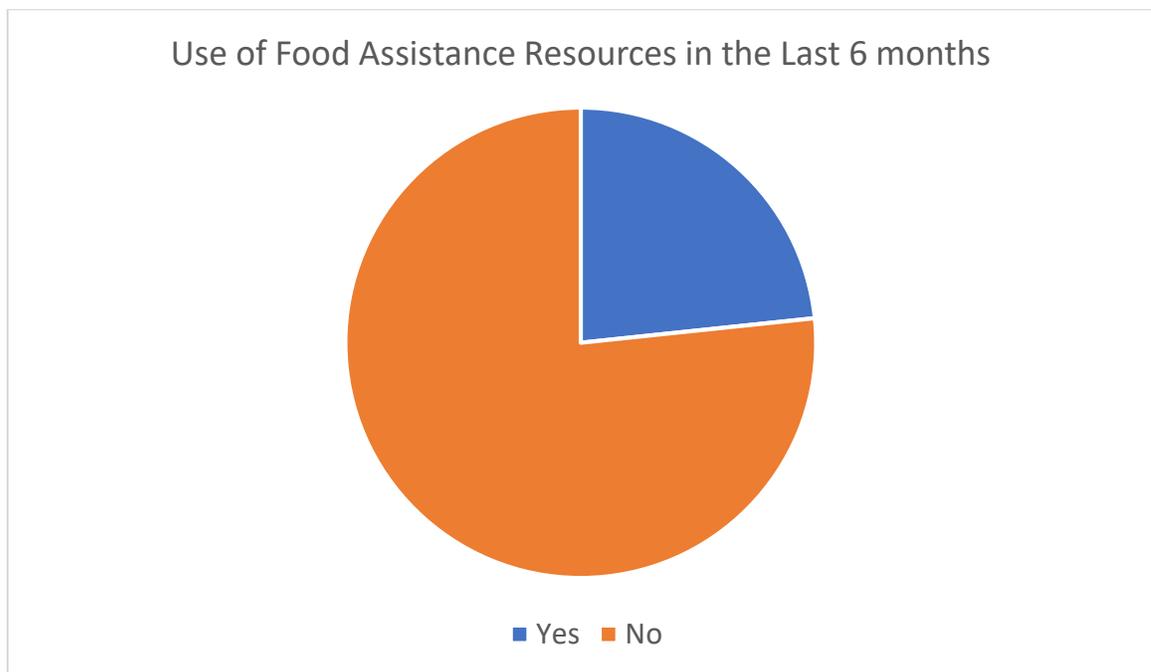
Roughly 17% (n=5) of students identified as international students. This should be considered in relationship to results reported on current and previous federally funded food assistance program use, as access to such programs are limited for these students.

Food Assistance

Participants were asked if they had used any form of food assistance (e.g., SNAP) within the last six months. Of the participants almost one-third (n=7) of them responded with “yes” they have used a supplemental food assistance resource within the last six months (see Table 3).

Table 3

Participant Use in Food Assistance Resources



Focus Group Breakdown

Appendix E lists demographic information organized according to focus group session. The final row of the table includes information for all individual interview participant demographics. Information captured in the table includes total number of participants, total time of focus group or individual interview session, and demographic information of participants within each. In general, focus group participation ranged from two to five participants, with total interview time ranging from 38 minutes to just under two hours.

Supplemental Survey

Participants were asked to complete an investigator-designed supplemental survey. Participants questions related to current nutritional needs, health impacts, and use of assistance programs. Participant responses were then uploaded into SPSS for frequency analysis.

Nutritional Needs

Participants were first asked to describe which of four statements best describe their current nutritional habits. Seventy-seven percent (n= 23) of students reported getting enough calories to keep them satisfied but not getting the variety of food they should to eat a well-balanced diet. Twenty-three percent (n=7) reported not getting enough calories to keep them satisfied, and not getting the variety of food they should to eat a well-balanced diet.

Participants were then asked questions relating to more specific nutrients and caloric intake regarding their current nutritional habits. Eighty percent (n=24) of students reported that they didn't have the resources to get enough fruits and vegetables in their diet, and 43% (n=13) reported lacking the means for enough protein. Roughly half of participants were neutral in having the means to get enough dairy and grains in their diet. Seven percent (n=2) of students reported not having the resources to get enough calories in their diet.

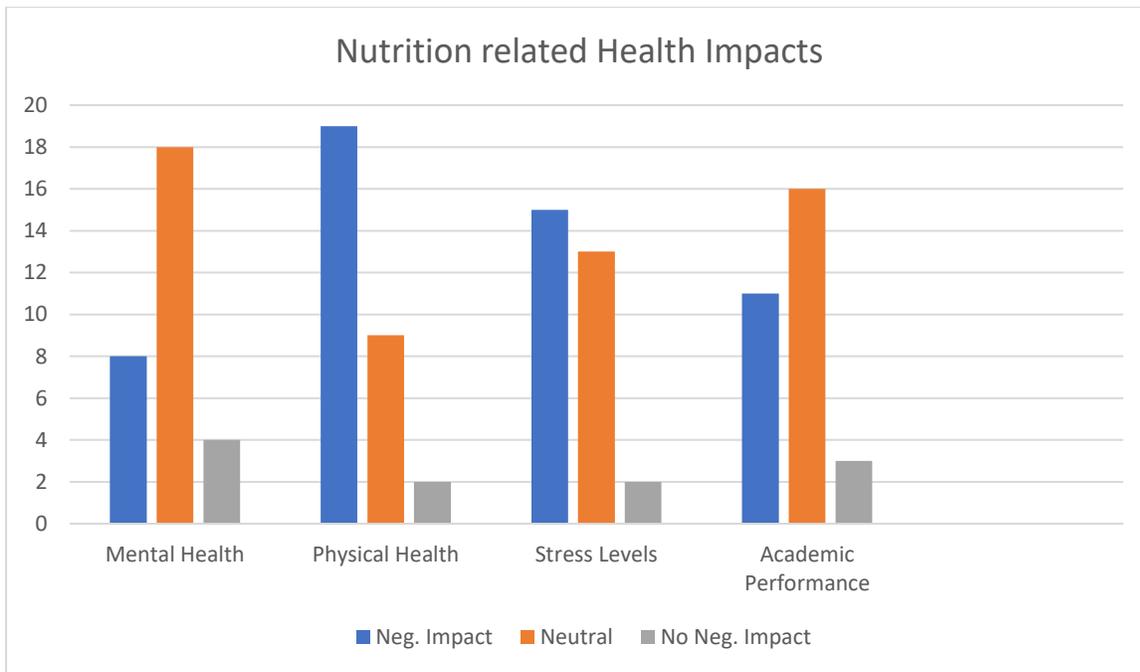
Health Impacts

Participants were then asked to indicate to what extent they thought nutritional needs had a negative impact on health. Questions were aimed at mental and physical health, stress levels, and academic performance. Sixty-three percent (n=19) of students agreed that current nutritional

needs had a negative impact on their physical health, 50% (n=15) agreed with current nutritional needs had a negative impact on stress levels, and 37% (n=11) agreed nutritional needs negatively impacted academic performance. Table 4 provides a summary of responses for these questions.

Table 4

Participant Nutrition Related Health Impacts



Assistance Programs

Student participants were asked to report on current and previous enrollment in federally funded nutrition programs. Seven percent (n=2) were currently enrolled in assistance (SNAP) and 30% (n=9) reported family enrollment growing up (WIC and SNAP). Students were also asked to report if they had ever thought about applying for these programs. Seventy percent (n=21) reported never thinking about applying for assistance with "No, I think other people have greater need" as the most frequent response.

Focus Groups and Individual Interviews

All focus groups and individual interviews were transcribed, cleaned, and edited for clarity. The transcriptions were then coded into themes using the manual open coding method described in Chapter 3. Table 5 below displays seven major emergent themes. Within each of these major themes there are several subthemes and categorical focal points that emerged. Although each of the major themes are interrelated, they are presented separately for clarity.

Table 5

Themes Summary

	Major theme	Subthemes
Theme #1	Eating and Shopping Habits	<ul style="list-style-type: none"> • Disruptions to eating patterns due to rigorous Schedules • Lacking in Variety/balance • Increased consumption of convenience food • Cost and convenience guide purchases • Storage and cost of healthy foods
Theme #2	Food Experience Growing up	<ul style="list-style-type: none"> • Meals provided at home or school • Meals more stable and increased options • Family experiencing food need.
Theme #3	Health and Wellbeing	<ul style="list-style-type: none"> • Physical health <ul style="list-style-type: none"> ○ Low energy • Mental Health <ul style="list-style-type: none"> ○ Lack of concentration ○ Increased stress relating to food • Academic performance <ul style="list-style-type: none"> ○ Negative impacts on class performance ○ Compromise health for academics
Theme #4	Food Assistance use and Barriers	<ul style="list-style-type: none"> • Current program use <ul style="list-style-type: none"> ○ Use of federally funded programs ○ Campus and community program use ○ Free food events and resources on campus • Barriers to program use <ul style="list-style-type: none"> ○ Technical barriers

		<ul style="list-style-type: none"> ○ Social barriers ○ Lack of knowledge/don't qualify ○ Perception that need isn't high enough
Theme #5	Adaptations and Coping Strategies	<ul style="list-style-type: none"> ● Rationalized eating behaviors ● Distraction behaviors as coping mechanisms ● strategized use of food ● Creating opportunity for extra income ● Assistance from friends and family.
Theme #6	Campus Environment	<ul style="list-style-type: none"> ● Cost of food on campus ● Access to food on campus ● Graduate student experience
Theme #7	Future Program Interventions.	<ul style="list-style-type: none"> ● Changes to campus environment ● Meal swipe program ● Life skills training ● Additional resources ● Pantry logistics

Theme #1: Eating and Shopping Habits

This theme relates to students' current nutritional habits. Context is given by students to eating and shopping patterns to provide deeper understanding of how these patterns are connected to food security status. Subthemes within this major theme include: disruptions to eating patterns due to rigorous schedules, lacking in variety/balance, increased consumption of convenience food, and storage and cost of healthy foods.

- **Disruptions to eating patterns due to rigorous schedules:** Varying schedules, competing time commitments, and class times, were all common responses for disruptions in student eating patterns. One student explained “I seldom eat in the mornings... Because, I almost work 20 hours per week, so it's kind of like a little hectic for me. Also, I have 12 credits in hand, so also, I teach, so... I have to prepare the stuff for teaching as well, so it takes a lot of my time” [II, 11]

- **Lacking in variety/balance:** Students recognize that diets aren't consistent with U.S. dietary recommendations. One student even referenced the USDA recommendations by stating "I would just eat like more, more well-planned out meals. I'm imagining MyPlate in my head" [FG7, P.2].
- **Increased consumption of convenience food:** Given both time and financial constraints, students report an increased amount of convenience food purchased and consumed. One student was quoted affirming, "I think the first thing to get cut when my wife and I are busy, or our grocery budget is low that month is usually the fruits and vegetables, and fresher things. And we'll just go to like – oh, frozen pizzas, or grilled cheese, or something that's already like more prepared, and doesn't take a lot of work, and is a lot cheaper" [FG7, P.1]
- **Storage and cost of healthy foods:** Deterrents to consuming foods such as fresh produce was consistently both price and storage of those items. Students expressed concern with purchasing these items and having them spoil before preparation. "I would say money and time [are barriers]. Because if I did have the extra money then I don't have time to make it and then I'm just like okay I just wasted the money" [FG5. P.3]. Table 6 provides a summary of key quotes for each subtheme for theme #1.

