ABSTRACT

Feeding Success: A Mixed Methods Study on the Impact of Food Insecurity on
College Students' Educational Goals and the Effectiveness of Institutional Interventions

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Food insecurity among students is a problem on college campuses. The most
comprehensive study to date, conducted by the HOPE Foundation, found that 42% of
community college students experience food insecurity (Goldrick-Rab et al., 2018).
Despite the awareness that food insecurity exists and awareness that food insecurity can
cause physical, mental, and sociological problems, there is little research that
demonstrates and explains the connection to educational impact. Additionally, although
schools have put interventions into place, research does not show the effectiveness of
such programs or policies. The significant number of students who experience food
insecurity in combination with the barriers food-insecure students face makes the
problem not only one of student success but also institutional success.

This mixed-methods study used a theoretical framework based on the
constructionist theory of social work by Loseke (1999) and the diagnostic framing of
Benford and Snow (2000) to define the problem, identify the people involved, and devise
measurable and viable solutions. This process informs the grounded theory approach

where explanations of relationships are identified and participant experiences create new understanding throughout the data collection and analysis process (Lawrence & Tar, 2013). The study utilized a concurrent triangulation design to investigate the experiences and academic success outcomes of the students of South Texas College who utilize the student food pantry. Simultaneous qualitative data and quantitative data collection occurred through surveys, questionnaires, and interviews.

This study provided a direct connection between student experience and student success metrics to provide the college with better information to meet the needs of the students. Additionally, other institutions will have a greater knowledge of the impact of food insecurity on students and the effectiveness of a student food pantry to mitigate the challenges food insecure students face. This study answered the following three research questions: What is the relationship between food insecurity and academic success? How does the student's educational experience change after gaining acct the food pantry? How do the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges?

Keywords: Food insecurity, intervention, college success, physical health, mental health, sociological impact, effectiveness

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College Students' Educational Goals and the Effectiveness of Institutional Interventions

by

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A Dissertation

Approved by the Department of Curriculum and Instruction

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Brooke Blevins, Ph.D., Chairperson

Submitted to the Graduate Faculty of
Baylor University in Partial Fulfillment of the
Requirements for the Degree
of

Doctor of Education

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August 2021

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Page bearing signatures is kept on file in the Graduate School.

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ACKNOWLEDGMENTS

I would like to take this opportunity to thank the many people that helped me along this journey. First, to Dr. Tony Talbert for his constant support and encouragement. I have never met anyone who can deliver both compliments and critiques that bring out another's best the way that you do. Second, to Dr. Werse for turning me into a writer. You helped me to find a new passion for writing and provided me the skills to find success. I truly have no words to describe what your belief in me means now and always. Third, to Katie Zamulinsky and Buffy Rattan who truly partnered with me for mutual success. Fourth, to Corey Owens who listened to my insecurities and frustrations and kept me on my path. Lastly, to Jeremey Everett and Debora Franco of the Baylor Collaborative on Hunger and Poverty. Your passionate approach to finding solutions for such critical issues pushed me to work beyond this dissertation and into the world of food insecurity to truly find the meaning behind the research.

DEDICATION

To my Husband

Robert Guerra

Who supported my dreams every step of the way

To my children

For believing I could do it

CHAPTER ONE

Introduction to the Problem of Practice

Introduction

While sitting in class, a young woman thinks about the last time she had something to eat. She is embarrassed by the grumbles of her stomach, so she frequently changes her position to try to settle the roar from the pit of her empty stomach. At least she knows her daughter was able to eat breakfast and lunch at her school, and there is just enough food left at home to give her a small meal before she puts her to sleep for the night. These are the thoughts that fill her mind while she tries to focus on her professor's lecture. She knows a college education is what will change the course of her life for her and her daughter, but how will she ever make it to graduation day when she cannot even focus on the day's lesson or assignments?

Unfortunately, this story is all too real for many college students. With estimates of food insecurity existing on college campuses at levels of up to 56% (Bruening, Argo, Payne-Sturges, & Laska, 2017; Cady, 2014; Goldrick-Rab et al., 2018), students sit in classrooms all over the country wondering where their next meal will come from. It is a problem that until recently has gone ignored or unaccepted by many institutions. Although recent attention has sparked some response from both colleges and universities alike, limited research on the impact of food insecurity on students' educational success and the effectiveness of institutional interventions to mitigate these effects has left the question of how to best serve these students unanswered.

This chapter will introduce food insecurity among college students. First, it will provide a statement of the problem that will identify the gaps in the research, and the struggles that students with food insecurity face. Second, it will provide the purpose of the study and explain why it is needed, the impact it will have, and the research questions it aims to answer. Third, it will discuss the conceptual framework and the researcher's positionality. Lastly, the definitions used for this study will be clearly defined. The totality of this chapter will provide a clear understanding of the scope of the problem, the absence of information on the effect food insecurity has on college student success, and the lack of research on the effectiveness of institutional interventions proving the need for the study.

Statement of the Problem

Food insecurity is a growing problem for college students. Although research exists that discusses food insecurity in households and both primary and secondary education, there is limited research in the area of food insecurity for students attending a college that provides a complete picture of the problem. According to Phillips, McDaniel, and Croft (2018), "Estimates of the percentage of food-insecure college students can vary widely from 12%–59% across a wide number of states, types of institutions, and student demographics" (p. 1). These statistics indicate a significant need for higher education institutions to address food insecurity. Additionally, Payne-Sturges et al. (2018a) state, "…food insecurity, hunger, or food insufficiency has been associated with lower academic achievement, behavioral and attention problems, and adverse psychosocial development" (p. 350). The significant number of students who experience food

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insecurity in combination with the barriers food-insecure students face makes the problem not only one of student success but also institutional success.

The path to college graduation is not easy for the average student and is even more difficult for students with modest or low family income. Despite rising college costs, the number of students from low-income households enrolling in college is on the rise. This increase demonstrates an understanding of the reality that well-paying jobs frequently require credentials beyond a high school diploma. The majority of students with low incomes experience additional factors, such as being a first-generation college student or a single parent, that exacerbate their risk of being food-insecure (Smith, 2019). First-generation college students frequently struggle as they learn to navigate through the college processes. According to Perry (2018), "These students tend to be less knowledgeable about key education processes, such as apply and register for classes, apply for financial aid, access mental health services, obtain advising and counseling appointments…" (p. 102). The lack of support systems not only increases the likelihood of experiencing food insecurity but also decreases the possibility of students reaching their academic goals.

Although the focus is frequently put on poor families, the battle with finances while attending college extends up to the middle class as well. Most children of middle-class families or independent students earning moderate incomes also struggle financially while attending college. As the cost of college education increases, so does the need for students and their families to divert their income away from living expenses to cover tuition. Additionally, student demographics are changing. A greater percentage of college students are working adults and parents. These individuals may

not be low-income students, but their added responsibilities and the high cost of education can place them in a position where they are forced to make decisions between educational costs and living expenses such as food. Unfortunately, neither federal nor state financial aid nor social service policies have changed to meet the needs of the more diverse student population (Smith, 2019).

Social class is not the only factor that impacts an individual's probability of becoming food-insecure. According to Cady (2014), "…food insecurity disproportionately impacts populations that are already underserved on college campuses" (p. 268). Populations such as, African American, Latinx, Native American, disabled individuals, and individuals who identify as lesbian, gay, bisexual, transgender, or queer, and single women with children are at greater risk of becoming food-insecure (Cady, 2014; Martinez et al., 2018; Willis, 2019). These groups need to be considered when schools are developing programs to support food-insecure students.

Students finding themselves food-insecure also fight an uphill battle to obtain food assistance through programs such as the Supplemental Nutrition Assistance Program (SNAP) due to unclear policies. In a recent report from the U.S. Government Accountability Office (GAO), close to two million at-risk students who were identified as candidates to receive SNAP benefits did not receive them in 2016 (United States Accountability Office, 2018). This discrepancy comes from misconceptions that students are automatically disqualified from receiving SNAP benefits. Many schools, and even local benefit offices, are unclear about the rules surrounding nutrition benefits. This lack of understanding results in the failure to make students aware they

can qualify for food assistance benefits with certain criteria. The GAO (2018) acknowledges that Federal assistance programs fall short for many students and note that even bringing awareness to students and schools regarding exemption policies will not be enough to solve the current problem with food insecurity for higher education students (United States Government Accountability Office, 2018).

Developed awareness of how food insecurity impacts students' physical and mental health, as well as sociological impacts and the relationship these negative forces have on academic performance, would allow institutions to respond to the problem with effective solutions. Although schools are responding to food insecurity, mostly through food pantries, evidence to support the success of these programs does not exist (Cady, 2014; Goldrick-Rab et al., 2018; Patton-López, López-Cevallos, Cancel-Tirado, & Vazquez, 2014). Research on both the impact of food insecurity on educational outcomes and the effectiveness of solutions to mitigate barriers is imperative.

Purpose of the Study

The prevalence of food insecurity and the potential risks to academic success for students has led colleges to respond primarily through campus food pantries (Cady & White, 2018; Fincher et al., 2018; Martinez et al., 2018; Perry, 2018) However, the effect that access to a food pantry, or alternative institutional interventions, has had on student success had not been identified clearly through research (Phillips et al., 2018) One barrier to researching the effectiveness of a food insecurity interventions is the inability to connect specific indicators of success, such as persistence, competition, and grade point average (GPA) from a quantitative perspective, directly to food insecurity issues.

Although some colleges have tried to address the problem of food insecurity, little research indicates the effectiveness of these programs.

This mixed-methods study investigated the barriers created by food insecurity and described and interpreted the meaning of the experiences of students at South Texas College who have gained access to the campus food pantry. Results from this study identified clear connections to barriers created by food insecurity and determine how access to the student food pantry has mitigated the negative results of limited food access. Additionally, this study identified the effectiveness of the food pantry to address food insecurity to determine what measures or combinations of measures are most effective in helping students to achieve their educational goals. Data collected from surveys, questionnaires, and journals provided rich data for analysis to understand their experiences. This study answered the following three research questions: What is the relationship between food insecurity and academic success? How does the student's educational experience change after gaining access to the food pantry? How do the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges? To answer these questions, the researcher utilized the constructionist theory of social work.

Theoretical Framework

Constructionism claims that problems do not exist before they have been defined by someone or some entity to be a social problem. Loseke (1999) adds to this definition by claiming that an issue is not a social problem unless it meets four specific criteria. The condition must be considered wrong, widespread, fixable, and people must want to change it. Based on this theory, although some social conditions are unfavorable to some

groups, they do not become social problems before defined as problematic and in need of solutions. Therefore, the definition of the problem needs to include what needs to be corrected, what or who is the cause, and who needs to correct it. Benford and Snow (2000) share similar ideas through a process they call "diagnostic framing" (p. 615).

Diagnostic framing defines three central concepts (the first two are diagnostic, and the third is prognostic). The three concepts lay out a path from problem identification to problem solution. This process will be the guide as the researcher moves through phases of research. The first step is to develop cultural themes. The researcher constructed themes by looking through a lens of morality. The construction of problems requires looking at them as a complete break from what has been historically and culturally acceptable (Benford & Snow, 2000; Michailakis & Schirmer, 2014). The second step is to define the people involved. Diagnostic framing specifies that specific individuals or groups can be identified as victims who are oppressed by a corresponding negative force. This force can be people, systems, groups, or institutions (Michailakis & Schirmer, 2014). The process of diagnostic framing requires the definition of themes and people impacted, the creation of a course of action, and the identification of responsible individuals. This ensures individual accountability and the creation of viable and legitimate solutions (Michailakis & Schirmer, 2014).

This study used a constructionist theory of social work to define the problem of food insecurity among college students where it is significant enough that it needs to be solved. The use of action frames in the data analysis identified themes, determined needs, and defined the role of institutions to alleviate the problem. Through this process, clear, measurable, and viable solutions provide a roadmap for other institutions to follow.

Research Design

This study utilized a modified version of the convergent triangulation mixed-method design represented by the notation quan → QUAL + QUAN. In this design, the qualitative data and the quantitative data were collected simultaneously. The data collection was independent, and neither took priority over the other (Schoonenboom & Johnson, 2017). According to Castro et al. (2010), "The purpose of concurrent triangulation designs is to use both qualitative and quantitative data to more accurately define relationships among variables of interest" (p. 3). The two sets of data are independently collected and analyzed, but when merged and interpreted during the final phase of the study each provided an understanding of the phenomenon (Combs & Onwuegbuzie, 2010; Teddlie & Taskakkori, 2009). The study began with a quantitative data collection process to select participants and identify each participant's level of food security for both the Spring 2020 and the Fall 2020 semesters. Then a single phase of quantitative and qualitative data collection and analysis took place.

Definition of Key Terms

Much of the research related to food insecurity is difficult to interpret as a wide spectrum of terms, often undefined, are used. Intending to create clarity and uniformity in the research, the following are the definitions for the key terms used in this study. The United States Department of Agriculture (USDA) redefined the term "food insecurity" in 2006. The following two definitions were established to identify the severity of individual food insecurity.

> *Low Food Insecurity* (old label= Food insecurity without hunger): reports of reduced food quality, variety, or desirability of diet. Little or no indication of reduced food intake.

> *Very Low Food Insecurity* (old label= food insecurity with hunger):
> Reports of multiple indications of disrupted eating patterns and reduced
> food intake. (Coleman-Jensen, Alisha, et al., 2018)

This research will utilize both terms in the discussion when specific conditions are directly tied to the degree of severity. In instances where the conditions or impact is not specifically tied to a degree of severity, the term "food insecurity" will be used.

Student success can be connected to a variety of factors, for this research the term "student success" will be defined as the ability of the student to achieve their present academic goals. Although historically grade point average (GPA) has been a measure for success, GPA might not be a critical measure for many students. According to Yazedjian, Toews, Sevin, and Purswell (2008) "…whether students' grades met their expectations was more important than their actual grades in determining their sense of academic success" (p. 146). Additionally, Yazedjian et al. (2008) indicate students do not only see grades as a factor of success but also "becoming socially integrated and developing a sense of autonomy and independence" (p. 147). Therefore, this study will look at both the academic and social factors of education in terms of student success.