Table 6

Theme #1: Eating and Shopping Habits

Subtheme	Participant quotes
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Disruptions to eating patterns due to rigorous Schedules	<p>“So, there’s no real set time to eat them [meals]. And then I’ll come home at night and have something really simple” [FG 1, P.1]</p> <p>“Like, if I’m at work, or trying to get to work from class, I just don’t have enough time to eat a full meal, so I just eat whatever I can grab” [FG7, P.1]</p> <p>“My eating habits are definitely not good. I usually eat 1-2 meals per day and that’s usually because my classes are from 9am-12pm” [II, 4]</p> <p>“On top of stress and work and everything like that, I can go all day without eating. And then I remember like 8 or 9 o clock that I need to eat, and then I just don’t have anything around to eat, so I either eat junk, a ramen, because it’s cheap, and it’s there, or I just have a glass of chocolate milk and then I go to bed” [II,1]</p> <p>“Just the time. Like, if I’m at work, or trying to get to work from class, I just don’t have enough time to eat a full meal, so I just eat whatever I can grab... Sometimes it’s in between rushing from class to work or something, so it ends up being, like, a sleeve of Ritz Crackers” [FG7, P.1]</p>
Lacking in variety/balance	<p>“But I definitely would eat more vegetables, more fruits, probably more protein – I don’t get a lot of protein [changes to diet]” [II, 10]</p> <p>“I think my meals need to be more structured. It took me a little while to get the hang of it when I was out on my own, and making meals for myself and trying to make them more balanced” [II, 2]</p> <p>“Probably healthier [changes to diet] ... Definitely would try to get more fruits and vegetables” [II,6]</p> <p>“Definitely more fruits and vegetables. Definitely more vegetables. I really wish I didn’t eat as many grains too. I eat so much bread and pasta because it’s so easy and cheap” [FG5, P.1]</p> <p>“I think I would want just more variety in my diet because I eat like the same three things. It’s always like beans and rice, chicken and rice, and I know there is supposed to be like a variety of food in your diet, that’s what’s healthiest” [FG5, P.4]</p>

Increased consumption of convenience food.	<p>“Sometimes eating if there’s coupons in the mail or something. It’s always pizza like 3.99 large pizza, and that’s why I don’t eat all that healthy” [II, 4]</p> <p>“I’ll just grab hot dogs, or ramen. Something like that – simple, easy, you know, not too much cost-wise” [II, 7]</p> <p>“We will get Chipotle or Qudoba all of the fast food stuff and then when we don’t have money for groceries we will just live off Ramen, frozen food and stuff for a while until I get paid” [FG5, P.3]</p> <p>“A lot of times it’s kind of delivery food or fast food and stuff” [FG1, P.2]</p> <p>“As soon as you don’t have time, or don’t have money... It goes more towards, like, processed carbs” [FG7, P.1]</p>
Cost and convenience guide purchases	<p>“Time and money. I usually just buy the cheaper food. I eat a lot of rice, so, that’s not really healthy, but uh I usually eat out, kind of often, it kind of depends. Usually when there are really cheap deals or something. It’s almost cheaper to do that usually” [II, 4]</p> <p>“When I go grocery shopping, I look for whatever is cheapest or fast” [II, 3]</p> <p>“Price, but also convenience. As a student it’s just grab and go” [II, 1]</p> <p>“What I eat depends on when I’m at the store and what’s on sale. Usually I try to go for what’s healthy, but they are always so much more expensive, which is honestly so awful” [FG5, P.1]</p> <p>“I buy what I can afford now so a lot of bread, basic deli meat, pasta, and stuff like that” [FG2, P.1]</p>
Storage and cost of healthy foods	<p>“Just the cost of things too. I went to get a bag of potatoes and it was 98 cents, but a bag of cauliflower is 3.98. If you do the dollar menu you can get fries for 99 cents but if you want a side salad it’s 2 or 3 dollars” [FG5, P.2]</p> <p>“You just have to be able to afford it [Fruits and vegetables], and to be able to have time to take them out of your fridge and make them. Cause, I can’t tell you how much meat and vegetables I throw out because I had a deadline and I couldn’t cook” [II, 8]</p> <p>“Buying produce 1) it’s very expensive, 2) it goes bad very quickly so if I have a busy week at school or work it just goes bad and I didn’t have time to cook it” [II, 4]</p>

“we aren’t able to plan out that many meals that would use up all the fresh food fast enough. So, if we buy a whole bag of spinach, we’ll like make one meal with it and then the rest will go bad, because we, like, don’t have enough time to eat the rest of it” [FG7. P.1]

Theme #2: Food Experience Growing up

This major theme relates to participant experience with food prior to their life as a student at KU. Student responses were split between having an experience growing up with more consistency in eating patterns than they currently have now as a student and growing up in food insecure households that had to rely on food assistance programs. For example, one student stated, “Yeah, it was always 3 meals a day. My mom always had family dinner, and lunchtime, and always had breakfast made. So, the transition to college was definitely... it was definitely a transition, to say the least. Yeah, I ate really well growing up” [II, 7]. While another student stated, “I grew up with my parents on food stamps ...Oh, I was malnourished growing up, for sure. My sister and I were.” [II, 8]. Subthemes within this category include: meals provided at home or school, meals more stable and increased options, and family experiencing food need.

- **Meals provided at home or school:** Prior to life as a student at KU, many participants indicated meals were provided at school and/or by a parent. This increased consistency within eating patterns provides scheduled meal times, increase variety in their diets, and greater access to a reliable food source.
- **Meals more stable and increased options:** Given that meals were provided on a more consistent basis due to regularity in schedules and routine, this also increased the consistency of meals. Participants expressed more variety in their meals. “I think there’s a lot less variety in my diet now that I’m a student before like when I was at my parents’ house and we had

family – family sized things and just a fridge full of colorful things and now it’s like I eat the same pasta everyday” [FG4, P.3].

- **Family experiencing food need:** Contradictory to the previous two subthemes, this subtheme relates to growing up in food insecure households. Students(n=9) reported parental use of government funded food assistance programs due to financial need. One student communicated her experience as, “I grew up in the projects. So, I was, we had food stamps, we were in subsidized housing, we were on Medicaid, all throughout my childhood into high school” [II, 1]. Table 7 provides a summary of key quotes for each subtheme for theme #2.

Table 7

Theme #2: Food Experience Growing up

Subtheme	Participant quotes
Meals provided at home or school	<p>“Before I came to college [my diet] was better. I think being at home my mom was always you know she’d make breakfast, I’d maybe go get lunch at school when we had our lunch break” [FG3, P.2]</p> <p>“I would say for me my mom used to make a lot more fruits and veggies, which I didn’t really appreciate enough at the time (laugh). Those were the good old days. My mom was very much a health nut so she had like a lot of chicken, fresh fruits and veggies, salads quite a bit” [FG5, P.1]</p> <p>“Get up for school eat breakfast, go to school, eat lunch. My mom always had a meal prepared and it was a healthy meal prepared” [FG3, P. 2]</p> <p>“Before coming to KU at my high school they served lunches which they were school lunches so they’re not great, but they sometimes had a lot more food than I’m eating now.” [FG2, P.2]</p>
Meals more stable and increased options	<p>“[At] Home I think it [my diet] was definitely more stable and like I at least had two but mostly three meals and just like breakfast, lunch and dinner and sometimes some snacks” [FG4, P.2]</p> <p>“Well, it was definitely three meals a day in high school. I’d get up and have breakfast with my mom, and then go have lunch at school, and then</p>

	I would have dinner at home, my mom would make me something, or we'd go out somewhere" [II, 6]
	"My mom regulated my three meals. Like 'I don't care whether you're hungry or not, you're eating breakfast, or you're going to be hungry by lunch" [FG6, P.2]
Family experiencing food need.	"In high school, well, like from Kindergarten through 12th grade, I was on the free lunch program for most of the time, I think. But my parents never took advantage of anything like food stamps, because they thought it was kind of embarrassing" [II, 9]
	"Yeah, we have been on food stamps since I was four or five years old, so forever. I had free and reduced lunch too ... At home I didn't really get meals made. We didn't have like, I lived with a friend of mine, so her family kind of occupied most of the house, my mother and I kind of stay in their basement and so we stayed away from those people. Sometimes we would eat fast food, but most likely not" [II, 2]
	"Yeah, my last two years of high school my family was on food stamps" [II, 4]
	"I was on free and reduced lunch, and my mom was definitely on food stamps, but I didn't always live with her, so that wasn't always part of my life" [FG7, P.2]
	"I know my parents used WIC when I was little and when my brother was little" [FG5, P.4]

Theme #3: Health and Wellbeing

This major theme relates to the impact food needs have on overall health and wellbeing of students. Students discussed stressors surrounding food needs impacting academic performance as well as areas of emotional, mental, and physical health. In some cases, students even expressed having more serious health complications relating to food. One student that was pregnant at the time said, "I passed out and they took me to the – they rushed me to the hospital because I fell. And they were like well we need to check if the baby was fine but they were like you are not eating enough food. You need to eat more food" [FG3, P.1]. This theme has both

subthemes and categorical focal areas within some of those subthemes. Subthemes and categories include: physical health (low energy, health risks and disease), mental health (lack of concentration, increased stress relating to food), academic performance (negative impacts on class performance, compromise health for academics).

- **Physical health:** Low energy and disease were major focal points within this subtheme. Participants referenced “feeling physically fatigued” [FG7, P.1], and having serious medical concerns relating to food. One student recently had a doctor express concern. “When I was home, I went to the doctor and they were like what did you do to yourself like everything was high beside cholesterol which is insane. My sugar is high which is great [sarcasm about glucose levels]” [FG3, P.3].
- **Mental health:** This subtheme relates to the role food needs play on mental wellness. Students were experiencing loss of concentration, “Food is important for like fueling your like mind and I just have like – just this last semester like lost my focus” [FG2, P.1], and stress relating to food need “I think the main thing is like I get stressed out when I don’t have the money for it. Like I’ll start feeling like oh I don’t have any money and it starts weighing on me and that just effects the rest of my life” [FG5, P.2].
- **Academic performance:** The role of a student at a university is to excel in academics to eventually graduate. One focal point in this subtheme relates to negative impacts on class performance “I have like \$2 in my bank account like I can’t even get breakfast right now I’d go to class, and I’d be hungry, and I’d be mad. I’d be mad and wouldn’t want to pay attention during class because I was so hungry” [FG2, P.2]. The second relates to the health compromises students are willing to make to achieve academic goals. “I’m in school not to look good in order to be healthy. I’m in school to get my degree so that I can be healthy later

on down. And I forget that – I forget that I won’t make it. I won’t survive if I don’t treat myself well” [FG3, P.3]. Table 8 provides a summary of key quotes for each subtheme for theme #3.

Table 8

Theme #3: Health and Wellbeing

Subtheme	Participant quotes
Physical Health	<p>1. Low Energy</p> <p>“The biggest one that I feel would be a complaint [relating to food needs] for both my wife and I would be just like, feeling physically fatigued, you know, like more than we have in the past. There’s a lot of factors, but I definitely feel like more nutritious meals help you feel better, just generally, throughout the day, and give you more energy” [FG7, P.1]</p> <p>“I’ve had a couple times where I’ve been skipping my meals in the day so then I’d go to the gym at night and there was one night I remember where like, I felt like I was going to pass out – like I had to cut my workout short because I was literally like just on the verge of passing out because I didn’t eat that day really” [FG3, P.3]</p>
	<p>2. Health Risks and Disease</p> <p>“I feel like diet is super important for like your disease too, because some foods can make it flare up more than others [student with arthritis]” [II, 9]</p> <p>“I have been having deep depression. The reasons that I go is because of my anxiety. You know I have too much electric [anxious energy]. But the thing of having to cook every single day just piles up. Then I get home hungry, and then instead of eating I drink coffee to make it go away you know. I drink cold water in the night before I go to bed because there is nothing else to bite” [II,5]</p> <p>“All of it [food impacts overall mental, physical, emotional health]. I have a mental health disorder, and so I really do have to be careful. It’s not the biggest factor in how I feel, but if I don’t eat right, then I don’t have the energy to keep up with my exercise, and then it throws off my sleep... it’s a piece of a bigger problem” [II, 8]</p> <p>“Eating affects my depression, then I just don’t want to do anything” [II,1]</p> <p>“Well for me, I don’t think I realized how much my health was being impacted by my diet until last year. I started to get really sick and developed pretty severe anemia. And that’s when I realized oh steak is really expensive, red meat are</p>

really expensive, and it was just really hard for me to eat healthier foods because of my budget” [FG5, P.4]

Mental Health

1. Lack of Concentration

“[Eating a well-balanced breakfast] I feel like it would, at least psychologically [help]. ‘Cause yes, definitely, in my mind, when I know I’m eating something good in the morning, it picks me up. I start to feel like I can take on the day. Whether it’s actually true or not, at least I believe it” [II, 7]

“Yeah, well, I definitely feel that if you don’t eat the amount of food you need, that’s definitely going to affect your concentration... your ability to stay awake” [FG6, P.1]

“Yeah sometimes it’s like hard to focus when I’m actually hungry still” [FG4, P.2]

2. Increased Stress relating to food

“You eat the wrong things because you’re stressed, and then you continue to be stressed because what you’re eating doesn’t help you process the stress. I think that my eating habits definitely have a huge impact on how I feel” [II,1]

“Yeah, I don’t do too poorly academically, but I think not having to stress out or not having to like plan your entire day around food. I think knowing where your food is going to come from would be a lot easier and you wouldn’t have to realize after 7 hours on campus oh shoot, I forget to bring lunch or something like that. And not having to plan something around that would be a lot easier for not having to stress out about it” [FG5, P. 1]

“It’s definitely stressful to worry [about food] on top of like all the stressfulness of college and the classes that it’s like you now have to worry about what you’re going to eat or when you’re going to eat” [FG1, P.2]

“I think it [food needs] just makes you more stressed out too. Like on top of your like school work and preparing for finals it just makes you more stressed” [FG4, P.1]

Academic performance

1.Negative impacts on class performance

“I’ll teach like all day and then I’ll have my class at night, and I’m like starving, and I’m falling asleep” [II, 10]

“It’s impossible to get anything done when you’re hungry. Like, having conversations with people in your class. I don’t want to engage, because I’m hungry. I’m just in a bad mood” [FG7, P.1]

“For me it is mostly like when I study on campus and I get hungry it’s just like ahh I can’t focus on studying or I need to get something in my stomach to stay focused” [FG5, P.3]

“It impacts my day when I’m like spending my time in class like I should be listening but then I’m planning okay when am I going to go eat after this class is out. Or you know like just trying to find like oh what am I going to have for dinner? What am I going to have tomorrow?” [FG3, P.2]

“It’s harder to like focus on exams too if you’re hungry” [FG4, P.2]

3. Compromise health for academics

“I’ve put that [academics] over everything else. [FG2, P.1]

“I think really, I don’t know, I think that food isn’t a priority on kids minds. I think that education is prioritized way too high over their own physical needs” [II,2]

Theme #4: Food Assistance Use and Barriers

This major theme relates to participants use or knowledge of food assistance programs, both federally funded (e.g. SNAP) and supplemental programs (e.g. food pantry, free food events). This section also covers barriers students face regarding use of those programs. Within this major theme there are both subthemes and categorical focal areas. Subthemes and categories include: current program use (use of federally funded programs, campus and community supported program use, free food events and resources on campus), and barriers to program use (technical barriers, social barriers, lack of knowledge/don’t qualify, perception that need isn’t high enough).

- **Current Program Use:** This section relates to both enrollment in federally funded food assistance programs and use or knowledge of supplemental programs such as food pantries. Students reported both current and previous enrollment of either WIC or SNAP, as well as making use of community resources with one student stating “I’ve gone to pantries, like the food pantries that are in Lawrence.” [FG5, P.4]. One major supplemental resource students report taking advantage of were free food events and resources on campus. Some report

going to events on campus solely to get fed. For example, one student stated, “Students will seek out ‘pizza and politics,’ there are a lot of events around that offer free food, students don’t really care what the event is, they just want the food” [II, 1].

- **Barriers to Program Use:** This theme relates to the barriers that prevent students from accessing food assistance resources. The focus point of technical barriers within this subtheme relates to logistical barriers such as transportation, awareness, and hours. One student stated, “I know some people that live here from out of state don’t even have a car or anything, so that would be a very far walk for them. And also, students that have jobs and stuff couldn’t make it during that time slot and stuff. Or like classes or something like that” [II, 4]. Social stigmas associated with use of resources was a second barrier described by students with accounts like, “I mean it hurts because you have this negative view of people who need help” [FG3, P1]. Another barrier relates to difficulties using and qualifying for the resources.

Many programs can be cumbersome, leaving students feeling like “I don’t even know where to begin with those resources like how to go about navigating what to do” [FG3, P1]. Due to their current life circumstance, college students fall through the cracks regarding federally funded programs. With students reporting experience such as, “I know that I have applied for the food stamps, but I didn’t get approved because I make too much money, and I don’t have any dependents” [II, 1]. The final focal point is the perception that their individual food needs aren’t high enough to use food assistance programs. One student responded saying, “I feel like, I... never really feel like I can use those resources? Like, I’m never really at a point where I like should be going and using those resources. I should let other people

use those resources, and I can just make do with what I have, and that’s gonna be fine” [FG7, P.1]. Table 9 provides a summary of key quotes for each subtheme for theme #4.

Table 9

Theme #4: Food Assistance use and barriers

Subtheme	Participant quotes
Current program Use	<p>1. Use of federally funded programs: “I applied for WIC like four years ago and I used it once and it was awesome” [FG3, P.1]</p> <p>“I am on food stamps, but they don’t necessarily give you enough per month. Like you can eat an okay diet but it’s not necessarily a healthy one. So, I was running through that pretty quickly, and even like now I usually find myself on like the third week of the month like on my zero [dollars] on the card. So then I’m like back to my Ramen. So, it’s like three weeks of pretty decent meals and then I’m like oh Ramen and Pop Tarts” [FG5, P.4]</p> <p>“We [student with a daughter] are on food stamps, but the way the system works we went from getting \$330 in food stamps to getting middle of the year the state reduced it to \$200 dollars to the beginning of this year \$157 and I have been reporting the same income and they said it’s because the way the state does it now. I don’t get it, but that’s really put a stressor on me. Just because it was nice when I was getting the \$330, I would just go to the store and get whatever I wanted and now I have to budget for that and that’s been a real stressor” [FG5, P.5]</p>
	<p>2. Campus & community supported program use “On campus, really I know about the veggie lunch. And then free food at KU.” [FG3, P.3]</p> <p>“You play bingo and you get groceries [at residence hall]” [II, 6]</p> <p>“I think the Lawrence Health clinic has like a food pantry thing. I think. One of them, I have been to one before and they mentioned it” [II,2]</p> <p>“The Campus Cupboard, and they’re open from like 4 to 7 on Thursdays. I used to follow Free food at KU on Twitter, and go to all that stuff” [FG7, P.2]</p>
	<p>3. Free food events and resources on campus</p>

“Lately I haven’t been buying a lot of groceries, I’ve just been using free resources on campus. So like today I was gonna buy lunch but then I saw they had free pizza” [FG3, P.3]

“I try to find free food on campus. I’ll go home, or like to someone’s house where I know that, like, they’ll make me food. Um... yeah. Or, I just like, don’t eat ‘til I can get food” [FG7, P.2]

“I volunteer a lot to get free food like there’s the last incoming grad. students and they needed some people to talk to them, and they were like we will give you free lunch if you want to talk to them” [FG5, P.2]

“When businesses around are like come in for something and will give you a \$25 gift card I will go in for like that hour to get the \$25 gift card. Then get something to eat or munch after” [FG5, P. 3]

Barriers to
program
use

1. Technical Barriers:

“I know some people don’t have cars or anything, so they can’t travel as easily.” [FG1, P.2]

“There is something called the Campus Cupboard, but I’ve never had a chance to visit it, because I’m fully packed on Wednesdays and Thursdays” [II, 11]

“Well, I didn’t hear anything about that [food pantry] this whole year until now. So, I feel like those things, you have to look for it, and people aren’t just advertising it” [II, 6]

“Just not having the time to go somewhere specifically. I think that the more resources there are actually on campus, during the times people are on campus, would be super beneficial” [FG7, P.2]

2. Social Barriers

“I feel like some people feel like they will be looked down upon, if they’re seen at it, like the food pantry or something” [II, 9]

“I grew up with my parents on food stamps, and you’d think that would make me more understanding, but you know, I kind of associate... they weren’t very good parents. I kind of associate those kinds of things with those kind of people” [II, 8]

“I have a reputation on campus, and I win awards, and I really don’t want to show my face there. People see me as someone who has their shit together. They know I have been through things, they know I am on the up and up, even when I am hurt, I show up I do my things. I have won multiple awards this past semester. I feel like if I did show up they would be like why are you even here. So, I really can’t, I feel like I am stuck, I can’t ask for help, yeah, it’s a weird in between. It might be just my pride getting in the way, but, sometimes pride is all you have left to hang on to” [II, 1]

“I have had some kind of weird reactions from people when I tell them I am on food stamps, and I think that has to do with that stigma of requiring food assistance and being from a low SES background” [FG5, P.4]

“I don’t know if I could like put down my pride enough to like go eat there” [FG2, P1]

3. Lack of knowledge on how to use resource/ Don’t qualify:

“I’ve heard of one food pantry that college kids usually go to. But, I’ve never got any details with it.” [FG1, P.2]

“I tried to apply to Just Foods, and they wouldn’t look at my income, but they looked at, like, our household income, and even though my parents don’t have jobs, they make too much for me to go to Just Foods” [II, 9]

“Yeah. Like I didn’t even know you could apply for food stamps until a couple of years ago and they would always say I didn’t qualify for it” [FG5, P.4]

“Food stamps I briefly thought about trying to apply for some after I moved because I knew about them because we were on them. But the office, because I go to school or work until 8pm or even later, so they are always closed. On the weekend I was there for like 4 hours once and I just gave up” [II, 4]

4. Perception that need isn’t high enough:

“But I feel like other people could use it more than me. so that’s why I don’t really go to use it” [II, 4]

“I feel like a lot of people don’t feel like they are at that point where they need it. I feel like it should be reserved for people who really, really do need it” [II, 10]

“Yeah, I think for me there is always that thought that there is someone else worse off than you” [FG5, P.1]

Theme #5: Adaptations and Coping Strategies

Given the barriers presented in the previous theme, students have had to make additional adjustments to cope with food needs. This major theme relates to adaptations and coping strategies such as alternative routes for income “I would just log more hours in my work to just get the money [to purchase food]” [II, 11] and making distractions for hunger “ [when hungry on campus] I usually just get gum or something and just wait until I get home” [FG5, P.1].