"Latinx" is used as a non-gender-specific term to define students who are Hispanic, from Latin America, or identified in the research by either term. This is a non-political term that is intended only to define a broad group of individuals without reference to their gender or sexual orientation (DeGuzmán, 2017; Torres, 2018).

Conclusion

The discussion in this chapter has revealed that food insecurity is a significant issue in higher education and defines terms that will be used throughout the following discussion. Additionally, the chapter has provided a framework that identifies a social

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problem, identifies the individuals involved in the problem, and creates viable solutions that are measurable and hold individuals responsible for the change.

The literature reviewed in the following chapter argues that individuals who suffer from food insecurity will face significant hardships including family issues, mental and physical health conditions, and sociological impacts that link to negative impacts on education. The systematic failures are also discussed which reveal that both governmental programs and institutional support structures are causing students to suffer from food insecurity. There will be a clear demonstration of the lack of research demonstrating the effectiveness of institutional responses in removing the barriers food insecurity creates for students. The findings of these studies will solidify the need for both this research and institutional interventions by clearly identifying a gap in the research. This research will create a resource for the development and implementation of institutional systems that will lead to student success.

CHAPTER TWO

Literature Review

Introduction

A young man is the first in his family to go to college. He took a few years off between high school and college to get a job so he could take care of his young daughter. It would be hard to be a single dad, continue to work, and attend classes but he knew that a degree would be worth the struggle. Luis was not sure how to navigate the systems at school, but he managed to get registered for classes, and completed the financial aid process where he was awarded a Pell Grant to pay for his education. Unfortunately, the grant fell short of covering the tuition and he still had books and fees to cover. He was confident his job would cover the expenses until he received the notice that he would no longer receive his food stamps (SNAP) since he was attending school and working part-time. He became very overwhelmed and was ready to give up. Luckily, he found a program at the school that would not only connect him to a food pantry on campus, but would also connect him to external social services, provide financial literacy classes, and teach him how to cook healthy meals for his daughter and himself on a tight budget. Luis had hope that the program would allow him to complete his education.

As food insecurity rates increase among college students, institutions not only need to recognize that the problem exists but also begin to establish programs that address the issue. Food insecurity is not only an issue of hunger, rather it is a condition that can impact a student's mental and physical health and have sociological impacts that interfere in their ability to succeed academically. While some interventions address the immediate

need, others take a holistic approach that attempts to address the larger problem of poverty. Understanding the true impact of the programs will allow colleges to better serve their student body.

The following argument is built into six sections. First, this chapter surveys the research to provide current statistics, demographics of students experiencing food insecurity, and research specific definitions of terms. Second, the impact of food insecurity on family, physiological health, psychological health, and sociological issues is identified. Third, the research will demonstrate how these impacts create barriers to student success. Fourth, the shortcomings of public policy are discussed. Fifth this chapter will discuss a variety of institutional responses that have been discussed in the literature. Lastly, a connection of how the interventions can reduce the barriers for students allowing them to achieve their educational goals. The totality of the six components of this research will defend the need for this study and provide higher education institutions solutions to systematically address food insecurity among their students.

The New College Student

One reason that food insecurity is a growing crisis among college students is the changing demographics of the student. Traditional students, who used to be the majority of college-going students, have the following characteristics. They are not employed or only employed part-time as they are still financially dependent on their parents. They have enrolled in college full-time directly after graduating high school, and they have no children. The traditional student now makes up only 29% of the college-going population. Non-traditional students, who make up the remaining 71 % (see Figure 2.1),

have at least one of the following characteristics. They are enrolled full-time since they are financially independent of their parents. They have a GED rather than a traditional high-school diploma. They have at least one dependent or are a single parent (United States Government Accountability Office, 2018). Taylor, Canfield, and Larson (2018) report that student populations are changing and reflect a far more diverse population. Students are not only older with greater responsibilities such as children and jobs, but they are also increasingly more from underserved communities, first-generation college students, and in need of financial assistance.

This change reflects efforts from both 2-year and 4-year institutions to increase access to a wider range of socio-economic and ethnic backgrounds. Unfortunately, colleges have not been proactive in providing support systems for these students once they enter college (Allen & Alleman, 2019). Increased access to college and expanding educational opportunities for students is the first step to equity not only in education but also in the workplace. However, the lack of support for students once they enter school leaves them in a position where they are unable to cover the cost of education and living expenses (Cady, 2014), which negates the effort of expanded access.

Food insecurity is far more prevalent amongst the non-traditional student, which results in statistics that show numbers between 16%–57% of college students experience food insecurity to some degree (Bruening et al., 2017; Cady, 2014; Fincher et al., 2018, 2018; Martinez et al., 2018; Meza, Altman, Martinez, & Leung, 2018; Payne-Sturges, Tjaden, Caldeira, Vincent, & Arria, 2018a; Phillips et al., 2018)

Traditional students have all of the following characteristics:

- Financially dependent on parents
- No dependents
- High school diploma
- Enrolled full time immediately after finishing high school
- Not employed or employed part time during the school year

Nontraditional students have at least one of the following characteristics:

- Financially independent from parents
- One or more dependents
- Single caregiver
- No traditional high school diploma
- Delayed college enrollment
- Enrolled part time
- Employed full time during the school year

Source: GAO analysis of 2016 National Postsecondary Student Aid Study data from the U.S. Department of Education. | GAO-19-95

Figure 2.1. The changing demographics of college students (Reproduced with permission from GAO, 2016).

Many students who struggle financially turn to jobs, student loans, or Pell grants to make ends meet. Although these options would seem to alleviate financial hardship, statistics show that these undertakings might be predictors of food insecurity for college students. A 2017 report indicated that more than one-third of college students in Texas lacked healthy food. Additionally, the report showed that 85% of students who worked more than 20 hours a week were experiencing food insecurity (Najmabadi, 2018). A 2016 study that surveyed 3,800 students from 34 institutions from 12 states reported that 56% of food-insecure students were employed (Cady, Dubick, & Mathews, 2016). The same study showed that 75% of the students reported receiving some form of financial aid.

In conclusion, the changing demographics of college students have been identified. Students work, take on debt, and apply for grants to secure resources for their education. However, evidence shows that these efforts still put students in a position

where they are having to make choices between food and educational expenses (Cady, 2014; Goldrick-Rab et al.,2018). School support systems have not been put in place to alleviate the problem (Allen & Alleman, 2019). A lack of support systems leaves students where they are at-risk or become food insecure which leads to conditions that create barriers to academic success.

Students and Food Insecurity

Studies report food insecurity among college students at anywhere between 16 percent–56 percent. It is difficult to grasp the full picture of food insecurity due to the wide range of definitions used, measurements, and research methods used (Taylor et al., 2018). What is clear is that the problem on college campuses is much greater than that of the general population with most studies estimating at least half of college students experience food insecurity.

The HOPE lab conducted some of the largest studies. In 2016 a study where over 43,000 students from 66 institutions representing both 2-year and 4-year colleges and universities had students report food insecurity within the preceding 30 days. A startling 42% of community college students and 36% of 4-year college students reported being at the lowest level of food insecurity. When responding to specific questions regarding food insecurity one-third of community college students and one-fourth of 4-year college students reported skipping meals due to lack of financial resources (Goldrick-Rab et al., 2018).

In a 2017 study, 379 students from the University of Missouri-Kansas participated in a survey to develop an understanding of the demographics and prevalence of food insecurity of the student body (Willis, 2019). The findings indicated that over 32% of the

population was food-insecure. The impact of this study was the disparity found across groups. They found statistically significant differences in reported food insecurity based on race, sexual orientation, Pell Grant eligibility, and family history of food insecurity. Hispanic and non-white students had a collective food insecurity rate of 39.2% versus their white counterparts who reported food insecurity at a rate of 27.17%. Heterosexual students showed food insecurity at 28.4% whereas students who identified with any other sexual orientation reported a 43.86% rate of food insecurity. Students awarded a Pell Grant had a reporting rate of 41.01% while students who did not qualify for Pell Grant awards showed a prevalence of only 24.59%. The highest rate of 48.78% was from students who had a family history of food insecurity (Willis, 2019).

Another key study done by the City University of New York (CUNY) in 2011 surveyed 1,086 students (Freudenberg et al., 2011). The study reported that 39.2% of those surveyed had experienced food insecurity within the year preceding the survey. The study also reported that 45% of respondents experienced stress at varied frequencies over limited resources for food. The CUNY study provided clear results that food insecurity experiences were not the same for all groups. According to (Freudenberg et al., 2011), Black and Latinx students were 1.5 times more likely to identify as food-insecure in comparison to White and Asian students. Students who were independent of their parents were 1.6 times more likely to experience food insecurity. Additionally, low-income and students who worked more than 20 hours a week reported significantly higher rates of food insecurity.

Three other studies add to the body of literature that sheds light on food insecurity on college campuses. A study at the University of Hawai'i at Mānoa examined the

prevalence of food insecurity on campus and found that out of their sample ($N = 410$) 15% reported low food insecurity, 6% experienced very low food insecurity, and an additional 24% reported marginal food insecurity (Chaparro, Zaghloul, Holck, & Dobbs, 2009). A 2011 study at a midsized rural university in Oregon examined food insecurity rates ($N = 354$) and found 59% of the student body sample was experiencing food insecurity (Patton-López et al., 2014a). A study that looked at the populations of two Maryland schools ($N = 301$) revealed that 56% of the students surveyed experienced low or very low food insecurity (Maroto et al., 2015). The University of Massachusetts conducted a study in 2015 to examine the connections between food insecurity, housing stability, and school performance. In their study, a survey of students ($N = 390$) reported that 27% of the sample group experienced food insecurity with 6% reporting a severe level of food insecurity (Silva et al., 2015). All the studies reviewed indicate that food insecurity is a problem that exists for college students. Although each study had a different focus, those that studied the impact on different groups determined that several factors were indicators that the likelihood of becoming food-insecure was greater. Among these factors were: race or ethnic group, family history of food insecurity, working more than 20 hours a week, receiving financial aid, and sexual identity (Bruening et al., 2017).

The traditional student no longer represents the largest percentage of the college student population. Students are starting school later, they are from diverse cultural and ethnic backgrounds, and they are from underserved populations. Colleges are becoming more accessible for a wider variety of students, however many of these students face struggles once they are accepted. Food insecurity is a struggle that is prevalent as seen in the literature. This problem exists not only because support systems in colleges are not in

place, but also due to shortcomings in government policies that contribute to the problem (Goldrick-Rab et al., 2018).

Public Policy and Food Insecurity

Public policy and limited access to federal food assistance programs create barriers for students who are at-risk or experiencing food insecurity. Food insecurity is widely acknowledged in the K–12 school system. Programs, where low-income students receive free or low-cost lunches and sometimes breakfasts, are in place to address the needs of elementary and high school students. However, when students reach higher education student support programs addressing food insecurity are no longer available even though the need still exists (United States Government Accountability Office, 2018).

Federal food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP) should be available to fill the need, however many college students are prohibited from receiving benefits due to restrictions imposed on students. According to Godrick-Rab et al. (2018), "…many of the primary assistance programs for low-income adults are less effective for college students due to significant work requirements. […] SNAP, the largest food support, typically requires that students without children work at least 20 hours per week" (p. 32). Unfortunately, statistics show that the more hours a student works each week increases the likelihood they will experience food insecurity. In research conducted by Goldrick-Rab et al. (2018), 34%–38% of students who work less than 20 hours a week experience food insecurity in contrast to the 48%–51% of students who work 40 hours or more who experience food insecurity. Students who work more to afford the cost of their education not only invest more time away from educational

activities such as class, studying, or tutoring, but they also continue to struggle with food insecurity.

Federal Pell Grants were put into place to create opportunities for low-income students to attend college. These grants are effective in increasing the enrollment of low-income students into institutions of higher education. However, due to the increasing cost of higher education, financial aid awards rarely cover the cost of tuition leaving the additional cost plus the additional educational and living expenses unpaid (Allen & Alleman, 2019; Cady et al., 2016; Goldrick-Rab et al., 2018). Adding to the problem is that many schools are turning away from need-based aid and focusing on merit-based aid packages. This adjustment benefits students who are already financially equipped to pay for their education and leaves low-income and frequently middle-income students at a clear disadvantage as they must begin to make choices between educational expenses and living expenses (Broton et al., 2018). Policy changes for Pell Grants have limited both eligibility and the amount of disbursement of grant money (Taylor et al., 2018). These changes include the elimination of the year-round Pell, elimination of the less than 10% of the maximum grant, the decrease of automatic zero expected family contribution (EFC) threshold, and the reduction of semesters and elimination of the ability to benefit (Davidson, 2012). These changes have had a significant effect on Black and Latinx students as well as low-income students. It has also decreased opportunities for these groups to attend 4-year institutions (Allen & Alleman, 2019; Davidson, 2012). Although Pell Grant changes have had a notable negative impact on students' ability to attend college and achieve academic success, adjustment to the financial aid system alone would not be sufficient to elevate the current widespread food insecurity crisis on college

campuses. A multi-system approach is needed where both private supports and public benefits work together to meet the needs of students (Broton et al., 2018; Goldrick-Rab et al., 2018).

Food insecurity among college students is a problem as identified through the current scholarship. Research also indicates that a lack of support systems for the newly defined college student, both on the institutional level and through public policy inadequacies, leaves students in a place where food insecurity is a reality for close to half of all college students (Bruening et al., 2017; Cady, 2016; Goldrick-Rab et al., 2018; Patton-López et al., 2014; Payne-Sturges et al., 2018; Taylor et al, 2018). Food insecurity leads to significant impacts on students' physical and mental health, their ability to create strong sociological bonds, and additional stress that creates barriers to their success in college.

The Impact of Food Insecurity on College Students

Food insecurity can impact a student in a variety of ways including family stress, both physiological and psychological health issues, and sociological issues. Ultimately these factors affect the student's academic achievement. Students experiencing food insecurity are often forced to make decisions between paying for food or paying for educational expenses such as textbooks (Cady et al., 2016). This added stress can compound the negative situation created by health and social issues. According to Broton et al. (2018), "Food insecurity is associated with adverse outcomes including poorer academic achievement and attainment undermining investments in higher education" (p. 195). Interventions have been put into place in K–12 education to reduce the negative

educational impact on students. However, students in higher education, who are also facing barriers to their educational success are left with little support.