Subthemes within this category include: rationalized eating behaviors, distraction behaviors, strategized use of food, creating opportunity for extra income, and assistance from family or friends.

- **Rationalized eating behavior:** In our society it is assumed that your years in college are meant to be spent struggling financially, with the hopes of a major pay out at the end of the hard work. This subtheme relates to student's rationalization of food needs because of what society has normalized. One student said "perception about college that it's like your dog years kind of, and so you're struggling a little bit, like that's normal, like that's supposed to happen" [FG2, P1].
- **Distraction behaviors:** This subtheme relates to ways students will use distractions such as studying or sleeping in order to suppress the feeling of hunger. One student said "I go to sleep usually if I am hungry, so I don't have to eat. That's kind of not good, but I definitely do that" [II, 4].
- **Strategized use of food:** Adjusting eating patterns is another coping strategy students reported. By altering how and when food is eaten the resource can be stretched to receive the most benefit for the lowest output. For example, one student said "I've personally kind of scheduled if I'm going to be hungry or not like for example if I have a test coming up, especially if I have a test coming up, I try to make sure that I have food for that day, that way I'm not hungry during the test" [FG2, P.2].
- **Creating opportunity for extra income:** Many students referenced being employed on top of being a full-time student. This subtheme highlights students offsetting food needs by either working more hours or engaging in side jobs to make additional income. One student holding an on-campus GTA position said "This is only a 9-month appointment, so this is how I

survive... I usually call the people I know around here that sometimes give me jobs. Like mowing lawns things like that, especially in the summer” [II, 5].

- **Assistance from family and/or friends:** When funds are extremely low, and no other coping strategies can be used, students reach out to family or friends for assistance. One student informed “I had to reach out to my family and they are all on the struggle bus too, but they were like here’s 20 bucks to buy yourself something that is a little healthier than what you’re eating now” [FG5, P.4]. This use of coping becomes difficult when you consider students coming from low SES backgrounds that don’t have family assistance. This same student also said, “Honestly I’m not afraid to mooch off my roommates.” [FG5, P.4]. Table 10 provides a summary of key quotes for each subtheme for theme #5.

Table 10

Theme #5: Adaptations and Coping

Subtheme	Participant quotes
Rationalized eating behaviors	<p>“You’re supposed to be poor” [FG2, P2]</p> <p>“At my department meeting we even had someone say “well when I was in college I lived off of ramen and mac and cheese” [II, 1]</p>
Distraction behaviors	<p>“[If money isn’t available for food] Just like if I focus on like studying and doing something else to make myself busy and not think about eating” [FG4, P.2]</p> <p>“There’s a lot of Adderall in the Architecture School which makes that [dealing with hunger] easier for them. I know it’s bad, but that’s the truth. You can go days without eating on that stuff” [II, 8]</p> <p>“[Can’t afford food] I just like go to bed. Like if it’s at night and you’re like oh I’ll just go to sleep and I’ll wake up tomorrow and get a meal in the morning or something” [FG2, P.2]</p> <p>“I don’t know, I have a budget for what I eat, so I just work around it. on those days I am a bit hungry I just sort of ignore it” [II,2]</p>

Strategized use of food	<p>“I always try to have, when things are on sale and I have some extra money I try to get more and keep it in my freezer, so when times are tough, I do have a freezer full of food. I am in one of those tough times now, and I am starting to chip away at my stock” [II, 1]</p> <p>“A lot of times, I’ll like, just try to match what she’s eating [wife], and so it’s just like, one grilled cheese sandwich. Or, we’ll split a can of soup and put it over rice... and I could eat like three times that amount of food if I really wanted to, but I try to, like, match whatever she’s eating” [FG7, P.1]</p> <p>“I try to make sure if I have a test this week, I make sure I get some more well-rounded meals” [II,2]</p> <p>“I’ve been going to Chipotle a lot, and you can get like, double everything, except, like, meat, so I’ll like get all of this stuff and then, like, save it so that I can make different meals out of it. I’ll put it in different Tupperware containers, because I don’t have to, like, cook it, and it’s also, like, kind of healthy. Yeah, I can’t eat as much as I want to, definitely, because I’m like, trying to spread it out to like, save money or save time” [FG7, P.2]</p> <p>“I work minimum wage (laughing) so like when I get my check I can stock up but then it’s like the check is every two weeks and I have a second week I’m eating like hot dog buns for breakfast” [FG4, P.3]</p>
Creating opportunity for extra income.	<p>“I’ve been in that situation before [no food] from like having a bad check at work and a bill at the same time and I took clothes to Plato’s closet and sold them and then went and got food at Walmart” [FG4, P.3]</p> <p>“I work more, so I can just get a free meal [meals provided at work] [II, 9]</p> <p>“I recently started going to CSL [plasma donation for money] the last couple of days to get some extra cash. I actually started taking my laptop, so I can keep studying while [I’m there]. It’s not enough the way that’s set up its just \$30 after so many times” [FG5, P.2]</p> <p>“One of my classmates was telling me lets go donate plasma. He was telling me he has passed out a couple of times [after donating plasma]” [FG5, P.5]</p>
Assistance from family or friends	<p>“My mom came to town and she was like oh I’ll take you grocery shopping because she says I can’t eat like a piece of bread for breakfast” [FG3, P.2]</p> <p>“[No money for food] That would be when my parents would help me out. They’re pretty supportive, and they know that I’m in school, so... or my husband, because I’m married. He sometimes helps me out. He’s a student, too, though, so it’s kind of hard. It’s kind of a double issue” [II, 10]</p>

“I know when I go home, I stock up on a lot of snacks I just bring like a whole suitcase full, maybe not full but it’s a lot of snacks and so I stock up whenever I go home” [FG4, P.2]

Theme #6: Campus Environment

Major issues were raised by students regarding the food environment on campus.

Subthemes within this category include: cost of food on campus and access to food on campus.

Secondly, this major theme addresses special circumstances within the campus environment as it relates to the subtheme of the graduate student experience on campus.

- **Cost of food on campus:** Prices of food on campus, even more specifically, options that would be considered healthier, were a huge concern for students. This subtheme narrates how price barriers impact students accessing food on campus. One student said “I will literally walk home to the towers up hill to avoid paying an extra three dollars for a sandwich” [FG4, P.3].
- **Access to food on campus:** Cost can certainly be a barrier when it comes to food access. However, this subtheme addresses other access issues such as dining locations, hours of operation, and options on campus. One student’s experience was, “None of the food places are open in the evenings, so I don’t have any access to them, but for the vending machines, and I don’t prefer vending machines, because it’s kind of like a resolution that I’ve taken and I should not take anything from the vending machines because nothing is healthy there” [II, 11].
- **Graduate student experience:** Graduate students play a unique role within the campus community. This subtheme demonstrates graduate student needs, as well as special

circumstances relating to food that impact this demographic specifically. One student with a GTA position voiced, “I am a GTA so I get a subsidy, but then over the summer we lose that subsidy, and, we go from paying \$150 a semester, to \$300 dollars over summer. So right there goes our summer funding. Summer is always the hardest” [II,1]. Table 11 provides a summary of key quotes for each subtheme for theme #6.

Table 11

Theme #6: Campus Environment

Subtheme	Participant quotes
Cost of food on campus.	<p>“I want a thing of grapes and like the thing is like 4 bucks” [FG3, P.1]</p> <p>“But some of the stuff is just like crazy expensive. I mean like even in the vending machines, I’m like, do I want to pay 2.50 for a bottle of orange juice, or do I just want to wait until I get home” [II, 10]</p> <p>“I would feel hungry, and then I will also be waiting for the bus, by the Wescoe, and then I would feel so bad and guilty to go down and buy something. Instead, I would feel better to head home and cook something, because otherwise it would be expensive” [II, 11]</p> <p>“The price of the meal plan is definitely scary” [FG5, P.5]</p>
Access to food on campus	<p>“I hate our vending machines. They have nothing... what’s the healthiest thing in here? Bag of cheezeits okay. So it was a dollar thirty-five.” [FG3, P. 3]</p> <p>“The market and the underground close at 3:30 every day [can’t get dinner on campus]” [FG4, P.1]</p> <p>“I have a lot of friends in engineering that are Muslim so they can’t eat a lot of the options that they have” [FG3, P.3]</p> <p>“I don’t really eat on campus at all, just because the place where I am at on campus and also just my nutritional needs, it’s not really useful” [II, 10]</p>
Graduate student experience	<p>“[poor financial situations] Now it is a bit different because I have built such a learning curve, that finally, after so many emergency situations I finally have a path to follow. I know I have to make my tax return as soon as possible to make my loan as soon as possible, to get a new loan as soon as possible to work in the summer. I have to tell my professors in much time ahead for teaching in the summer, and I not only tell that I need, but I beg. So I rely on a network that took me seven years to build. I do emergency loans from KU endowment, which is \$500. I also make what they call short-term loans, and as</p>

an international I can only get \$1500 every year. So, I get the loan, I work to pay, when I get my tax return I pay the loan. So, it's always like that. I get the loan. I use the money along the way for various reason, and then in the next year, I make my tax return very early so I can make my loan very early as well. On top of that I get the \$500 loan, \$2,000 overall" [II, 5]

"I can't speak for everybody, but I feel like in a college setting, it doesn't really occur to you. It's like – we don't really think like, we're getting our master's degree, so we don't really think of ourselves as part of that population. And we're not supporting families, and we're not really even thinking about what we eat a lot. We're just trying to get through every day and get our work done" [II, 8]

"So, when I go to the supermarket, I see dollars, but I immediately think of my currency, so sometimes I'm not willing to pay those extra cents or dollars, because in the back of my mind, I'm thinking no, because it's too high of a price to pay. And the amount of money we get as a GTA is not much, so... there's bills to pay" [FG6, P.1]

"[changes the university should make] Advocating for graduates' students a lot more. They are always left out of the picture I feel like. I think it's because senate is mostly composed of undergraduate students for the most part, I don't know, we think of them [graduate students] as adults, like they are older, they are out of college, but really, they aren't. I don't really know why they are left out so often. I know that they are just like underfunded, or they don't get the same stuff like free printing or weird stuff like that sometimes, and I don't get why when they are paying so much more money" [II, 4]

Theme #7: Future Program Interventions

Students were asked to talk specifically about programming they thought would be useful to help increase food security status among students. This major theme focuses on changes to the current campus climate, and additional resources relating to programs and interventions to help improve student food circumstances. Subthemes within this category include: changes to campus environment, meal swipe program, life skills training, additional resources, and food pantry logistics.

- **Changes to campus environment:** Relating to the previous subtheme, students were eager to recommend changes to the campus food landscape. Changes include pricing and access, with one student stating, “I want real food, at an accessible price, near my department, I can just walk up, eat my meal, and then go back to work. And we don’t have this” [II, 5].
- **Meal swipe program:** The University recently secured funding for food assistance programing. Meal swipe programs have been growing in popularity on college campuses across the U.S. These programs provide emergency funds to students in need with temporary assistance to purchase food on campus. Typically, funds are loaded onto a gift card or student ID card and can be used at on-campus dining facilities. Students were asked to provide feedback on a program such as this at KU. This subtheme relates to students’ perceptions of this programing. One student brought up a great point stating, “I think it’s a really good idea because in elementary school, middle school, and high school, we had that... and then I get to college it’s all of a sudden gone” [FG4, P.3]. This same student noted “I feel like that would motivate me to eat like more nutritious, it’s so expensive” [FG4, P.3].
- **Life skills training:** Students recognized that food insecurity doesn’t happen in a silo. One student stated a desire for a “wholesome nutrition program, something more than going in and grabbing things. Understanding what you’re grabbing. Money management showed me an app too that you get the leaflets of things that are on sale, and then you select for your shopping list. So, making sure students are utilizing that app. I think getting them to money management [would be helpful as well]” [II, 1]. This subtheme focuses on life skills training courses such as money and time management, and cooking courses, that should be offered by the university. One student recognized that “Food becomes more affordable when you know how to cook” [FG3, P.2].

- **Additional resources:** This subtheme highlights the wish list of additional programming students believe the university should be making available to best help students in food insecure situations. This diversified list covers things such as student health insurance, use social media accounts for promotion efforts, and subsidies to help cover the cost of textbooks to assist students financially. There was also feedback relating to targeted outreach such as, “I think marketing to specific groups. Like I know TRIO has a lot of people that are low SES” [FG5, P.4].
- **Food pantry logistics:** Considering the current food pantry on campus is underutilized, feedback was given from food insecure students about what might help increase participation. This subtheme relates to pantry logistics that could be changed such as hours, locations, pantry design to increase student access to this food assistance resource, and a desire for non-food related products such as toiletries. One student shared their vision, “I’m imagining it like the Hawk Shop, except you don’t pay for what you’re getting, and it’s healthier” [FG7, P.2]. Feedback relating to staff operating the pantry included, “Staff need to be well-trained. The moment the person goes in the door they need to feel very welcome” [FG6, P.2]. Lastly, to address social stigma students suggested “[location] Not somewhere that is super populated... I’d just be aware of like people watching me” [FG4, P.1], and “I feel like terminology is a big deal. Like calling something a food pantry, kind of has a negative connotation” [FG7, P.2]. Table 12 provides a summary of key quotes for each subtheme for theme #7.

Table 12

Theme #7: Future Program interventions

Subtheme	Participant quotes
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Changes to campus environment	<p>“Later dining options for like the Market, the underground [on-campus dining facilities] just because like there’s been so many times where I just want to go get a salad and it’s like 5 PM and can’t” [FG3, P.3]</p> <p>“What I think would be a really amazing idea for KU is if you guys... if they opened up a grocery store on campus. Something like Aldi-like, and more The Merc-like. And then it could be a part of campus culture. [II, 8]</p> <p>“Rewards program of some kind [at on-campus dining]. I know I’m much more willing to go back to a restaurant who has like the buy six burritos get one burrito free kind of deal you know” [FG2, P.2]</p> <p>“I wonder why we have food that we can get off campus. You know like what I mean like why don’t we focus more on like feeding ourselves or feeding KU [using KU Dining supported eateries]. I mean chick-fil-a is here, I can go to chick-fil-a down the street.” [FG3, P.1]</p> <p>“Maybe every week, offer a meal or something at the Union from the Marketplace or the Underground [on-campus retail dining], or like a discounted meal. Cause they put in a lot of money for things like t-shirts and stuff, so why not give out, you know, apples, bananas, oranges” [II, 9]</p>
Meal Swipe program	<p>“[Meal swipe program] I think that would be a good like a good thing to have just like as a backbone resource” [FG3, P.2]</p> <p>“[Meal swipe program] Yeah, I think that would be good. And there is no stigma with that at all like there would be with like the bank [food pantry]. It’s a way that if you can’t afford it that you could still go in there and not like be separated or be any different” [II, 3]</p> <p>“[Meal swipe program] I think that’s like the best idea. Because food on campus is where I think a lot of the need is” [FG7, P.2]</p> <p>“[Meal swipe program] I think that’s a really good idea. It’s convenient, you can apply for it so you don’t have to struggle to get money. Okay I have lunch for the day” [FG5, P. 3]</p> <p>“[Meal swipe program] As part of the application process I would do like a survey kind of like what we did about food health. So that they’re not just like using their money on you know like chicken nuggets every day like just so they could get like a balanced meal so I’d do a survey with the application and maybe follow up surveys like hey you know is everything going well like are you eating a balanced diet things like that” [FG2, P.1]</p>
Life skills training	<p>“I think it’s just like being able to cook a meal is just difficult sometimes. Like knowing how to do that. I don’t know what goes with what, or how it really works. I guess it’s just all kind of trial and error. But I don’t want to try something, and it not be good, and then it just goes in the trash” [II,2]</p>

“Because of how I did come up, though, it took me a lot of years of college and having roommates who had better examples before I started making better choices. That used to be a barrier for me – just not recognizing what a healthy meal looked like, what healthy proportions look like and how to plan out a whole week of groceries, or a whole month of groceries” [II, 8]

“Think shopping lessons, cooking lessons, meal planning resources, even giving out Tupperware, baggies, to ensure people have snacks in them. Very practical things that are tangible. Nutrition facts, like reading nutrition labels, Swipe is awesome, I hope that builds. I think location, again, games, utilizing, taking advantage of being in the Union. Make sure if you’re going to table, table, it’s right there. I like the idea of games. Turning it into something more wholesome. A wholesome nutrition program, something more than going in in grabbing things. Understanding what you’re grabbing. Money management showed me an app too, that you get the leaflets of things that are on sale, and then you select for your shopping list. So, making sure students are utilizing that app. I think getting them to money management” [II, 1]

“You know those HSES classes, like yoga, they could totally do a cooking class, that you could get credit for. I would totally do that” [FG7, P.2]

“Yeah it’s just a matter of not knowing how to eat well when it’s like a stressful part or like something when you’re really busy. I have no idea how to manage both” [FG2, P.2]

“I don’t know what, what the food groups are that I should be eating and how much I should be getting” [FG3, P.1]

Additional resources

“A community garden. You could volunteer and pay your dues with your work and grow your own stuff” [FG5, P.2]

“One thing I liked about my previous university is that they had these baskets of food everywhere. It’s not really food, it’s fruits, so you can just grab one as you go. But it made a lot of difference, that fruit, at a time you need it. It’s really the Cupboard that’s there at every bus stop” [II,11]

“I was in a similar program [meal swip] at OU. It was a room and board program, where you applied and had to qualify. It was like a work study program, but we worked at the different dining options around campus, and then that covered all of our room and board with a meal plan” [FG7, P.1]

“Then also with textbooks when they have an access code and you can’t buy it used and you have to buy the access code for 200 plus dollars for an online textbook that you cannot sell back for every single Spanish course that you take. Like that is difficult to pay for” [FG4, P.3]

Food Pantry logistics	<p>“I don’t know if this is a thing but like insurance – KU insurance – is really expensive it’s like \$122 a month and I can’t afford that so I don’t have insurance and like I know a lot of – like none of us have insurance cause like we’re just going on hope that we don’t have to go to the hospital” [FG4, P.1]</p> <p>“I also think if there were feminine hygiene products there for free more people would go” [FG4, P.3]</p> <p>“Personally, I would feel more comfortable if someone older were there [food pantry staffing]. I don’t know, I just feel like one wouldn’t have to explain so much or, as I was saying before, the stigma you can get for getting free stuff, it might be harder or stronger if there was a student there. And also, we’re both GTA’s, and it would be so embarrassing if it were one of our students there” [FG6, P.1]</p> <p>“There is a stigma in general to like going to a food pantry you think of things and stuff like that, so I don’t know, just making it seem like, I don’t know what the word is, but just welcoming and somewhere that students are aware it’s for anyone who needs it. That you don’t have to make a certain amount to like go there, or something” [II, 10]</p> <p>“I’d say more hours, because like as a student we all have different schedules. Some people are working in the morning, so they can’t go to anything. Some work in the evening. And, also taking into account their school schedule” [II, 9]</p> <p>“I think marketing it well is important. I think when I first came to KU orientation was really geared toward more affluent families like here is Greek life as opposed to this is how you are going to eat while you’re here” [FG5, P.4]</p>
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In conclusion, the power behind the student voice relating to food need is great. These major themes and the corresponding student feedback emphasize the need for universities to address the issue of FI on campus. Recommendations relating to changes in the campus environment and implementation of new programming could have significant contributions to improving health and wellbeing of food insecure students on campus.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Conclusions

The complexity of the college student experience with food insecurity (FI) continues to be more widely explored. This research study aimed to fill a gap in the current literature by utilizing qualitative methods to give a voice to those students identified with very low food security on the KU campus. There are some clear connections between previous studies and the current study that give a deeper understanding of the current situation of students on campus. This understanding can inform future direction for the University of Kansas, as well as provide critical insights to other universities.

Predictors of Food Insecurity among College Students

The link between demographic predictors and FI needs to be more strongly considered relating to university programming. Zein et al. (2017) reported sociodemographic correlates and predictors were assessed among eight universities which found associations between FI and race, Pell Grant eligibility, parental education, place of residence, and grade point average (GPA) (El Zein et al., 2017). The current study found 30% (n=9) reported family enrollment growing up (WIC and SNAP) and seven percent (n=2) were currently enrolled in federal assistance programming (e.g., SNAP). One-third of the participants are demonstrating that food insecurity follows them throughout childhood, into college life at KU. One student advocated for the meal swipe program by recognizing “I think it’s a really good idea because in elementary school, middle school, and high school, we had that... and then I get to college it’s all of a sudden gone.” [FG4, P.3].

Given that the transition to college already comes with a lot of challenges, this loss of fundamental programming previously keeping students fed leaves a huge hole in the available assistance critical for student success. Programs such as a meal swipe program may be more familiar considering previous enrollment in free and reduced lunch programming, contributing to a student perception of less social stigma “It’s a way that if you can’t afford it that you could still go in there and not like be separated or be any different” [II, 3].

Lastly, participants are recognizing the connection between low SES groups and food needs on campus. Students had recommendations for reaching out to campus groups working with low-income and first-generation college students for targeted marketing efforts. “I think marketing to specific groups like I know TRIO has a lot of people that are low SES” [FG5, P.4]. If research is finding that there are certain sociodemographic correlates related to FI, universities should take these into consideration for future programming efforts to maximize student reach.

Health and Wellbeing Resources

Previous research studies have found connections between food security status and areas of health and wellbeing. According to a study done by Payne et. al (20017), results showed food insecure students as more likely to report their overall health as fair, poor, or very poor. These students also reported lower energy, and more frequent depressive symptoms, which translated into disruptions in academic work. Food insecure students also reported eating less and lack of the ability to eat balanced meals during the past year (Payne-Sturges et al., 2017). These findings are consistent with findings in the current study.