Food insecurity investigated in a K–12 setting identified clear connections to behavior and attention problems, increased absences and tardiness, social difficulties, and low academic performance. Additionally, food insecurity leads to an over-dependence on processed foods and poor nutrition in children resulting in increased obesity rates, and lower mortality rates (Taylor et al., 2018). These same connections can also carry over into college for students who experience food insecurity. According to Cady (2014), "…CUFBA traced the food insecurity experiences of college students as a continuum from elementary and secondary education, noting that students in the earlier part of the educational pipeline who were hungry experience significant academic challenges" (p. 28). This phenomenon is seen on college campuses where students who experience poverty do not succeed at the same rate as those who have sufficient financial resources (Cady et al., 2016).

Food Insecurity and Stress

Students experiencing food insecurity experience high levels of added stress and fear. Food-insecure students not only live with the fear that they will not have enough food, they often experience fear that they will disappoint their families (Meza et al., 2018). These fears can interfere with a student's ability to study and perform well in school, which compounds levels of anxiety. According to Martin, Maddocks, Chen, Gilman, and Coleman (2016), "… food insecurity can lead to poor mental health as a result of stigma, social isolation, and stress and worry about providing for family" (p. 90). In a study at the University of California, Berkley, in-depth, semi-structured interviews

were used to explore the experiences of 25 undergraduates. According to Meza, Altman, Martinez, and Leung (2018), seven themes related to the psychosocial effects of food insecurity emerged from the study: stress from food insecurity disrupting daily activities, fear of letting their families down, resentment of students with resources, poor social relationships, sadness, hopelessness, and frustration toward the school for not meeting their needs. Students do not only experience additional stress, but also health issues related to limited or reduced nutrition.

Food Insecurity and Physical Health

A recent study investigated food insecurity and self-reported health and academic performance (Payne-Sturges et al., 2018). The study revealed that out of the 237 students surveyed food-insecure students were more likely to report both health and energy levels lower than that of food secure students. Food-insecure students had higher rates of depression that led to the disruption of their schoolwork. The reports of poor health due to food insecurity do not come as a surprise. According to Knol, Robb, McKinley, and Wood (2017), "Food insecurity or food insufficiency are consistently related to self-rated fair/poor health, poor social and functional health, dyslipidemia, hypertension, diabetes…" (p. 249). The connection to poor reported health is mirrored in a study by Gunderson, Engelhard, and Waxman (2014). They identified that food insecurity in non-senior adults has been associated with increased rates of depression and mental health problems. Additionally, they noted increased reporting of physical health conditions such as hypertension, diabetes, and poor sleep patterns. Food insecurity can create real challenges for academic success due to the effects on physical health as well as the

mental battle between focusing on food, and focusing on academic performance (Meza et al., 2018).

Food insecurity has been tied both directly and indirectly to impacts on family life, health conditions, and social issues. According to Payne-Sturges et al. (2018a), "Food insecurity is a growing public health problem for college students, with significant potential for adverse effects on both physical and mental health and functioning" (p. 349). Students experiencing food insecurity are more likely to report having low energy and poor health (Payne-Sturges et al., 2018). According to Bruening, Argo, Payne-Sturges, and Laska (2017), "…FI is linked to lower work productivity and chronic disease" (p. 1767). Chronic conditions include "…obesity, diabetes, high blood pressure, and mobility" (Kaiser & Cafer, 2018 p. 215). Negative health consequences can be related to added stress related to food insecurity and limited access to high-quality, nutrient-rich foods. Adding to the impact are increased risks of heart disease, asthma, arthritis, and some cancers that stem from the aforementioned chronic conditions (Kaiser & Cafer, 2018).

Food Insecurity and Sociological Impact

Many students who experience food insecurity also have sociological difficulties. According to Meza et al. (2018), "Students experiencing food insecurity often felt left out or were unable to participate in important social gatherings involving food and thus missed a critical piece of the college experience" (p. 3). When other students offer to pay for them as a kind gesture, it creates embarrassment often causing the food-insecure student to shy away from social events. Allen and Alleman (2019) found that students who were of low socioeconomic status not only face food insecurity but also found that

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their financial hardships and external responsibilities often created negative feelings about their academic and social experiences.

Food Insecurity and Mental Health

Students who deal with food insecurity face psychological barriers as well. A study by Martin et al. (2016) noted an association between food insecurity and mental illness. Participants ($N = 100,401$) in the study who reported having very low food security also reported higher levels of stress and lower levels of community belonging. The study also revealed the possibility that the link between mental health and food insecurity was bi-directional, meaning that mental illness can lead to food insecurity and food insecurity could lead to poor mental health. According to Martin et al. (2016), "A social causation interpretation of our results would suggest the need for policies and services that increase the access to food and reduce impacts of food insecurity on mental health" (p. 90). Research has also connected food insecurity to symptoms of depression and higher rates of stress that impact the student's ability to perform (Goldrick-Rab et al., 2018). Additionally, researchers have found a positive correlation between food insecurity and anxiety, eating disorders, and thoughts of suicide (Broton et al., 2018). Several other studies confirm the link between food insecurity and depression including severe depression and thoughts of death (Alaimo et al., 2002; Heflin et al., 2005; Leung et al., 2015). According to (Pryor et al., 2016), "…experiencing financial hardship and food insecurity, these situations are described as extremely stressful, frustrating and depressing. They take a toll on an individual's dignity […] this may contribute to the stress pathways linking food insecurity with poor mental health" (p. 1079). Increased stress, physical and mental health issues, and sociological impacts created by food

insecurity put students in a deficit compared to their classmates while attending college. Food insecurity is a significant barrier to academic success.

Food Insecurity and Academic Performance

Added stress for college students experiencing food insecurity not only manifests itself in poor physical and mental health but also impacts student's academic performance. The lack of basic needs correlates with poor academic outcomes (Broton et al., 2018; Goldrick-Rab et al., 2018; Maroto et al., 2015). Food insecurity has a strong, statistically significant relationship with completion, persistence, and credit attainment. A study within the California public university system questioned participants ($N = 8705$) about their experiences to find relationships between food insecurity, mental health, and grade point average (GPA). Results from this study found that students with food insecurity reported higher rates of poor mental health and lower GPAs. The study was also significant as it found the negative correlation between food insecurity and GPA was both direct and indirect through mental health issues (Martinez et al., 2018).

Additional studies support these findings and confirm that food-insecure students are more likely to report lower GPAs, but add that race, ethnicity, and socioeconomic conditions are also associated with lower academic performance (Maroto et al., 2015; Patton-López et al., 2014a). A lower GPA was not the only observed academic struggle. Food-insecure students are also more likely to drop classes, be withdrawn for non-attendance, fail to register for upcoming courses, and fail classes, and suspend studies due to financial stressors (Goldrick-Rab et al., 2018; Martinez et al., 2018; Silva et al., 2015).

Although several studies have shown that there is a greater likelihood of a student having a lower GPA due to food insecurity, it is a very difficult measurement to correlate

with strictly food insecurity. In a study conducted by Maroto (2013), students ($N = 301$) from two community colleges participated, of which 56% of participants reported being food-insecure. The researcher looked at the relationship between food insecurity and GPA, energy, and concentration. The study demonstrated that the food-insecure students were significantly less likely to earn a GPA between 3.5 and 4.0 and more likely to earn a GPA between 2.0 and 2.9. The study also found that the relationship between food insecurity and GPA was no longer evident when other factors such as race were added into the regression (Maroto, 2013). This study demonstrates that measurements such as GPA are very difficult to measure in relation to food insecurity because there are so many other variables that can affect this measurement. The study did find a significant correlation between food insecurity and low energy levels and lower levels of concentration and strengthen the argument that food insecurity hinders academic success for college students.

In conclusion, the evidence supports the a priori theory that food insecurity adversely affects students' ability to succeed in college. There is a gap in the research to find clear connections to specific indicators of success such as GPA, completion, and persistence. This study will identify these connections and establish institutional responses that directly mitigate barriers to student success.

Institutional Strategies for Addressing Student Food Insecurity

Programs to address food insecurity in K–12 settings have mitigated many of the barriers identified. However, programs such as the National School Lunch Program, support for homeless students, and school nurses do not exist in higher education (Whissemore, 2018). Development and placement of programs to support food-insecure

students is imperative (Phillips et al., 2018). In a study of 6103 students, Wood and Harris (2018) used the Community College Success Measure to examine food insecurity on college campuses. Their study showed that food insecurity differed significantly between various groups. Factors such as age, ethnicity, socio-economic background, and dependents were all identified as predictors of food insecurity. Wood and Harris (2018) note, "In recognition of the high percentage of students in this sample who experienced food insecurity, it is necessary for campuses to provide opportunities for students to gain access to healthy and sustainable sources of food" (p. 114). Furthermore, they advised that institutions develop holistic programs that can address external factors that predict food insecurity and develop methods to determine the impact the interventions have on mitigating the negative effects of food insecurity. Although many colleges have responded to the food insecurity crisis with food pantries, many students do not access these facilities. This gap between need and access to services indicates that current interventions are not meeting the needs of the students or addressing the problem in a way that students are willing to seek out the services. Greater support systems need to be created for individuals who experience food insecurity including connection to resources, employment, and nutrition (Martin et al., 2016).

It is important to remember that food insecurity is a symptom of a greater problem requiring a holistic approach (Cady, 2016; Cady & White, 2018; Martin et al., 2016; Martinez et al., 2018; Perry, 2018; Wood & Harris, 2018). Whether it is a temporary hardship or a result of long-term poverty, an approach that assists with the immediate need for food, but also addresses external environmental, individual, and systemic problems is required to address the crisis (Cady, 2016). A study of 351 college students

by Knol et al. (2017) determined that more research is needed to understand the link of food insecurity to health issues. Therefore, colleges need health education programs that create awareness of financial conditions that put students at risk of food insecurity.

Some proposed interventions included financial literacy programs that address budgeting and meal planning, programs that connect students to local resources and social service programs, campus food pantries, meal donation programs, and nutrition classes (Knol, et al., 2017). These beliefs are supported by the study within the California Public University system where 57% of the students surveyed (N = 8932) experienced food insecurity for the first time. The researcher discovered that students would benefit from financial literacy courses as well as "healthy cooking on a budget" classes, and information about social services and financial aid processes. According to Martinez et al. (2018), "UC's Food Access and Security plan focuses on five components: on-campus student services and programming, off-campus partnerships and engagement, campus coordination, systemwide coordination, and research and data collection" (p. 4). This plan falls in line with Goldrik-Rab et al. (2018) who recommend that colleges work to understand and take action to help students experiencing food insecurity. Among their suggestions are to collect evidence, organize to take action, design programs to support students, and create partnerships to grow and develop existing programs to serve students.

Although there is an agreement in the literature about a multi-focused response to addressing food insecurity, another key is connecting students to these services once they exist. One option is to have campus administrators implement a screening program to identify students and make them aware of the programs that exist and the process to gain

access (Maroto et al., 2015). Colleges can use supplemental questionnaires as part of the application process to assess the needs of new students so that programs can be focused to address specific factors identified (Perry, 2018). Cady and White (2018) note that research supports a single point of contact for accessing programs is effective in helping students work their way through often complicated systems and processes. Many colleges create centralized and coordinated access points for student support services. Through the creation of a case management approach students are better served through processes that link services more effectively for students which increased the opportunity for their needs to be met (Smith, 2019). Perry (2018) contends that colleges need to have food support centers that can serve the purpose of networking services and programs for students who are experiencing food insecurity. Not only will this provide key support for the student, but it also reduces the feelings of isolation frequently associated with food insecurity.

Colleges can also assist students to connect to external social services and programs to help alleviate their financial hardships. Single Stop U.S.A Community College Initiative assists students with connections to college resources, community programs, and public benefits and social services. This program focuses on reducing non-academic barriers through a variety of supports such as food assistance, housing assistance, childcare, and legal services among other services identified that the student needs (Daugherty et al., 2016b). Single Stop U.S.A. addresses the high need for student support, yet low participation in programs. Students failed to gain access for a variety of reasons such as complicated processes, lack of knowledge, or ineligibility. Opening Single Stop offices on college campuses facilitate processes for students through

comprehensive screening to access both need and qualification for non-academic assistance programs.

A study conducted in the fall of 2014 reviewed data from four institutions that initiated Single Stop programs. The findings indicated that there was a 3% increase in persistence from Fall 2014–Fall 2015 for students who used the services. Additionally, these students attempted more credits than those who did not utilize the programs. The results were for individuals who were 25 years of age and older demonstrated very positive results after connecting with Single Stop. Although data suggest that the program had a positive impact on student outcomes, the study noted that it was difficult to identify what aspect of the program had the impact. There were also some noted data entry issues on some campuses resulting in the under-reporting of services early in the process. Due to the discrepancies, the study limited the results by only reporting on data after a comprehensive training session was complete to ensure accurate data collection. Although the researchers believe this correction has added reliability to the data, they acknowledge it reduced the sample size (N = 34, 487) and limited the number of first-time freshman students in the data set (Daugherty et al., 2016; Goldrick-Rab et al., 2018). The researcher also identified unobservable outcomes that would demonstrate the effectiveness of the program could not be measured. Factors such as GPA were also difficult to measure and compare across campus limiting the scope of their results.

Many strategies or initiatives have been suggested to assist students experiencing food insecurity. The GAO report investigated the various forms of support that college institutions use to address food insecurity on their campuses (see Figure 2.2). In their

research, they found three areas of focus: educational opportunities, emergency food, and financial assistance, and centralized coordinated services (Smith, 2019).

Schools have created educational opportunities for faculty, administration, staff, and students, which not only inform them about the impacts of food insecurity but also ensure there is awareness about the resources available to students. Courses were also provided to promote healthy cooking, financial literacy, and the importance of good nutrition. Each college approached the educational component differently, including workshops, credit and non-credit courses, written instructional materials, and syllabi (United States Government Accountability Office, 2018).

Each of the schools they contacted had some form of an emergency food system such as a food pantry or a community garden. Several of the schools also had supplemental services linked to the food pantry that offered clothing, personal health items, and information about community services available to them. At the time of the report, the College and University Food Bank Alliance (CUFBA) reported that over 656 institutions either had food pantries or were in the process of developing them. This type of emergency food program is the most common institutional response, but schools still struggle to expand in size and services to address the students, needs (Smith, 2019). Although this approach the most common response, the effectiveness of food pantries is unknown.