Student participants in this study showed consistency with reporting low energy and lack of concentration having the largest physical impacts due to food needs. This lack of

concentration was reported by students to contribute to negative academic performance “For me it is mostly like when I study on campus and I get hungry it’s just like ahh I can’t focus on studying or I need to get something in my stomach to stay focused” [FG5, P.3]. Considering retention and graduation are two major goals of any institution of higher education, food needs should be recognized as a major issue regarding academic success of students.

Physical and academic markers are just two areas in the health and wellbeing category. Mental health and even disease were also concerning. Considering the body acts as a unit, each area of wellness can impact the other. One student’s response when asking how food needs impact areas of health was, “All of it. I have a mental health disorder, and so I really do have to be careful. It’s not the biggest factor in how I feel, but if I don’t eat right, then I don’t have the energy to keep up with my exercise, and then it throws off my sleep... it’s a piece of a bigger problem” [II, 8]. Some students may already be struggling with illness, which makes the importance of proper nutrition greater.

Diet is not only an important step in managing existing illness, it is critical in disease prevention. Students were reporting that current eating habits were so damaging that they were contributing to diet related disease. One student said “I don’t think I realized how much my health was being impacted by my diet until last year. I started to get really sick and developed pretty severe anemia. And that’s when I realized oh steak is really expensive, red meats are really expensive, and it was just really hard for me to eat healthier foods because of my budget” [FG5, P.4]. How can we expect students to perform optimally in the classroom with the presence of disease? Universities need to be able to provide students with the knowledge and resources to have diets consistent with managing and preventing illness.

This knowledge and skill about nutrition relates to the desire for life skills training programs such as cooking and nutrition classes. Student participants recognized that these were areas that both themselves, and their peers were lacking in. They also recognized a need for a more holistic program to encompass money and time management skills. One student said:

“Think shopping lessons, cooking lessons, meal planning resources, even giving out Tupperware, baggies, to ensure people have snacks on them. Very practical things that are tangible. Nutrition facts, like reading nutrition labels, Swipe is awesome, I hope that builds. I think location, again, games, utilizing, taking advantage of being in the Union. Make sure if you’re going to table, table, it’s right there. I like the idea of games. Turning it into something more wholesome. A wholesome nutrition program, something more than going in and grabbing things. Understanding what you’re grabbing. Money management showed me an app too, that you get the leaflets of things that are on sale, and then you select for your shopping list. So making sure students are utilizing that app. I think getting them to money management” [II, 1].

Programs and events like this do already exist on campus, but perhaps the reach isn’t getting to this target population. Combining these resources with the idea of targeting student groups working with sociodemographic correlates to FI could increase reach of programming to food insecure students. There should also be consideration for personnel and funding constraints that may impact current program reach.

Breaking Down Access Barriers

Barriers to accessing food assistance resources were primarily categorized as either technical or social barriers. These findings in the current study were consistent with findings

reported by El Zien et. al., (2018) recognizing four barrier themes including social stigma, lacking information needed to access pantry (location, how to use, who can use), lack of self-identity conflicting with use of assistance program (not poor enough, others are worse off), and hours of operation. The main impediments were associated with social stigma and embarrassment (El Zein et al., 2018). Given these consistencies, steps should be taken to use this feedback to breakdown access barriers of current and future food assistance programs on campus.

Students reported multiple technical barriers relating to access of on-campus food resources. These barriers included transportation, hours of operation, and lack of awareness about the resources. One student explained “Just not having the time to go somewhere specifically. I think that the more resources there are actually on campus, during the times people are on campus, would be super beneficial” [FG7, P.2]. Considering that schedule constraints already contribute to disrupted eating patterns, this is an important factor to consider in program design. Bringing the resource to locations students already commonly frequent such as within their school of study could increase program use.

Secondly, lack of awareness about, and how, to use the resources was emphasized by students with statements like “Well, I didn’t hear anything about that this whole year until now. So, I feel like those things, you have to look for it, and people aren’t just advertising it” [II, 6]. This points to a need for campus-wide campaign efforts to make information readily available for all students, faculty, and staff. One student reported “I don’t even know where to begin with those resources like how to go about navigating what to do” [FG3, P1]. This dissemination of information will aid in increasing students comfort level accessing the resource, inadvertently decreasing social stigmas.

Social stigma associated with use of the resource is a consistent barrier for even federally funded nutrition programs. There is a strong fear of embarrassment towards accessing the resource on campus, partnered with the perception that need isn't high enough. This is reflected in a student saying, "I don't know, I just feel like in our society there's just this idea that you don't go to food pantries unless you have no job and you have no other way of getting food" [II, 10]. Campuses should be using this feedback to create messaging to destigmatize use of programs such as on-campus food pantries. Students suggested things like "I feel like terminology is a big deal. Like calling something a food pantry, kind of has a negative connotation" [FG7, P.2]. By using different language surrounding food assistance resources and FI, this could decrease barriers associated with preexisting negative stigma connected with program use.

Future On-Campus programs and interventions

There has been very little research done on the impacts of food assistance program interventions on college campuses. Only one study was found connecting offered resources to student impacts. A study done using ASU food pantry participants reported high numbers of students (86%) being in need of at least one additional resource such as financial aid, career center support, and access to health services. Though there are limitations with these findings due to the small sample size (n=46), (Kim, 2018), these findings are consistent with the idea of offering more expanded services to students experiencing FI on campus.

Considering the constraints on student's schedules, universities should consider a holistic food assistance program with more centralized resources. Using this approach limits the need to refer students out to alternate departments to seek care. The programs that currently exist on campus are wide-spread across multiple offices, limiting the potential of providing

comprehensive care to students experiencing low food security. Universities should be working to connect offices such as healthcare, financial resources, career services, and life skills training courses, to offer the best possible care for students in one location, at the individual level. By creating a more holistic model that can address needs at the individual level, student situations can be assessed in a case-management approach to connect them to the most beneficial resources.

Using this holistic approach of connecting resources, universities should work to generate one office dedicated to offering services to students struggling with food security. This office should have designated staff members available to assist students with needs, as well as offer programs, and outreach, related to FI. Life skills training courses covering nutrition, cooking, shopping, time, and money management should be critical components of food assistance programming. By partnering this programming with resources like the food pantry, universities could have a larger impact on students' ability to change food security status. One student explains "I mean starting adulthood [assuming adult responsibilities- budgeting, cooking, etc.] and not knowing how to financially plan on top of like how to manage your grocery money. That long time between checks is difficult. Especially during finals week or something where I can't work as much" [FG4, P.3]. Food security needs to be thought of as a multifaceted, complex issue, meaning a one size fits all approach isn't a solution. By providing resources such as on-campus food pantries we are merely skimming the surface of this issue that deserves much larger attention by administration.

Administration should consider this holistic approach to resources, as well as additional campus environment changes. Students reported limitations in accessing food on campus due to things like cost, location, and options. Due to these limitations' students are going hungry

throughout the day while rigorous schedules limit ability to leave campus for meals. Students reported seeking out events on campus providing food as a supplemental food assistance resource. Often the food options being served are unhealthy, cheaper, options, such as pizza. Offices on campus should consider food insecure students relying on these food sources as a meal, and work to provide nutrient dense options. Partnerships between on campus dining and campus departments are critical to supply healthy foods, at affordable costs, for programs and events hosted on campus.

I would be remiss if I didn't discuss the graduate student experience in a section relating to changes in the campus environment. Through this process of collecting student stories the study revealed a strong voice from struggling graduate students on campus. Many graduate students also referenced holding GTA positions on campus as a primary source of income. One student provided a compelling quote stating:

“This group KU has no respect for grad. Students to be honest. That grad. Student appreciation week, I call that offensive week. You know it is offensive what you're doing for us. To give us cookies? Really? I can't believe it. I understand, the people who came up with those ideas, but they missed the mark, I am sorry. Too little too late. We don't want cookies, we want respect, and 1300 a month isn't respect. For what we do.” [II, 5].

The financial struggles and personalized needs of graduate students, and even more specifically GTA's, should be noted. Students seeking graduate degrees are feeling left undervalued and underserved when it comes to programs and resources offered by the university. One student even recognized student structures needing change by stating “advocating for graduates' students a lot more. They are always left out of the picture I

feel like. I think it's because senate is mostly composed of undergraduate students" [II, 4].

Providing additional programs and resources specific to graduate student needs such as summer subsidies for health insurance, could positively impact FI among this population. Furthermore, barriers to current program use such as operations and social stigmas could be even larger for this specialty population. One student expressed this concern relaying "[Social stigma] might be harder or stronger if there was a student there [staffing the food pantry]. And also, we're both GTAs, and it would be so embarrassing if it were one of our students there" [FG6, P.1]. Given the professional space GTA's work within at the university, time and social pressures seem to be greater barriers.

Limitations

Certain limitations should be considered regarding research design and results of the current study. Both measurement tools including the supplemental survey and the moderator's guide were investigator designed specifically for the current study. This creates validity and reliability limitations. Secondly, limitations were presented in participant recruitment. The original study design was modified to include individual interviews to capture the goal sample size. Prior to this modification the design proposed only focus groups sessions for data collection. In replication of this study design individual interviews should be considered to reach data saturation. Due to social stigmas and schedule constraints, individual interviews were conducted for 11 of the 30 participants. Thirdly, there should be strong consideration given to the accuracy of the USDA tool measuring food security status of the college student demographic. Given their specific life circumstance, disruptions in eating patterns due to things like rigorous schedules, or restrictions on hours of on campus dining facilities for those with meal plans, this

may reflect an increase in skipped meals. There was a clear food need expressed from students in the study, but there were also students that communicated eating patterns that weren't consistent with very low food security markers. Future research within the space of college food insecurity may want to consider development and validation of a food security module that is college student specific. Lastly, there are generalizability limitations. Given that this qualitative study collected perspectives only of KU students, the results can't be generalized to other college campuses.

Recommendations

Based upon the conclusions formulated from the current study, future recommendations are as follows:

- **Targeted Programs and Outreach:** Research is showing consistencies in certain sociodemographic identifiers correlating with food insecurity. Students coming from low SES backgrounds have not only been found to be at higher risk in the literature, but 30% (n=9) of students in the current study reported family enrollment in federal food assistance programs growing up. Certain campus groups and departments currently exist to serve this demographic specifically. By dedicating targeted programs and outreach to these campus groups, universities can reach high risk populations effected by FI.
 - **Graduate Students:** Though research is lacking related to the graduate student experience, the voice in the current study was strong. Graduate students' identities on campus put them in a unique role within the dynamics of the university. Students are falling between the role of professional staff and fulltime student, which may cause different barriers

relating to access to resources. Special programming efforts targeting graduate students should be considered.

- **Life skills Training Programs:** Students are reporting gaps in knowledge relating to nutrition, cooking, grocery shopping, money, and time management. There is a desire to learn more about these basic life skills, and a recognition that they are all important pieces relating to the college student experience with food. Incorporation of these programs for the entire campus, but even more specifically for food insecure students, could impact food security status. Food Pantries are an important resource, but they need to be supplemented with additional life skills training programs to truly impact food security in the long-term.
 - **Program Impact Research:** With program intervention should come formative, impact, and outcome assessment. There is very little research assessing food assistance program impacts following implementation. Understanding program impact is critical to the development and implementation of effective program interventions.
- **Addressing Barriers:** Like other research findings, the current study found significant barriers relating to food assistance program use. Two major categories emerged: technical barriers and social barriers. Technical barriers such as hours, awareness, and location can be further explored to incorporate improvements guided by student feedback. Considerations should be given to multiple satellite locations for food aid which could help to break down these barriers and reach students where they frequent. Secondly, and perhaps more significantly, are social stigmas associated with program use. Large campaign efforts should be

considered to normalize use of these resources and break down preexisting perceptions of the college student diet. Special consideration should be given to language surrounding campaigns and program outreach to avoid words that may have a negative connotation (e.g. food pantry).

- **Creating a Centralized Coordinating Office:** There are many facets relating to student food security on campus, adding to the complexity of the issue. Given this complexity, administrators should give strong consideration to the development of a centralized coordinating office dedicated to addressing FI on campus. Staff members that can be properly trained and are less transient than student staff or volunteers are critical to the success of this office. Through dedicated staff, efforts can be made towards sustainable programming and funding necessary to change the campus culture related to food. By streamlining services and having the ability to help students within a case management structure, it can assure maximization of resources and a more positive student experience.
- **Graduate Student Research:** The graduate student experience emerged as a critical subtheme. There is very little in current research that examines specifically the graduate student experience with FI on college campuses. The current study began to reveal differences between the undergraduate and graduate student experience that needs to be further explored. Many of the graduate student participants disclosed through conversations that they also hold GTA positions on campus. This may point to a subpopulation within graduate students experiencing significant struggles.

In conclusion, the recommendations provided in this section are grounded in data collected from college students with high food needs. Using this student feedback there are recommendations for both modifications and additional programming related to food assistance resources on campus. There should be strong consideration by administration for structural changes to the university relating to food security issues. These changes could have large impacts on the wellbeing of students contributing to academic achievement and success.

APPENDIX A

Participant Recruitment Email

I am reaching out as a follow up to a recent survey you completed pertaining to food insecurity sent out by the Office of Student Affairs. During your survey you indicated you would be willing to participate in a follow up focus group to further discuss your responses. Students selected for participation had survey responses indicating that they may not have sufficient access to healthy, affordable foods. There will be light snack served during the focus groups, and by participating you will **receive a \$50 gift card to use at any KU Dining** Location on campus. In order to receive this incentive, you must follow the protocol listed below.

As a part of this study participants will be asked to complete the following activities:

1. Participants will be asked to complete the focus group supplemental survey upon arrival. This will take place in a predetermined private conference space on the KU campus (see below), and will consist of questions asking about current nutritional habits, nutritional impact on health and wellbeing, and food assistance program usage. The expected duration for completion is approximately 10-15 minutes.

2. Participants will be asked a series of established focus group questions pertaining to food insecurity situation, impacts on health, wellbeing, and academics, utilization of food assistance programs, and suggestion for future campus resources. This will take place in a predetermined private conference space on the KU campus (see below). The focus group questions and group discussion are expected to last roughly 60-75 minutes.

If you are interested in participating in a focus group, please contact Kelsey Fortin at Kelseyf123@ku.edu to schedule your study session time and date. Please see options below possible dates and times and indicate which session(s) you are available to participate in.

Monday, April 16th- 12:00pm

Tuesday, April 17th- 8:00am or 12:30pm

Wednesday, April 18th- 6:30pm

Thursday, April 19th- 4:00pm

Monday, April 23rd- 8:00am

Thank you in advance for your consideration. Please let me know if you have any additional questions.

APPENDIX B

Focus Group- Supplemental Survey

Thank you for your willingness to participate in this study. Your feedback and responses are important to us. If you have any questions, please feel free to ask one of the researchers in the room.

NUTRITIONAL NEEDS:

1. Which statement best describes your current nutritional habits (Please Circle only one)?

- a. The amount of food I eat each day DOES keep me satisfied and often I Do eat a well-balance diet with 5 servings of fruits and vegetables, 5 ounces of protein, 5 ounces of grains, and three cups of dairy a day.
- b. The amount of food I eat each day DOES keep me satisfied, but often I DON'T eat a well-balanced diet with 5 servings of fruits and vegetables, 5 ounces of protein, 5 ounces of grains, and three cups of dairy a day.
- c. The amount of food I eat each day DOESN'T keep me satisfied, but often I DO eat a well-balanced diet with 5 servings of fruits and vegetables, 5 ounces of protein, 5 ounces of grains, and three cups of dairy a day.
- d. The amount of food I eat each day keeps DOESN'T keep me satisfied, and I often DON'T eat a well-balanced diet with 5 servings of fruits and vegetables, 5 ounces of protein, 5 ounces of grains, and three cups of dairy a day.

2. Use the matrix to check the box (Choose only one) that best describes how you would change your current nutritional habits. Please provide one answer for each of the following questions:

	Agree- I don't have the means to get enough in my diet	Neutral- I could use more but don't see it as a huge concern	Disagree- I get enough in my diet
4.1 I would eat more fruits and vegetables			
4.2 I would eat more protein			
4.3 I would eat more dairy			
4.4 I would eat more grains			
4.5 I would increase the amount of calories I am getting			

HEALTH IMPACTS:

3. Use the matrix to check the box (Choose only one) that best describes how much you agree or disagree with the statements below. Please provide one answer for each of the following statements:

	Agree- My current nutritional needs have a negative impact on the normal function within his area of my life.	Neutral- I don't see my nutritional needs having any impact on this area of my life.	Disagree- My current nutritional needs don't have a negative impact on the normal function within this area of my life.
5.1 "My current nutritional needs have a negative impact on my mental health"			
5.2 "My current nutritional needs have a negative impact on my physical health"			
5.3 "My current nutritional needs have a negative impact on your stress levels"			
5.4 "My current nutritional needs have a negative impact on your academic performance"			

ASSISTANCE PROGRAMS:

4. Are you currently enrolled in any federally funded programs for food assistance (ex: Food Stamps, WIC, etc.) (Please Circle only one)?

a. Yes

Please indicate which one(s):

b. No

Please Explain:

5. Have you ever thought about applying (Please Circle only one)?

a. Yes

Please Explain:

b. No

Please Explain:

6. Growing up was your family ever enrolled in any federally funded programs (ex: Food Stamps, WIC, etc.) (Please Circle only one)?

a. Yes

Please indicate which one(s):

b. No

APPENDIX C

Moderators Guide

Initial Statement: Thanks to all of you for your willingness to participate in this discussion. As you probably know, this is a follow up to the survey you completed recently about food security/insecurity at KU. Students that have been selected to participate in these focus groups had survey responses that indicated that they may not have sufficient access to healthy, affordable foods. We have 12 questions to discuss and would really like to hear from all of you on all questions. It is important to get the perspective of as many participants as possible. Please show respect when someone else is talking and if you find yourself overpowering the conversation give others the opportunity to share. Please know if at any time you feel uncomfortable with a question being asked you are welcome to excuse yourself.

- 1) Let's start by introducing ourselves and talking about the foods we most like and most dislike. Please say your first name, what your class status is here (sophomore, junior, etc.)

- 2) How would you describe your current eating habits as a KU student?
Prompts: How many meals per day do you tend to eat, how do you choose what you will eat, how do you choose where you will eat, etc.

- 3) How do your current eating habits compare to the time before you became a student? (i.e. while growing up)
 - a. Did you or your family utilize any assistance programs such as school meal assistance programs, WIC, SNAP, food pantry use, etc.

- 4) If you could change anything about how and what you eat, what would that be and why?

- 5) What limitations prevent you from getting the amount of food you need?

- 6) What limitations prevent you from getting the variety of food you need in your diet? (Ex: getting recommended amounts of fruits and vegetables (5 servings/day), protein (5 oz-

meat, fish, poultry, beans, legumes, eggs), grains (5 oz- including whole grains wheat bread, oats, brown rice), and dairy (3 cups low-fat milk, yogurt, cheese)

- 7) What do you/would you do in instances where you may not have enough money to buy the foods you would like to eat?
- 8) What impacts have you noticed your food needs having on your:
 - a. physical health
 - b. Mental Health
 - c. Stress levels
 - d. performance as a student at the University of Kansas (academics, class materials, missing class)
- 9) What resources are you aware of on the KU campus to aid in food assistance?
 - a. What about in Lawrence?
 - b. For those of you that have utilized these resources can you talk about your experience?
 - c. Why do you think people use or don't use these resources? Is there a stigma associated?
 - d. What might help people be more willing to access these resources?
- 10) Where on campus (location wise) would you feel most comfortable utilizing food assistance resources? (prompt with examples if needed: in your department, advising, union, etc.). What would such a location look like?
 - a. The food pantry is looking at relocating to either Summerfield Hall or the 4th floor of the Kansas Union. In Summerfield, it would be in a separate room on a hallway with other student service offices (e.g. Veterans Affairs and Undergrad Advising). In the KS Union it would be on the main (4th Floor) in an area just inside the SILC Offices. What are your perceptions of these locations? Do you have a preference, Why or why not?
 - b. The University is also hoping to start a meal swipe program in which students can apply for funding to be credited with dollars that can be used within KU Dining Facilities (much like SNAP). What are your perceptions of this program? Would you utilize it? Why or why not?

11) What else do you think KU could or should do to make sure that its students are able to eat healthy, balanced diets while they are students here?

12) Is there anything you wish to share/ discuss within the topic of food insecurity and KU students that hasn't yet been discussed?

APPENDIX D

Focus Group Participant Informed Consent

The Department of Health, Sport, and Exercise Science at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the study. You may refuse to sign this form and not participate. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you decide to withdraw, it will not affect your relationship with this department, the services it may provide to you, or the University of Kansas.

Purpose of Study

The purpose of this research is to understand the circumstance of KU students experiencing food insecurity to best serve student needs. Exploration within this study will focus on the extend of the problem for college students, how big of an impact food insecurity may have on health, wellbeing, and academic success, what food assistance resources are currently in use, and what additional resources KU could provide assist student needs.

Explanation of procedures

As a part of this study participants will be asked to complete the following activities:

1. Participants will be asked to complete the focus group supplemental survey upon arrival. This will take place in a predetermined private conference space on the KU campus, and will consist of questions asking about current nutritional habits, nutritional impact on health and wellbeing, and food assistance program usage. The expected duration for completion is approximately 10-15 minutes.

2. Participants will be asked a series of established focus group questions pertaining to food insecurity situation, impacts on health, wellbeing, and academics, utilization of food assistance programs, and suggestion for future campus resources. This will take place in a predetermined private conference space on the KU campus. The focus group questions and group discussion are expected to last roughly 60-75 minutes.

Potential Risks and Discomforts

The focus group discussions will be audio recorded and transcribed verbatim by a member of the research team. Due to the sensitivity of the topics being discussed, participants may feel uncomfortable during the discussion. If you feel uncomfortable at any point during the discussion and do not wish to continue, we will stop the recording, or you may quit participating and no further data will be collected from you.

Potential Benefits to the Participant

Participant responses will help inform the University action steps towards providing more resource to students experiencing food insecurity on campus. This information could also prove to be beneficial for other campuses across the United States.