Centralized-coordinated benefit programs are often part of the food pantry, although most institutions choose to place their benefit programs in a prominent location whereas food pantries are often positioned away from active areas. Resources that are commonly attached to such programs are financial aid, academic and wellness

counseling, veterans' services, women's resource centers, and community and public benefit access offices. These centers assist students with navigation through application processes. These centers also provide opportunities for gathering data on student needs so programs can be refined and developed to best serve the student body.
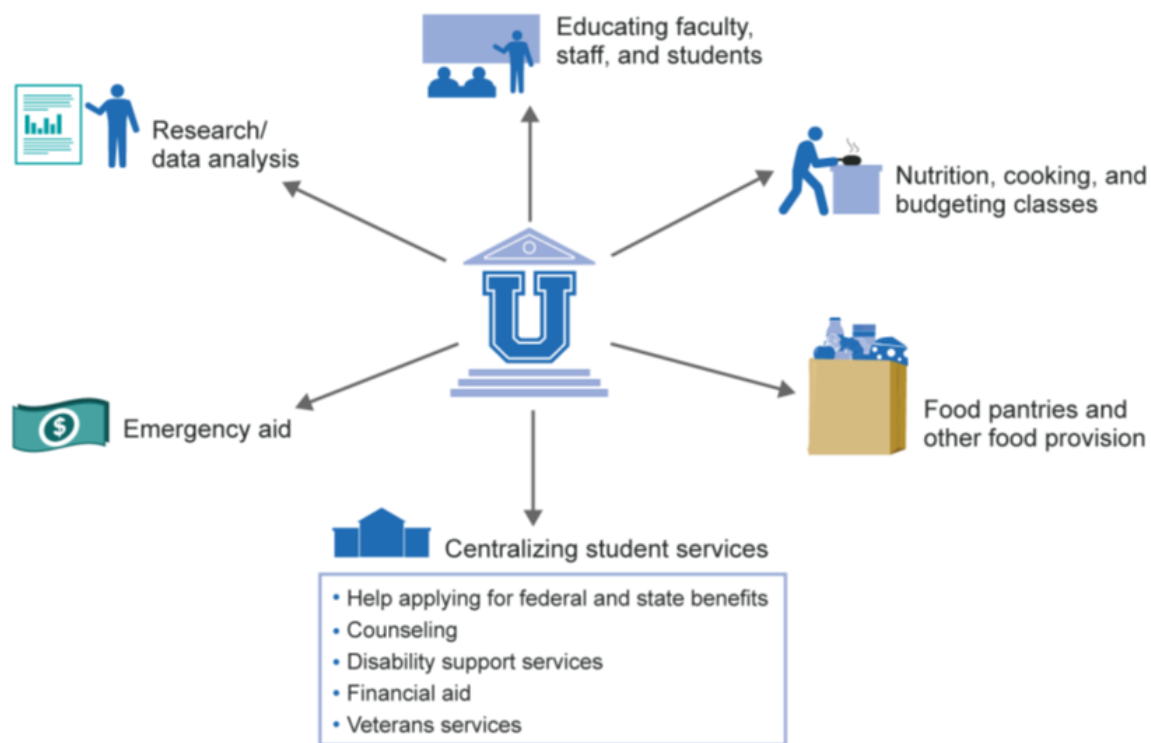
Source: Information from 14 selected colleges GAO contacted. | GAO-19-95

Figure 2.2. Programs and initiatives found in GAO research (Reproduced with the permission of GAO 2016).

Despite the wide variety of programs that provide support for students experiencing food insecurity, this researcher has not identified any studies that demonstrate the effectiveness of the institutional interventions that have been put into place. Food pantries and emergency aid are designed to meet an immediate need for students. Educational programs serve many purposes from providing insight for faculty, staff, and administration to bring awareness and reduce stigma, to providing knowledge

that helps students make educated financial and nutritional choices. Centralized services are designed to provide access points that are easily accessible to students and can provide a holistic approach to needs and support for the student. However, the question remains: Do these interventions work?

There are two clear gaps in the current research on college students and food insecurity. First, research has identified food insecurity as a significant problem on college campuses, there has not been a clear connection to the specific impacts on academic success. Second, despite the efforts of institutions to create solutions to the problem, there is no evidence of the success of these programs. This study will create new information that will fill both gaps, allowing institutions to make better-informed decisions on how to address food insecurity on their campuses.

Conclusion

Food insecurity on college campuses is a condition that until recent years has been unacknowledged. As more literature develops from research done at institutions around the country, more colleges are not only accepting that a problem exists but are working to put interventions into place to address the crisis. However, there is a significant amount of work to be done. A study by Fincher et al. (2018) looked at 351 different 4-year institutions and found only 42 colleges had resources in place to address food insecurity, and out of 102 community colleges, only 10 schools had programs in place. Additional literature needs to continue to draw attention to the problem so colleges can create strategies to identify at-risk students and create systems and policies to support what is a growing number of their student population.

Most of the studies regarding food insecurity on college campuses look at the prevalence, but few studies dig deep into underlying factors or impacts on student success (Allen & Alleman, 2019). The study conducted by Payne-Sturges et al. (2018) examined the GPA of food-insecure students. Despite their findings that did identify a correlation between lower GPA and food insecurity, they identified that a shortcoming of the study was the inability to capture the full picture of academic achievement through this one marker. Areas they noted needed further study were delayed graduation, persistence, and achievement of academic goals, in relation to food insecurity. According to Cady (2014),

> Additional research questions should be focused on how food insecurity is impacting student success and how it may be affecting certain student populations (particularly underserved student populations) more or less than others. These studies can be implemented by practitioners alone or could provide an excellent opportunity for practitioners and faculty to partner in inquiry. Findings from these studies have not only the potential to drive actions on college and university campuses but could potentially be leveraged to influence policy at the state or federal level. (p. 268)

Studies have identified connections between food insecurity and mental health, physical health, and sociological issues, but few have made connections between these factors and college success. Martinez et al. (2018) comment, "Our findings suggest that mental health and academic performance may be improved if food insecurity is addressed. Longitudinal studies should examine impacts of student food insecurity—and intervention to address it—on educational attainment and health disparities" (p. 8). Programs such as Single Stop address the complexity of food insecurity. The RAND study examined first-year student experiences who had access to the program. The researchers in the study determined that additional studies needed to be conducted to identify how effective comprehensive service programs are in assisting students to achieve their academic goals. Additionally, studies need to be conducted to determine

how this type of program could be scaled to fit other institutions to meet the needs of their student body (RAND Corporation, 2016).

Food insecurity is a symptom of the larger social issue, poverty. Colleges need to find ways to address not only the symptom but also the root causes. Campuses need to reduce barriers that exist for their students experiencing food insecurity through policies, practices, and attitudes to ensure students can achieve their academic goals and increase their opportunities upon graduation (Cady, Dubick, & Mathews, 2016). The problem of food insecurity will not disappear. Income inequality, low wages, rising costs of living, and the high cost of a college education will continue to make the attainment of a college degree a struggle that is not merely academic (Martinez, et al., 2018). While advocates work to change government and financial aid policies and practices that leave students in a battle between paying for college or paying for food, colleges must find ways to ensure students not only have college access but supports in place once they get there.

Colleges not only need to create policies, practices, and support structures into place but there needs to be an understanding of the effectiveness of the programs developed. Although there is research that identifies food insecurity as an existing problem, there is a lack of supporting research connecting food insecurity to academic outcomes. Although colleges are responding with a variety of programs, research does not demonstrate the effectiveness of programs. Colleges' primary response to food insecurity is a campus food pantry. Although a pantry addresses the immediate need, there is a strong consensus from organizations such as the HOPE Foundation and CUFBA that a broad, more holistic approach would serve students better. This research must be conducted to investigate the connections of food insecurity to academic success,

and the effectiveness of institutional interventions to fill the gap in current research. Additionally, this research will allow colleges to make decisions about practices that will impact their student body, and increase success not only of the student, but also the institution.

This literature review has demonstrated that a problem exists with food insecurity on college campuses. Although measures show varying levels of food insecurity and differ in methods of data collection and tools used to define food insecurity, all agree that the problem exists and needs further investigation. People who have been affected and systems that create or add to the problem have been identified in multiple studies, each of which agrees that further investigation is needed to gain more understanding. Some studies have made connections between food insecurity and lowered academic achievement, but these studies also note that further research is needed to gain better insight into the correlation. Lastly, although several different intervention programs and holistic approaches have been identified, there is not a clear understanding of the effectiveness of these programs. The need for this study is significant and immediate. The following chapter delineates the study's methods, design, and protocols.

CHAPTER THREE

Methodology

Introduction

This academic year was starting different for the young woman walking into her half-filled classroom on the first day. Although she was a traditional student, and hunger was never an issue before, food insecurity had become a reality for her. She would now face the same barriers to academic success that other food-insecure students face. She, and her family, had never worried about finances before. If her parents had, they certainly had never mentioned it to her. Her father had always worked full time, and her mother stayed home with her younger brother and sister. Unfortunately, when COVID-19 entered the picture, her life was turned upside-down. She thought that everything would be all right when she completed her courses online in the spring. She believed everything will resume normally for the final year of her degree. Then her father lost his job. He thought he had only been furloughed, but the small business he worked for was unable to survive the shutdown for so many months. Although he was receiving unemployment benefits, they did not come close to covering their family expenses. Her parents convinced her to continue her education even though part of her wanted to take a break to try to get a job and help her family. After all, her family was struggling. While she was walking onto campus, she saw a sign for the student food pantry. Was this something she could access to help her family? She had never thought about asking for help. She never needed to in the past. She was hesitant, even embarrassed, but she thought about her family and walked into the office to sign-up for the program.

In light of the changing demographics of college students increasing the prevalence of food-insecure students, the negative impacts food insecurity has on students, and the identified barriers to success for food-insecure students this study will focus on the impacts of a student food pantry. Student food pantries exist on campuses to provide support for students who experience food insecurity. The current Problem of Practices focuses on understanding how a student food pantry changes a student's experience, identifies the relationship between student food insecurity and student success metrics, and connects the student experience while using the pantry to determine the impact of the food pantry on mitigating identified barriers to success.

The purpose of this mixed-methods study is to describe and interpret the experiences of students at South Texas College who utilize the student food pantry. Additionally, the research connects the experiences and the student outcomes to explain both the impact of food insecurity and how the student food pantry mitigates challenges students face. This study answers the following three research questions: What is the relationship between food insecurity and academic success? How does the student's educational experience change after gaining access to the food pantry? How do the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges? To answer these questions, the researcher will be utilizing a constructionist theory of social work.

Through a social constructivist lens, the researcher explored and interpreted both the student experience and how institutional interventions impact their experience and outcomes According to Loseke (1999), "Constructionist perspective also encourages us to not forget that the meanings and characteristics of our world are the consequence of

human practical activity" (p. 177). In this chapter, the researcher will provide the researcher perspective, explain the theoretical framework as it relates to each stage of the research, describe the research design, identify the site selection and participant sampling procedures, describe the data and collection and analysis process, identify the ethical consideration for the researcher, and state any limitations or delimitations of the research.

Researcher Perspective

Although I have never experienced food insecurity, I was introduced to the issue in my first year of teaching at South Texas College after speaking to some of my students. In 2012, I proposed a student food pantry during a leadership academy. Although it was not accepted at that time, in the years that followed the idea gained further support as other individuals expressed the need. Eventually, I served as a member of the committee that created the campus food pantry at South Texas College. As the program chair for the culinary arts program, I have used my position to create awareness about the food pantry and raise funds through events such as the "Thanks-for-Giving" buffet where several thousand dollars are raised each year to ensure the sustainability of the food pantry.

As a member of the South Texas College community and an active member of the food pantry committee, I have specific advantages and disadvantages in the research process. I have relationships with the administration which facilitates access to information. I am also aware of the processes and procedures which exist. I also have a level of trust with the students who utilize the food pantry, and a strong rapport which allows for open and honest communication. The student's awareness of my desire to see the food pantry succeed opens up the opportunity for participant bias such as desirability bias or acquiescence bias.

Since beginning this research project, I have become more entrenched in the work of food security. This work has only increased since the outbreak of the COVID-19 pandemic. Through collaborative efforts with external organizations to add fresh produce to our school food pantry distributions, as well as gift cards to purchase hygiene supplies the students needed. During the months where the campus was closed due to COVID-19, I worked with a local church and the South Texas Juvenile Diabetes Association to have two separate emergency distributions for the students off-campus. I have joined the AmeriCorps working for the Texas Hunger Initiative supporting emergency food and summer food programs. This work continues to develop my understanding and increase my passion for finding clear and effective solutions for food insecurity. Throughout the crisis, I continue my efforts to bring awareness to the South Texas College community and the community at large of the issues of food insecurity among the students of South Texas College.

I firmly believe that it is the responsibility of the institution to support the needs of the student body. It is through the understanding of the students' experiences, as well as the direct impact food insecurity has on student success, that interventions can be designed in a way that they effectively mitigate the negative impacts food insecure students experience. It is for this reason that I will be utilizing the constructionist theory of social work as the lens for this study.

A mixed-method approach will reduce the opportunity for bias to influence the data collection and analysis. The use of a concurrent triangulation design allows for both corroboration and validation of the data. Additionally, the design aids in the direct comparison of the qualitative data collected through interviews, and questionnaires, to be

analyzed and then connected directly to quantitative variables (Creswell & Plano Clark, 2011). This method limits my voice in the interpretation of the data. I am aware of my bias, such as my desire to discover that the food pantry is extremely effective in reducing barriers for the students Defining and working within the protocols is an effective way to reduce the influence of bias on the study.