Potential Benefits to Society

Food insecurity working specifically with college students is an undeveloped area of research. Qualitative research within this topic area is even more scarce. This study could help inform an understanding of the complexity of college students facing hunger and provide feedback on resources and assistance that will prove to be beneficial to student success moving forward.

PAYMENT TO PARTICIPANTS

Participants will receive a \$50.00 gift card to KU Dining Services upon completion of the study. In order to receive payment, participants must 1) provide written consent; and 2) complete all of the study procedures listed. Investigators may ask for your social security number in order to comply with federal and state tax and accounting regulations.

Participant Confidentiality

Your name will not be associated in any publications or presentations with the information collected about you or with the research findings from this study. Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. In addition, Kelsey Fortin, her research advisor Dr. Susan Harvey, and Dr. Stacey Swearingen White, will be the only personnel to have access to the audio recordings and transcriptions. No individual names will be linked to comments made during the discussions. Audio files and transcriptions will be maintained in a secure, password-protected database for a period of 3 years and then destroyed. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response.

Please be advised that although the researchers will take every precaution to maintain confidentiality of the data, the nature of focus groups prevents the researchers from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the focus group to others.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form, you give permission for the use and disclosure of your information for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected, in writing, at any time, by sending your written request to: Kelsey Fortin, Department of Health, Sport, & Exercise Sciences, 1301 Sunnyside Ave., Lawrence, KS 66045. If you cancel permission to use your information, Kelsey Fortin will stop collecting additional information. However, Kelsey Fortin may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to Dr. Harvey. Her contact information is located at the end of this consent form.

PARTICIPANT CERTIFICATION

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Research Protection Program (HRPP), University of Kansas 2385 Irving Hill Road, Lawrence, KS 66045-7568, or email irb@ku.edu. I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

Your Name (Please Print)

Your Signature

Date

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APPENDIX E

Focus Group and Individual interview Demographic breakdown

Name	Total participants	Total time	Demographics
FG 1	n=2	38:42	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • No= 2 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 2nd year= 2 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 1 • Female= 1 <p>Race:</p> <ul style="list-style-type: none"> • White= 2
FG 2	n=2	39:59	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • No= 2 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 3rd year= 1 • Undergraduate: 4th year= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 2 <p>Race:</p> <ul style="list-style-type: none"> • Black/ African American= 1 • Hispanic/Latinx= 1
FG 3	n= 3	1:57:07	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • Yes= 1 • No= 2 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 2nd year= 1 • Undergraduate: 3rd year= 1 • Undergraduate: 5th year+= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Female= 3 <p>Race:</p> <ul style="list-style-type: none"> • American Indian/ Alaskan= 1 • Black/ African American= 1 • Hispanic/Latinx= 1
FG 4	n= 3	43:58	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • No= 3

			<p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 1st year= 2 • Undergraduate: 2nd year= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Female= 3 <p>Race:</p> <ul style="list-style-type: none"> • Asian= 1 • White= 1 • Mixed race= 1
FG 5	n= 5	59:27	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • Yes= 4 • No= 1 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 3rd year= 2 • Undergraduate: 5th year+= 2 • Master's= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 1 • Female= 3 • Trans= 1 <p>Race:</p> <ul style="list-style-type: none"> • Hispanic/Latinx= 3 • White= 1 • Prefer not to respond= 1
FG 6	n= 2	57:46	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • Yes= 1 • No= 1 <p>Class Status:</p> <ul style="list-style-type: none"> • Master's= 1 • Doctoral= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 2 <p>Race:</p> <ul style="list-style-type: none"> • Asian= 1 • Hispanic/Latinx= 1
FG 7	n= 2	38:32	<p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • No= 2 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 2nd year= 1 • Doctoral= 1 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 1 • Female= 1 <p>Race:</p>

II	n= 11	19:12 - 1:13:06	<ul style="list-style-type: none"> • White= 2 <p>Use of Food Assistance program in the last 6 months:</p> <ul style="list-style-type: none"> • Yes= 1 • No= 10 <p>Class Status:</p> <ul style="list-style-type: none"> • Undergraduate: 1st year= 4 • Undergraduate: 3rd year= 1 • Master's= 3 • Doctoral= 3 <p>Gender:</p> <ul style="list-style-type: none"> • Male= 3 • Female= 8 <p>Race:</p> <ul style="list-style-type: none"> • Asian= 1 • Black/ African American= 1 • White= 8 • Mixed race= 1
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References

- Alaimo, K. (2005). Food Insecurity in the United States: An Overview. *Topics in Clinical Nutrition, 20*(4), 281-298. doi:10.1097/00008486-200510000-00002
- Chaparro, M. P., Zaghoul, S. S., Holck, P., & Dobbs, J. (2009). Food insecurity prevalence among college students at the University of Hawai'i at Mānoa. *Public Health Nutrition, 12*(11), 2097-2103.
- Cooper, P. (2018). College Enrollment Surges Among Low-Income Students. Retrieved from <https://www.forbes.com/sites/prestoncooper2/2018/02/26/college-enrollment-surges-among-low-income-students/#530403f2293b>
- CUFBA. (n.d.). FAQ. Retrieved from <https://sites.temple.edu/cufba/faq/>
- Dudley, B. (2017). The Relationship Between Food Insecurity and Academic Performance Among San José State University Students. In G. Feist, C. Chancellor-Freeland, & C. Oyamot (Eds.): ProQuest Dissertations Publishing.
- El Zein, Mathews, A., House, L., & Shelnutt, K. (2018). Why Are Hungry College Students Not Seeking Help? Predictors of and Barriers to Using an On-Campus Food Pantry. *Nutrients, 10*(9), 1163.
- El Zein, Shelnutt, K., Colby, S., Olfert, M., Kattelman, K., Brown, O., . . . Mathews, A. (2017). Socio demographic correlates. *Academy of Nutrition and Dietetics, 117*(10). doi:10.1016/j.jand.2017.08.102
- FeedingAmerica. (2014). Hunger in America 2014 Executive Summary. Retrieved from <http://www.feedingamerica.org/research/hunger-in-america/hia-2014-executive-summary.pdf>
- FeedingAmerica. (2018). Hunger and Poverty Facts Sheet. Retrieved from <http://www.feedingamerica.org/assets/pdfs/fact-sheets/poverty-and-hunger-fact-sheet.pdf>
- Freudenberg, N., Manzo, L., Jones, H., Kwan, A., Tsui, E., & Gagnon, M. (2011). Food insecurity at CUNY: Results from a survey of CUNY undergraduate students. *Campaign for a Healthy CUNY, New York, NY*.
- Gaines, A., Robb, C. A., Knol, L. L., & Sickler, S. (2014). Examining the role of financial factors, resources and skills in predicting food security status among college students Food security and resource adequacy. *International journal of consumer studies, 38*(4), 374-384. doi:10.1111/ijcs.12110
- Glaser, B., & Strauss, A. (1999). *The Discovery of Grounded Theory: strategies for qualitative research*. New York: Routledge.
- Goldrick-Rab, S., Broton, K., & Eisenberg, D. (2015). Hungry to Learn: Addressing Food & Housing Insecurity Among Undergraduates. *Wisconsin Hope Lab*.
- Hagedorn, R., & Olfert, M. (2018). Food Insecurity and Behavioral Characteristics for Academic Success in Young Adults Attending an Appalachian University. *Nutrients, 10*(3), 361.
- Holben, D. H., & Marshall, M. B. (2017). Position of the Academy of Nutrition and Dietetics: Food Insecurity in the United States. *J Acad Nutr Diet, 117*(12), 1991-2002. doi:10.1016/j.jand.2017.09.027
- Kim, E. (2018). The Acceptability and Feasibility of an On-Campus Food Pantry to Address Student Food Insecurity. In M. Bruening, L. Ransdell, & S. Vega-Lopez (Eds.): ProQuest Dissertations Publishing.
- King, J. (2017). Food Insecurity Among College Students: Exploring the Predictors of Food Assistance Resource Use. In S. Alemagno, N. Caine-Bish, R. Fischbein, & D. Kenne (Eds.): ProQuest Dissertations Publishing.
- Kirk, J., & Miller, M. (1986). *Reliability and validity in qualitative research*. London: Sage Publications.
- Lincoln, Y., & Guba, E. (1985). *Naturalistic Inquiry*. London: Sage Publications.
- Marlow, C. (1993). *Research Methods*. Pacific Grove, CA: Brooks/Cole Publishing Company
- Maslow, A. H. (1987). *Motivation and Personality* (3rd ed.). New York, NY: Harper & Row.
- McArthur, L. H., Ball, L., Holbert, D., Dane, A. C., & Holbert, D. (2017). A High Prevalence of Food Insecurity Among University Students in Appalachia Reflects a Need for Educational

- Interventions and Policy Advocacy. *Journal of nutrition education and behavior*. doi:10.1016/j.jneb.2017.10.011
- Miles, & Huberman. (1994). *Qualitative Data Analysis: a methods source book*. London: Sage Publication.
- Morris, L. (2014). The presence of high, marginal, low and very low food security among Illinois university students. In S. Smith, J. Davis, & D. Null (Eds.): ProQuest Dissertations Publishing.
- NCES. (2017). Elementary and Secondary education Enrollment. Retrieved from <https://nces.ed.gov/fastfacts/display.asp?id=372>
- Patton-López, M. M., López-Cevallos, D. F., Cancel-Tirado, D. I., & Vazquez, L. (2014). Prevalence and correlates of food insecurity among students attending a midsize rural university in Oregon. *Journal of nutrition education and behavior*, 46(3), 209-214.
- Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2017). Student Hunger on Campus: Food Insecurity Among College Students and Implications for Academic Institutions. *American journal of health promotion*, 32(2), 349-354. doi:10.1177/0890117117719620
- Silva, M., Kleinert, W., Shepard, c. K., Freeman-Coppadgn, D., Tsoy, E., Roberts, T., & Pearrow, M. (2017). The Relationship Between Food Security, Housing Stability, and School Performance Among College Students in an Urban University. *Journal of college student retention : Research, theory & practice*, 19(3), 284-299. doi:10.1177/1521025115621918
- United States Department of Agriculture. (2018). Retrieved from https://en.wikipedia.org/wiki/United_States_Department_of_Agriculture
- USDA. (2015a). Current Eating Patterns in the United States. *Dietary Guideline 2015-2020*. Retrieved from <https://health.gov/dietaryguidelines/2015/guidelines/chapter-2/current-eating-patterns-in-the-united-states/#figure-2-1-desc-toggle>
- USDA. (2015b). Key Recommendations: Components of Healthy Eating Patterns. *Dietary Guidelines 2015-2020*. Retrieved from <https://health.gov/dietaryguidelines/2015/guidelines/introduction/dietary-guidelines-for-americans/>
- USDA. (2018a). Definitions of Food Security. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security/>
- USDA. (2018b). Measurement. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/>
- USDA. (2018c). Nutrition (Nutrient dense). Retrieved from <https://www.choosemyplate.gov/nutrition-nutrient-density>
- USDA. (2018d). Survey Tools. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/>
- Watson, T. D. (2018). Emerging Topics in Food Insecurity: An Assessment of University Student Food Access and Urban Agriculture in Los Angeles.
- Wattick, R., Hagedorn, R., & Olfert, M. (2018). Relationship between Diet and Mental Health in a Young Adult Appalachian College Population. *Nutrients*, 10(8), 957.