Theoretical Framework

This study utilizes an a priori framework throughout the research process. A constructionist theory of social work allows the researcher to define the problem through the collection of both qualitative and quantitative data. This framework is a structural approach that is strength-based and uses both narrative and collaborative approaches (Wood & Tully, 2006). The data demonstrate that the problem of food insecurity creates barriers to students' success that is significant enough that it needs to be solved (Allen & Alleman, 2019; Cady, 2014; Dubick, et al., 2016; Fincher et al., 2018; Martin et al., 2016; Martinez et al., 2018; Payne-Sturges et al., 2018b). This is the first component of the constructionist theory of social work. For the next component of the constructionist theory of social work, the researcher utilizes a claims-making strategy to personalize the problem (Loseke, 1999) through the use of questionnaires and interviews that tell the story of the students who utilize the food pantry at South Texas College. Loseke (1999) notes, "… we want to know details of how conditions affect people and such details can be found only through personal stories" (p. 87). The use of personal stories allows individual experiences to present different perspectives that tell a more complete story. It is the story that allows for the understanding of the problem to provide for refinement or development of appropriate interventions which is the next phase of the theory.

Constructionism is a worldview built on the principle that not all individuals involved will have the same understanding of the problem (Michailakis & Schirmer, 2014). According to Wood and Tully (2006), "Social constructionism is an epistemology, a theory of knowing, that recognizes the social construction of meaning and the consequent idea of multiple realities" (p. 19). Student's stories reflect their circumstances. Each story provides another piece to a puzzle that allows the researcher to construct a broad understanding of the problem. The concurrent triangulation design links the student experience to student outcomes. Additionally, both the quantitative and qualitative data support the need for the student food pantry and the institution's role in supporting the interventions.

This research supports the need for the development of institutional interventions such as food pantries to support food-insecure students, thus creating a roadmap for other institutions to follow. Gergen and Gergen (2003) note,

> Constructionism invites us to see language as an action in the world, but scarcely the only action of significance. It invites us to move beyond creating, criticizing, and reconstructing our discourses of the real and the good, to generating practices that directly advance our visions. (p. 158)

Through this postmodernism lens of the constructivist theory of social work, the researcher develops meaning and gains an understanding of both the problem of food insecurity and the solution of the food pantry. The research questions developed for this study created meaning through the participants' experiences and created connections to metrics that provided an increased understanding of both the impact of food insecurity and the benefits of a student food pantry. This new understanding allows for interventions, like the food pantry, to be developed or improved to better support student needs. Wood and Tully (2006) noted, "Postmodernism seeks to interrogate how meaning

is produced, to uncover the ideologies and vested interests that inform its generation" (p. 16). This integration allows for better-designed programs, and support systems for students experiencing food insecurity.

The constructionist theory of social work, a sub-theory of constructionism, has also led to the development of a framing process that allowed the generation of ideas through the interpretation of the data collected. This was an active process that evolved throughout the process (Benford & Snow, 2000). One key function of action frames was to create an understanding of the problem to identify the need for change and determine solutions that are viable and sustainable. Although multiple action frames exist, this study utilized diagnostic framing to clearly understand both the problem and the way it is experienced by the students. Diagnostic framing was utilized in the data analysis through the identification of cultural themes, people and systems involved, and the generation and identification of solutions (Michailakis & Schirmer, 2014).

Research Design

The use of mixed methods for this research is key to identifying the relationship between the student experience with food insecurity and student success as it allows for the collection, analysis, and integration of both qualitative and quantitative data. One setback to strictly utilizing quantitative data is that the impact of external factors on common success metrics such as grade point average (GPA), completion, persistence, and attendance is not identified. The use of qualitative data provide significant data about the student's experience but does not capture the impact of food insecurity on the student's academic success. Mixed methods research provides the researcher with both qualitative and quantitative data collected through tested instruments and framed in a way

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that the data build on what is known (Creswell, 2015; Creswell & Plano Clark, 2011; Johnson et al., 2007).

Mixed methods research will allow the researcher to put outcomes, or quantitative measures, into context through qualitative measures (Creswell & Plano Clark, 2011). Mertens (2008) states,

> …researcher should acknowledge that all texts are incomplete and represent specific positions in terms of sexuality, ethnicity, and so on. Texts cannot claim to contain all universal truth because all knowledge is contextual; therefore, the researcher must acknowledge the context of the research. (p. 39)

Additionally, the use of mixed methods allows for multiple world views. The quantitative component of the research allows for a postpositive worldview where cause-and-effect relationships are verified through the measurement of a variety of student success metrics. The qualitative component allows the researcher to gain an understanding of the problem through a constructivist worldview where the perspectives of multiple participants allow for the generation of theory (Creswell & Plano Clark, 2011).

The study is represented by the following notation quan → QUAL+QUAN. Once data was collected the researcher analyzed the data. Then the researcher compared results to determine if they confirm or disprove each other (Creswell & Creswell, 2017). Mixed-methods, according to McKim (2017), "… will not only provide detailed data, but it will also create a point of validity and confirmation. They found mixed-methods added value by increasing validity in the findings…" (p. 203). Using this research design both the qualitative data and the quantitative data will have equal priority in the analysis and interpretation of the data.

There are four key benefits to the use of the convergent mixed-method design. First, both qualitative and quantitative data are collected simultaneously, which reduces

the overall time for data collection. Second, the researcher collects both qualitative and quantitative data from the participants allowing for clear connections to be made. Third, the different types of data allow for both corroboration and validation. Lastly, this design allows for both hypothesis testing and hypothesis generation within a single study (Creswell & Plano Clark, 2011). A key advantage of this design included that the researcher interprets the degree to which relationships existed as the data merged in the final phase. According to Castro et al. (2010), "The purpose of concurrent triangulation designs is to use both qualitative and quantitative data to more accurately define relationships among variables of interest" (p. 3). Through the simultaneous collection of qualitative and quantitative data, the research connects the students' experiences to multiple student success metrics to determine the relationship between food insecurity and student success.

A key to the successful use of this design is the integration of qualitative and quantitative data. Figure 3.1 identifies the point where the data merged and then the results came together for a final stage of comparison and interpretation. Once the data merged, the data both verified and confirmed reliability. The merging of two separate forms of data collection provided results that transformed prior understanding and provided significant representation of the impact of food insecurity and the role of the student food pantry in mitigating the challenges they faced.
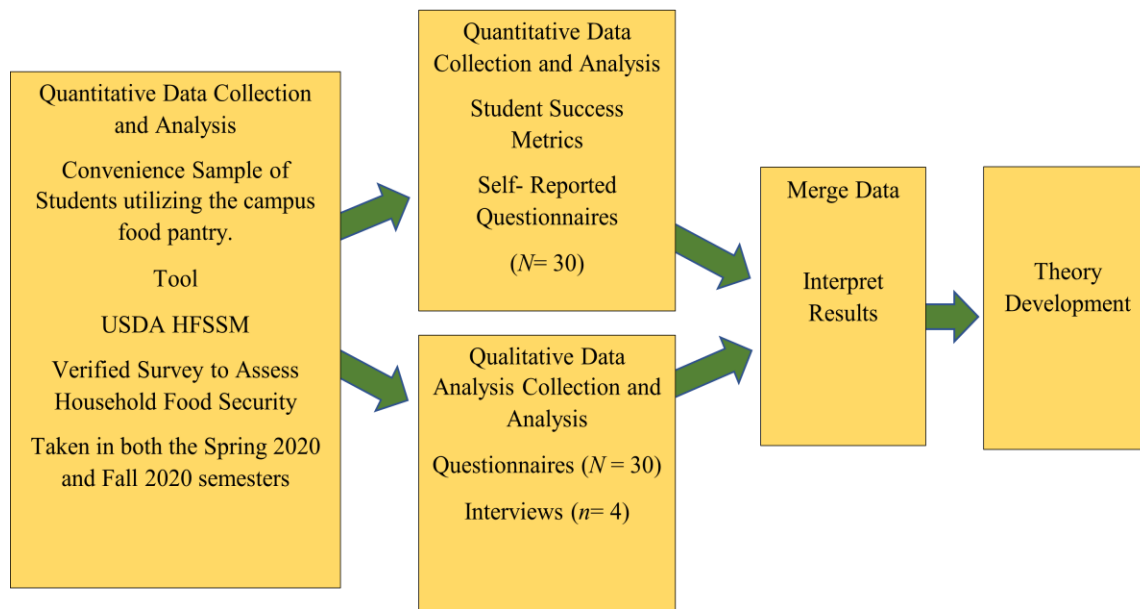
Figure 3.1. Diagram of the modified concurrent triangulation design.

Site Selection and Participant Sampling

South Texas College is a Hispanic Serving Institution accredited by the

Commission on Colleges of the Southern Association of Colleges and Schools to award

baccalaureate and associate degrees. The college serves over 30,000 students including

dual enrollment, traditional, and continuing education programs. The college has five

campuses that serve three counties: Hidalgo, Starr, and Cameron. More than 70% of the

student body are the first in their family to attend college. Over 75% of the students

receive some form of financial aid, and 95% of the students are Hispanic. The college

currently has student food pantries on three of the campuses.

A convenience sample of all students 18 years of age and above who utilized the

food pantry at South Texas College (*N*=145) in the Fall semester of 2020 received the

first set of surveys. Students from all three campuses with student food pantries received

requests to participate. Pre-pandemic to qualify for use of the pantry, students registered

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through the school counseling office. During registration, counselors asked some general

questions regarding household finances, use of external social services. All students who

completed this process get referred to the student activities department who manages the

food pantry. Due to the pandemic, a simplified process was put into place. Students no

longer needed to contact the counseling services. Rather, the student activities specialist

who runs the food pantry used an intake form to collect general information and verify

current registration for the term. Students gained access to the food pantry after

completion of the verification. The list of participants was accessed through the student

activities office to send out the request for participation. Emails provided both informed

consent and the link to the first survey used to form groups for the study. Of the 145

email requests, 30 students agreed to participate and completed the first two surveys.

Data Collection

To establish food security levels of the participant group for the research, the

researcher utilized The United States Department of Agriculture Household Food

Security Survey Model (USDA HFSSM). This survey assessed the level of food

insecurity for each student. According to Bickel, Nord, Prince, Hamilton, and Cook

(2000), a benefit of the USDA HFSSM "… is that its multiple indicator questions capture

and distinguish the various levels of severity throughout the full range of severity with

which the phenomenon of food insecurity/hunger is experienced in U.S. conditions" (p.

2). Additionally, the survey has proven to be both robust and reliable in the assessment of

food insecurity (Bickel et al., 2000). The USDA HFSSM has undergone a significant

amount of analysis and testing which has established its validity and stability in the

measurement of food security among various populations since its development in 1995 (Bickel et al., 1999, 2000; Hamilton et al., 1997; Nord et al., 1999; Prince et al., 1997).

Students took the survey two times. The first survey asked students to reflect on the Spring 2020 semester and the second survey was for the Fall 2020 semester. This allowed the researcher to determine if food security levels changed based on the semester. Participants accessed the online survey through a link sent to the students' school email accounts. The researcher informed students that their participation was optional. Each student that participated was eligible for one of four $50 gift cards.

Thirty participants agreed to participate in the study throughout the fall 2020 semester. Each student participated in both the qualitative and quantitative data collection process. All participants participated in the quantitative portion and the questionnaires were used for a portion of the qualitative research. Four individuals were selected using a purposive sample technique to provide a varied range of perspectives participated in interviews. Through heterogeneous sampling, one male and three female students comprised the interview sample (*n*=4). Participants represented marginal food security, low food-insecurity, and very low food-insecurity categories. According to Creswell and Creswell (2018),

> …the data for the qualitative data collection will be smaller than that for the quantitative data collection. This is because the intent of data collection for qualitative data is to locate and obtain information from a small sample but to gather information from this sample; whereas, in quantitative research, a large N is needed in order to infer meaningful statistical results from samples to a population. (p. 218)

The decision to reduce the sample size for the interview portion of the qualitative data collection assisted the researcher with time constraints. The use of interviews required significant time for both collection and analysis. All 30 participants completed the

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questionnaires to provide both qualitative and quantitative data for analysis. Although the qualitative portions of the questionnaires required more time for analysis, the collection process enabled the researcher to use all 30 participants. Although all participants were asked to complete the quantitative portion of the questionnaire and self-report on the success metrics, some participants opted not to report on those questions. Therefore, the researcher utilized the spring 2020 and the fall 2020 data for qualitative analysis to ensure a large enough group size for proper analysis.

A research shell created in the college online learning management system (LMS) provided a secure area for data collection. Only the researcher and the participants had access to the research shell. The researcher used the LMS to send links to questionnaires, conduct online interviews, and notify students when links became available to complete the data collection tools. Using an online link embedded in the LMS students accessed a questionnaire where they answered questions about the Spring 2020 semester. This questionnaire provided both qualitative and quantitative data. The first phase of the framework sought to understand and define the problem. This phase of the framework asked the question, what is the relationship between food insecurity and academic success? To answer this question participants self-reported the data for each quantitative metric including absences, successful course completion, unsuccessful course completion, GPA, and course registration for the subsequent term. Each metric is then linked to specific open-ended questions (see Figure 3.2) to further investigate the relationship. Although students were asked to report on the number of courses they registered for in the following semester, data collection resulted in minimal response for this specific metric was not sufficient for analysis or reporting.
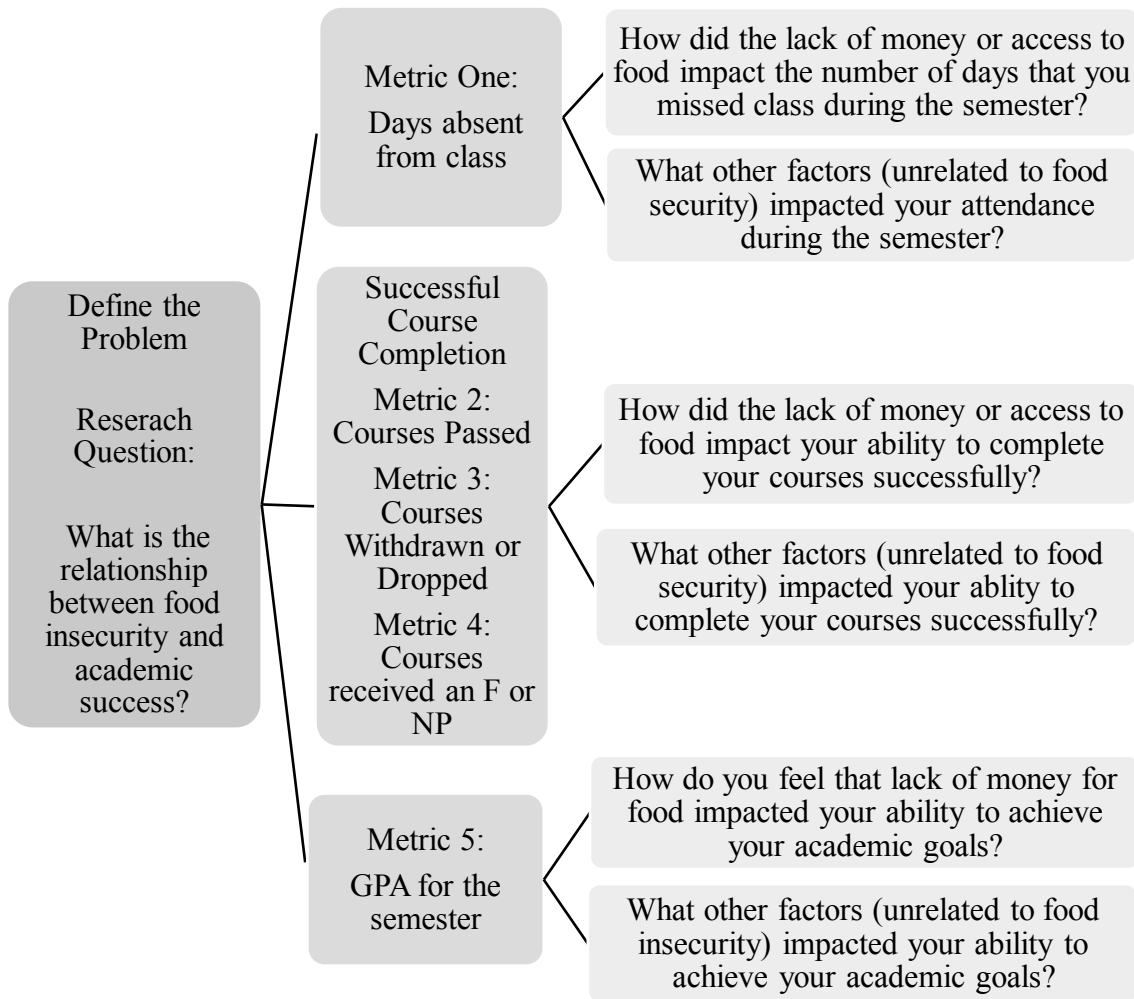
Figure 3.2. The link between framework, research question, and data collection.

This process was the first step to making connections between student outcomes and student experience. The use of parallel questions facilitated the merging process of the two types of data in the final phase of the research design (Fetters et al., 2013).

To increase the depth of the data, the questionnaires also provided data to investigate solutions, the second phase of the framework. This stage of the framework answered the second research question. How does the student's experience change after

gaining access to the food pantry? The design of these questions also allowed for the

examination of external resources and student perceptions (see Figure 3.3).
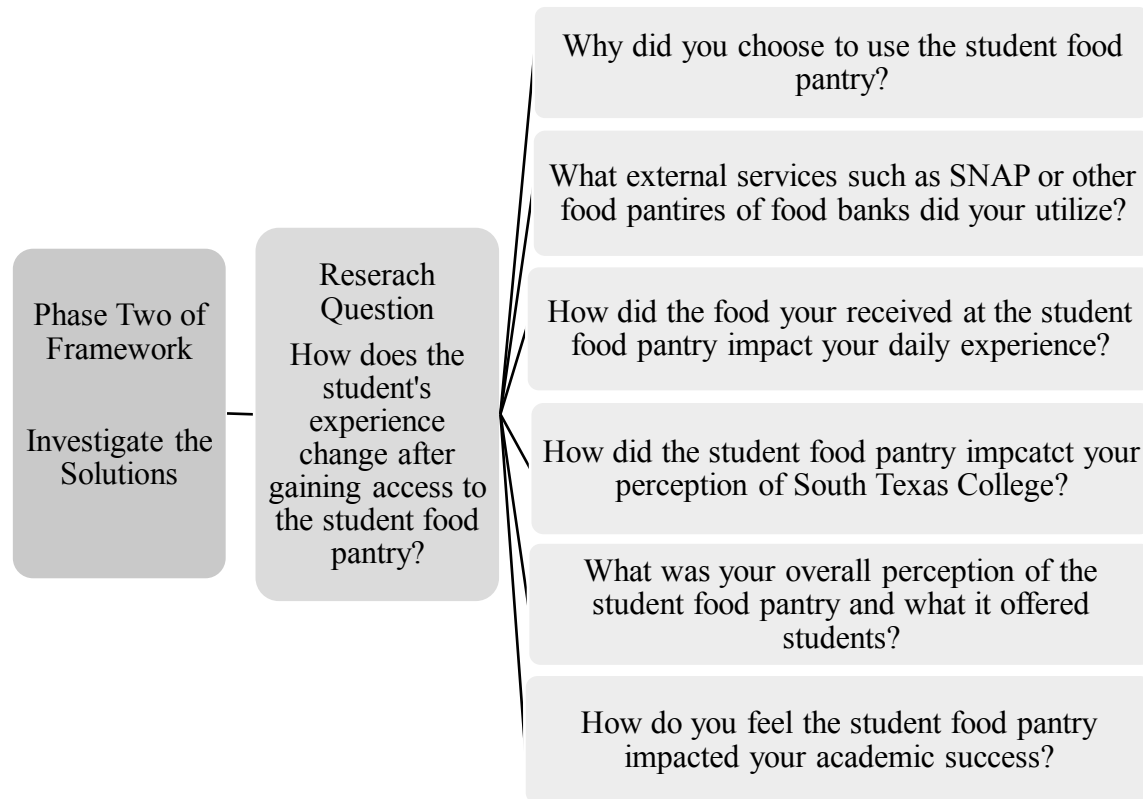
Figure 3.3. Link of survey questions to the theoretical framework and research questions.

The researcher conducted semi-structured interviews at the beginning of the

Spring 2021 semester once the final questionnaires were submitted. This not only ensured

the correct interpretation of their questionnaire responses through member checking but

also allowed the researcher to ask participants to expand on ideas presented in the

questionnaires. Additionally, the interviews provided a degree of consistency in the data

collected from each participant. Defined topics with specific questions regarding themes

that emerged were asked to each participant to ensure consistency throughout the

interview process and allowed for unexpected responses and more detailed information. The researcher utilized the embedded zoom software within the LMS for conducting all interviews. This program provided transcription for the analysis phase of the study.

Data Analysis

The constructionist theory of social work has created the framework for the data analysis for this research. Since the interpretation of data cannot be separated from the perspective of the observer (Loseke, 1999), there is a clear need for a specific methodology of interpretation. Data can be divided into two separate realities. First-order realities are strict observations or points of data that are measurable (Michailakis & Schirmer, 2014). Not only does the quantitative data fit into the category of a first-order reality since it provides data for specific measurement, but direct observations from qualitative data collection fit as well. Second-order realities are created when the researcher interprets the meaning of the data (Michailakis & Schirmer, 2014). Since the interpretation of the researcher holds a particularly strong influence on the results, the process of diagnostic framing was utilized in the analysis of the qualitative data.

Diagnostic framing identifies problems and attaches specific attributes to those problems (Benford & Snow, 2000). The researcher identified specific themes through observation of the students' experiences as they were explained in the questionnaires. Similar observations or first-order realities that the researcher identified in several responses from multiple participants were then identified as a collective action frame. The researcher used this frame for interpretation. The researcher used member checking during the interview process to ensure accurate interpretation. This process confirmed the researcher's understanding properly represented the participants' experiences. The

researcher also provided direct quotes during the analysis phase to provide support for the interpretation of the participants' experiences.

In the processes of diagnostic framing, the researcher utilized a process of pattern matching. In the first step, open coding or initial coding allowed the researcher to investigate the data in smaller sections and then compare each section to identify similarities (Strauss & Corbin, 1990). The researcher needed to remain open to the emergence of new or unexpected themes and patterns (Charmaz, 2006). As the researcher utilized a posteriori constructivist framework to gain an understanding of both the problem and the solutions of food insecurity for college students, the process of code development allowed for in-depth analysis to uncover themes that could be further investigated through the use of quantitative data analysis.

The researcher utilized quantitative data to further make connections from student experiences to student success outcomes and metrics. All quantitative data were assessed in SPSS (version 27). Before conducting any inferential test, the researcher ran the Shapiro-Wilks test of normality and descriptive statistics to ensure the data met the assumptions of the linear model. Specifically, this included running and analyzing averages, skewness, kurtosis, outliers, and homoskedasticity. Upon determining the data met the assumptions, the researcher continued with the inferential tests of correlation, regression, and ANOVA.

All inferential quantitative analyses, using SPSS (version 27), examined significance tests and effect sizes to effectively answer the research questions. The researcher set statistical significance at the .05 level for all tests. To test the relationship between food insecurity and academic success, the researcher ran a Pearson's correlation

between each level of food insecurity and each success metric including absences, course completion, GPA, and course registration. To analyze how the student's educational experience changes after gaining access to the food pantry, the researcher conducted a repeated measures t-test for each variable comparing Spring 2020 to Fall 2020. To determine how the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges, the researcher conducted a multiple regression to predict success from the independent variable of food insecurity.

The researcher merged the qualitative and quantitative data in the final phase of the study. Through the merging of the data the researcher answered the third research question, how do the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges? The researcher made connections between the first-order observations to the second-order realities or interpretations. This merging allowed for the development of prognostic frames. To do this the researcher put results side by side and noted where the qualitative data and the quantitative data confirmed common concepts. According to Benford and Snow (2000), "… the identification of specific problems and causes tends to constrain the range of possible 'reasonable' solutions and strategies advocated" (p. 616). The construction of these solutions allowed for motivational frames to be developed to clearly defined the problem and for the development of action or change (Benford & Snow, 2000; Loseke, 1999; Michailakis & Schirmer, 2014). Once the researcher completed the analysis new theory on the impact of food insecurity and the effectiveness of the food pantry was developed.

Ethical Considerations

This research followed the principles developed by the National Institute of Health for Ethical Research (Emanuel et al., 2016). Respect for participants involved obtaining informed consent from each of the participants. The consent identified the purpose of the research, the methods used, and any risk or benefit from participation. It is important to note that students' informed consent stipulated that their participation in the study would not impact their use of the food pantry in any way. Additionally, since some participants might be students from the program the researcher chairs or in a class that the researcher teaches teach, it was made clear to all students that their participation in the study would not impact their standing in any class or the program. Although there was no anticipation of negative effects of participation in the study, the researcher monitored the participants who participated in the interviews. All students knew that they could change their minds and back out of the study at any time.

All participants were identified through student numbers for their surveys and questionnaires. The researcher utilized a pseudonym to identify the student during the interview to ensure the anonymity of the transcripts. The participants selected and entered their pseudonym as their screen name before starting the recording of the interview. Participants were informed they could leave their cameras off if they chose during the interviews. The pseudonyms only connected to their student number on one document that was kept in the LMS. The researcher only used the student's school email for the initial contact of the students. All subsequent contact used the messaging system in the LMS.

Limitations and Delimitations

Delimitations include the selections of the study participants. Participants were only students from South Texas College. Additionally, the study did not seek out students experiencing food insecurity, rather a convenience sample comprised of students already registered for the campus food pantry were selected for participation. Another delimitation of the study was the use of only five success metrics that could be self-reported. This decision was made to remove any FERPA or access to information issues related to student records.

Limitations of the study included the outbreak of COVID-19 and time and resource constraints. Although COVID-19 did provide the researcher with the opportunity to compare the conditions of two semesters, the pandemic also created limitations. Due to limited access to the campus, students did not have the same degree of access to the pantry as they would under normal conditions. The delivery of classes on an online platform also created a variable that could impact student success. This was a variable not measured due to the limited time to conduct the study. The limited-time also prevented the researcher from including food-secure students. Their exclusion prevented the researcher from investigating the differences between the two groups. The use of daily participant journals was eliminated from the data collection process when the researcher identified that maintaining the journals while experiencing the difficult conditions of COVID-19 created undue stress on the participants.

Conclusion

This chapter discussed and described the research design in relation to how it would answer the research questions. The chapter revealed the research design,

participant selection, data collection, and data analysis processes. The researcher

identified how their positionality and the constructivist theory of social work influenced

the choice of a convergent triangulation design for the study. In the following chapters,

the study findings are reported. Additionally, the researcher utilizes the diagnostic frames

and the prognostic frames to develop the motivational frames to encourage action to

improve or increase supports for food-insecure students at South Texas College.

CHAPTER FOUR

Results and Implications

Introduction

Lisa found herself in a new situation after COVID-19 changed her world. Her husband worked before the pandemic to support the family while she came to campus to earn a college degree. Their three children attended school during the day. Unfortunately, when the pandemic came her husband lost his job and suddenly her kids no longer left for school during the day. This presented two issues for the family. First, they lost the income they counted on to pay the bills and provide for basic needs. Second, their kids who normally ate both breakfast and lunch at their school now needed to eat at home. Lisa turned to the student food pantry for assistance. The pantry not only provided food for her but also her family. The service met a basic need for her family and reduced her stress and anxiety. The pantry helped her to finish off the semester successfully and took her one step closer to receiving her degree. Lisa's story echoes that of many other students during both the Spring and Fall semesters of 2020.

This chapter provides the results of the data collected from the surveys and questionnaires completed by the participants, and interviews conducted to further investigate the preliminary analysis of the data. The surveys distributed provided data to determine the level of food insecurity of each of the participants. Questionnaires paired questions regarding specific student success metrics with open-ended questions to provide rich data to explain how the student's level of success related to the student's experience and defined specific barriers created by food insecurity. Additionally, the

questionnaires asked additional open-ended questions related to the student's experience with the food pantry which allowed the researcher to determine common experiences from the participants. This data provided a better understanding of how the food pantry mitigates the barriers identified by the researcher during the first phase of the data analysis. The purpose of this mixed-methods study was to investigate the barriers created by food insecurity and to determine how effectively the student food pantry mitigated the identified challenges. The researcher used the constructivist theory of social work to inform theory development to understand barriers and identify the solutions for student food insecurity. The results of the study are presented in this chapter following the structure established by this framework. First, the researcher presents the results of the surveys which establish the participants' level of food insecurity. Second, the researcher defines the problem of food insecurity for college students by answering the question: What is the relationship between food insecurity and academic success through the presentation of quantitative data collected for each metric, followed by the qualitative data collected for each corresponding metric. Third, the researcher presents the data for the second phase of the framework by answering the second and third research questions. How does the student's educational experience change after gaining access to the food pantry? How do the student experiences and the student outcomes explain both the impact of food insecurity and how the food pantry mitigates these challenges? For each of these two questions analysis of the qualitative data will be presented. Lastly, the researcher will present a hybrid qualitative-quantitative analysis of the results.

Participant Food Security Level

This study evaluated students who participated in the student food pantry in the spring 2020 semester and the fall 2020 semester. Although all 147 students who registered for the student food pantry could participate in the study, only 35 students responded to the invitation. Students who agreed to be in the study completed the USDA HFSSM which allowed the researcher to evaluate the level of food security experienced by the participants. Students first completed the survey reflecting on the Spring 2020 semester and then completed the survey indicating their food security level at the beginning of the Fall 2020 semester. The USDA methodology indicated that a score of zero reflects high food security, a score of one or two reflects marginal food security, as a score between three and five indicates low food security, and a score between six and ten indicates a very low level of food security. The USDA defines all individuals scoring three or below as food secure, while all individuals scoring from four to ten are considered food insecure (Coleman-Jensen & Nord, 2012).

The results of the survey identified that during the spring 2020 semester out of the participants six scored in the category of marginal food security, 10 scored at a level indicating low food security, and 13 individuals' scores indicated very low food security. Six individuals chose the response of "don't know" so the researcher could not assess the level of food insecurity experienced for these individuals. The fall 2020 results indicated five of the participants scored within the marginal food security criteria, seven participants fell within the low food security range, and 15 participants experienced very low food security at the time they took the survey (see Figure 4.1).
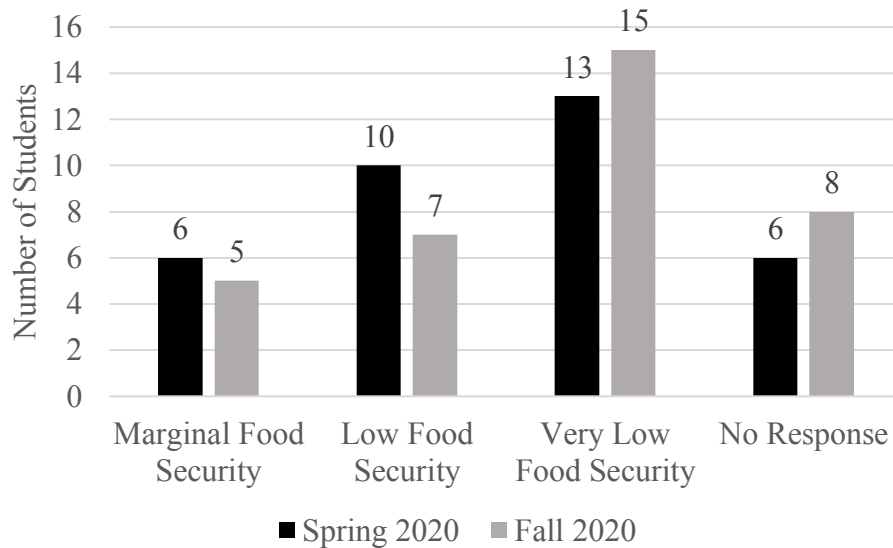
Figure 4.1 Student food security levels.

While the USDA identifies individuals with marginal food security as food secure, all students who utilize the food pantry self-identify as needing food. Therefore, all respondents participated in the questionnaires where both quantitative data and qualitative data allowed the researcher to both understand and define the problem and investigate solutions. In the investigation of the problem, the researcher utilized units of analysis for comparison between different levels of food security. Success metrics used during the problem definition phase also provide an opportunity for the researcher to compare the participant group to the student body.

Understanding and Defining the Problem

To define the problem and gain further understanding of the impact of food insecurity and barriers created to academic success the researcher, the researcher looked a five different success metrics. The success metrics served to answer the question what is the relationship between food insecurity and academic success? Each success metric was

analyzed between groups based on food security. Course completion, unsuccessful course completion, and GPA were further assessed comparing the participant group with the student population at South Texas College. This section will provide the analysis of each metric and provide the qualitative analysis to explain the barriers students experienced which impacted each metric.

Fewer participants elected to respond to the quantitative portion of the study resulting in only 29 participants from both semesters of 2020 combined. To provide for a large enough group of participants for quantitative analysis participants the researcher grouped participants from both semesters to create one unit of analysis. Frequencies were run using SPSS (version 27) for food security levels of these students to establish the make-up of the participants for this portion of data analysis. For the quantitative analysis 45% of the participants experienced very low food security during the reporting cycle, while 25% reported experiencing low food security, 24% reported marginal food security, and 7% experienced high food security (see Figure 4.2).
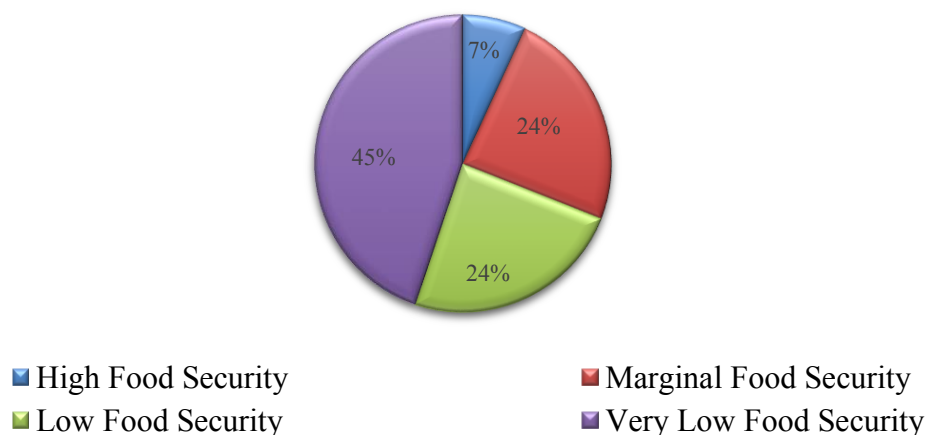
Figure 4.2 Food security level frequencies for participants reporting on success metrics.

Food Insecurity and Attendance

Both quantitative and qualitative data provided insight on the impact of food

insecurity on student's academic success. Questionnaires asked participants to self-report

the number of days they did not attend class. The question indicated that for online

courses an absence would be the equivalent of not logging in to the course through the

learning management system (LMS) for one week.

Quantitative data analysis. Before running correlation and regression the explore

feature of SPSS (version 27) provided a snapshot for the variable attendance (see Table

4.1).

Table 4.1

Descriptive Statistics for the Variable Attendance

Variable			Statistic	Std. Error
Attendance	Mean		1.83	.205
	95% Confidence Interval	Lower Bound	1.41	
	for Mean	Upper Bound	2.25	
	5% Trimmed Mean		1.86	
	Median		2.00	
	Variance		1.219	
	Std. Deviation		1.104	
	Minimum		0	
	Maximum		3	
	Range		3	
	Interquartile Range		2	
	Skewness		-.319	.434
	Kurtosis		-1.291	.845

The statistics provided indicate a 95% CI [1.41–2.25] with the trimmed mean falling

within this range (*M*- 1.86). The data did not demonstrate skewness at -.319 (SE .43) but

did demonstrate kurtosis at -1.29. The explore function also provided a histogram (see

Figure 4.3) which demonstrated both the frequencies and the distribution of the data. The

mean also appears on this chart (*M*= 1.83) as well as the standard deviation (*SD*= 1.10).
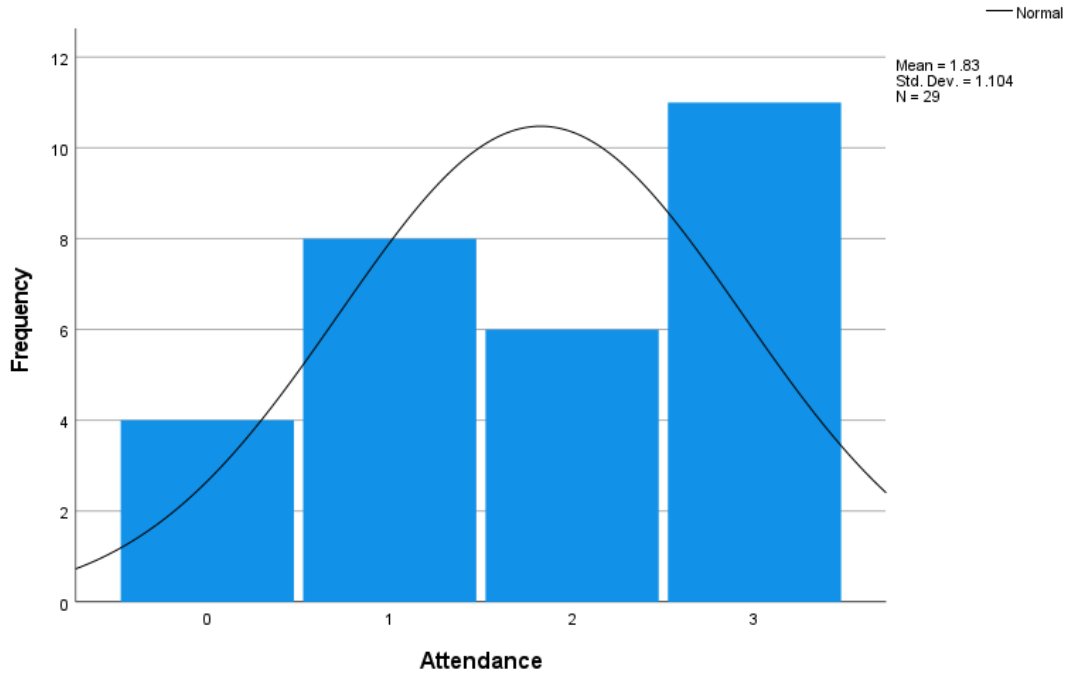
Figure 4.3 Histogram for the variable attendance.

Regression and correlation tests provide a better understanding of the relationship

between food security and attendance for the participants. As one of the variables was

ordinal and the descriptive statistics for the variable of attendance indicated a violation of

the linear model, Spearman's rho and Kendall tau (see Table 4.2) provided the correlation

data used to investigate the relationship between food security level and the number of

days missed during the semester. Spearman's rho indicated a significant relationship $r_s =$

.82, *p* =.000, *N* = 29. Kendall's Tau-b further confirms this relationship where a

significantly significant strong positive correlation exists between days missed and food

security level (τ_b = .74, *p* = .000).

Table 4.2

Correlations Between Food Security Level and Attendance

Test			Security Level	Attendance
Kendall's tau_b	Security Level	Correlation Coefficient	1.000	.743[**]
		Sig. (2-tailed)	.	.000
		N	29	29
	Attendance	Correlation Coefficient	.743[**]	1.000
		Sig. (2-tailed)	.000	.
		N	29	29
Spearman's rho	Security Level	Correlation Coefficient	1.000	.820[**]
		Sig. (2-tailed)	.	.000
		N	29	29
	Attendance	Correlation Coefficient	.820[**]	1.000
		Sig. (2-tailed)	.000	.
		N	29	29
**. Correlation is significant at the 0.01 level (2-tailed).				

To further investigate the relationship between attendance and the participant's level of food security a One-Way ANOVA provided the statistical analysis. A test of homogeneity of variance (see Table 4.3) indicated the assumption of the model was not violated.

Table 4.3

Homogeneity of Variances

Variable		Levene Statistic	df1	df2	Sig.
Attendance	Based on Mean	1.312	3	25	.293
	Based on Median	1.212	3	25	.326
	Based on Median and with adjusted df	1.212	3	23.360	.327
	Based on trimmed mean	1.535	3	25	.230

The Levene's Test of Homogeneity of Variances, $F(3,25) = 1.54$, $p = .293$. An alpha

level of .05, p (.293) $> \propto$ (.05) indicates there is no significance, therefore the null

hypothesis of no variance difference is not rejected indicating the assumption of

homogeneity is met. Based on the one-way ANOVA ($F(3,25) = 16.667$, $p = .000$) a

statistically significant difference exists between groups based on food security level (see

Table 4.4).

Table 4.4.

ANOVA Regression Model for the Variable Attendance

Group	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.759	3	7.586	16.667	.000
Within Groups	11.379	25	.455		
Total	34.138	28			

The relationship between increased food insecurity and days missed is further represented

by the means plot (see Figure 4.4) created in SPSS (version 27).
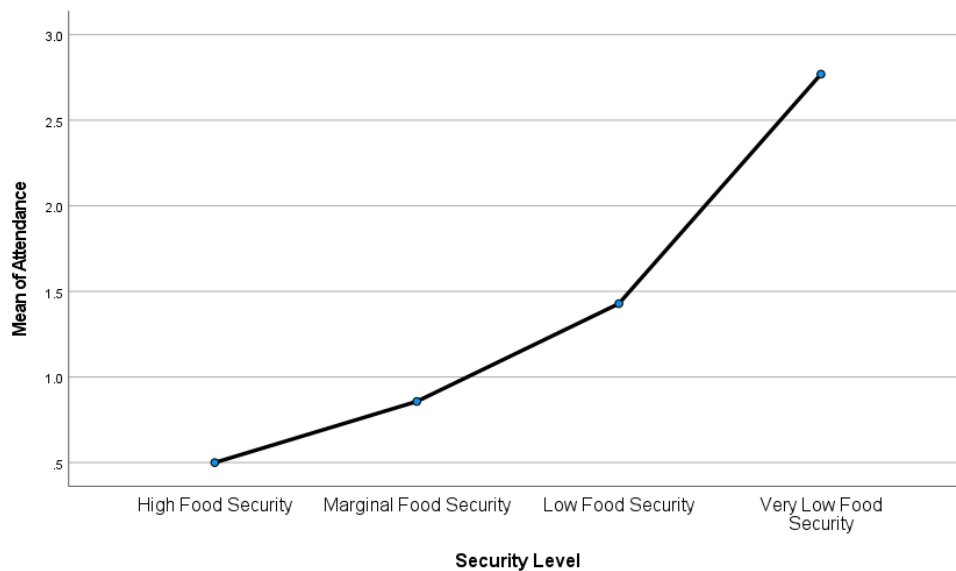
Figure 4.4. Means plot for days missed and food security level.

Qualitative data analysis. Once students reported the data on the number of days, they missed they also provided data on what impacted their ability to attend class. Students responded to two questions. The first question asked how a lack of money for food impacted their decision to attend class. The second question asked the participants what other factors impact. their ability to attend the class. Themes uncovered in the analysis of the qualitative data related to food security consisted of employment, COVID-19, and family (see Table 4.5). It should also be noted that three participants did not respond to either question, two participants noted that food insecurity had no impact on their attendance, and two indicated no other external factors impacted their ability to attend class.

The need to work rather than attend class was a common link between many of the participants. This is not an unexpected finding as students who work more than 40 hours a week are 48-51% more likely to be food insecure (Goldrick-Rab et al., 2018). One female student experiencing low food security noted "I can't manage my money for school if I need to use it for food." She furthered explained by responding that she was "working overtime hours" and could not attend due to this. Her experiences are reflective of prior research that identifies students who work full time are more likely to experience a negative impact on their academic performance (Cady, 2014; El Zein et al., 2019). A male participant also experiencing low food security commented, "It impacted me because I had to look for a job, so I won't have to depend a lot in the food pantry so I missed a few classes." This same sentiment was shared by a female student experiencing very low food security supporting a family of eight who stated, "Lack of money is why I have to work to put food on the table." The need for employment is also connected to the

identified theme of family. This direct connection is seen in the comment made by a female student experiencing very low food security who explained, "Yes, I had to look for jobs and feed my siblings." Not all students linked the family to the need to work, but family impacted attendance in other ways. One student of very low food security noted, "…sickness in the family had to focus on health on my family member." While another noted, "sickness, death in the family, and family sickness." The voice of these two students linked the idea of family to COVID-19 another theme that emerged. The emergence of COVID-19 as a barrier that impacted students is not surprising. Current scholarship indicates the pandemic increased stressors especially in Latinx families where a family connection is an important part of the culture (Brown et al., 2020). Other participants noted the pandemic as a separate challenge that impacted their attendance. One female student experiencing low food security in the spring who had noted that food security did not have an impact on her attendance in the spring did comment, "COVID-19 really impacted my spring semester." The same student whose situation worsened during the fall 2020 semester as she was now experiencing very low food security simply stated in response to how food security impacted her attendance, "It impacted it poorly" while continuing to identify "The COVID-19 virus" as an external factor. Evidence supports the findings that the pandemic had a significant negative impact on the experience and performance of college students (Aucejo et al., 2020; Goldrick-Rab et al., 2020; Son et al., 2020). While the pandemic was not explicitly stated, the conversion to fully online classes due to the pandemic impacted students, while one student noted, "The money for internet also impacted my attendance…" while another noted, "Childcare,

distance learning for all of us in the family." While individual themes emerged, the

participants' stories frequently linked each theme to the next.

Table 4.5

Description of Emerging Themes Related to Attendance

Observation *First-Order Reality*	Interpretation *Second-Order Reality*	Example of Student Statements *Support for Interpretation*
Employment	The need for employment took time ways from class	"It impacted me because I had to look for a job…" "Overtime working hours." "Yes, had to look for jobs."
COVID-19	The pandemic caused sickness keeping students from class	"Sickness" "COVID-19 impacted my attendance." "The COVID-19 virus."
Family	Family responsibility impacted student's ability to attend classes.	"…death in the family and family sickness" "Jobs to feed my siblings." "Childcare, distance learning for all of us in the family"

Food Insecurity and Course Completion

To better understand the impact of food insecurity on course completion

participants self-reported the number of courses they successfully completed, the number

of courses that they withdrew from, and the number of courses where they received an F

or an NP. The participants then responded to open-ended questions to help the researcher

understand the student's experience through qualitative analysis.

Quantitative data analysis. In the first stage of quantitative data analysis, the

researcher ran frequencies for each of the success metrics. Based on frequencies run in

SPSS (version 27) for the variable number of courses successfully completed, the largest

percentage of participants equaling 27.59% successfully completed three courses. Students reporting the successful completing of four courses was the next largest group which represented 20.69% of the participants. Students who did not successfully complete any classes made up 13.79% of the respondents, while 17.24% successfully passed one class (see Figure 4.5).
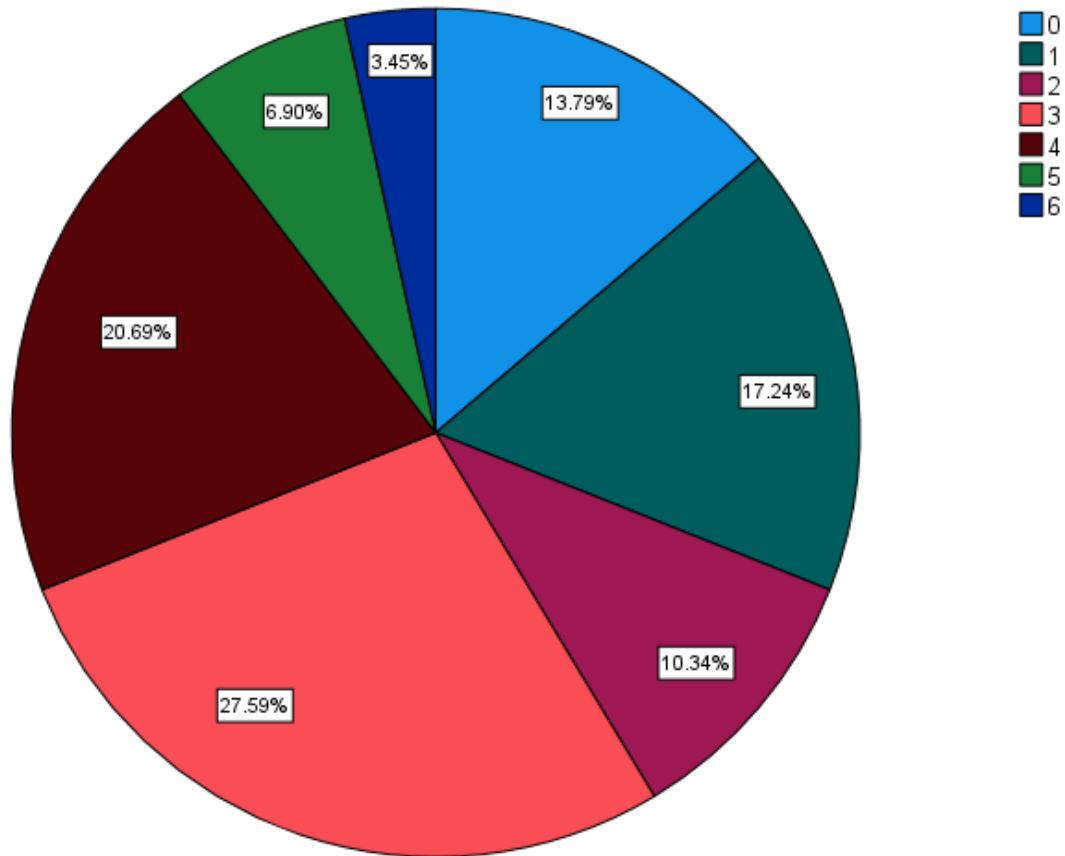
Figure 4.5. Frequencies for the variable courses successfully completed.

A review of the frequencies for the variable number of courses withdrawn from by the student or dropped by the participant's instructor revealed that 72.41% of students did not withdraw from any courses, and the remaining 27.59% students withdrew from only one course (see Figure 4.6).
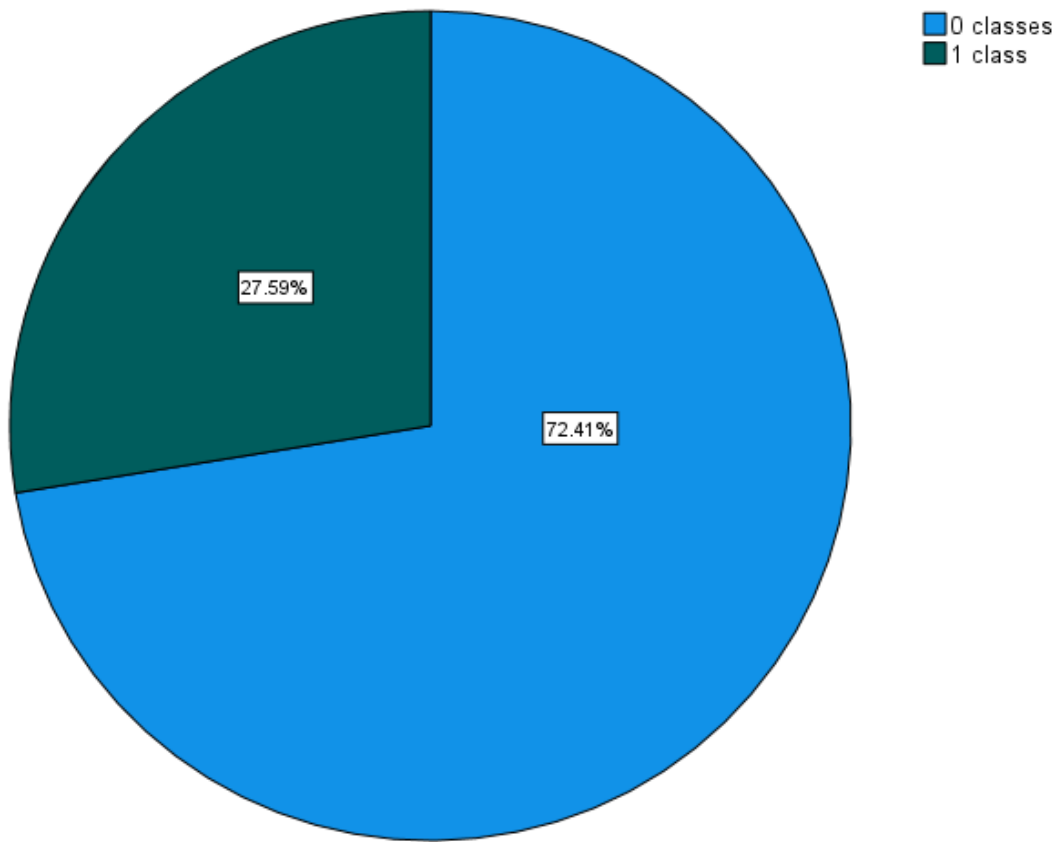
Figure 4.6. Frequencies for the variable number of classes withdrawn or dropped.

The final success metric reported by participants indicated the number of courses in which the student received a grade of an F or NP. Based on the responses 62.07% did not fail any courses, 24.14% received an F or NP in one course, while 6.9% received a non-passing score in two classes and 6.9% did not pass three of their classes (see Figure 4.7).
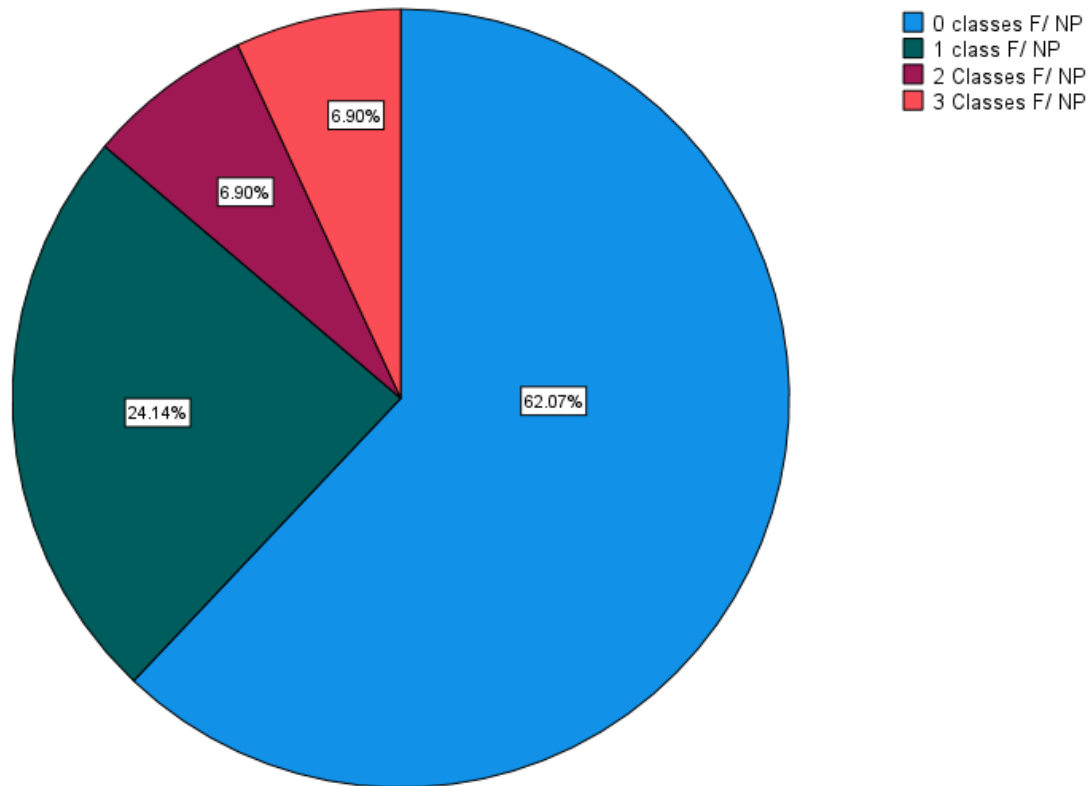
Figure 4.7. Frequencies for the variable number of courses with an F or NP.

Spearman's rho and Kendall tau (see Table 4.6) provided the correlation data used to investigate the relationship between food security level and the success metrics of the number of courses successfully completed, the number of courses failed, and the number of courses withdrawn. Spearman's rho did not indicate a significant relationship between the level of food security and successful course completion $r_s = .13$, $p = .518$, $N = 29$. Kendall's Tau-b further confirms no relationship where a significantly significant correlation does not exist between days missed and food security level ($\tau_b = .11$, $p = .474$). Spearman's rho did not indicate a significant relationship between the level of food security and the number of courses that failed $r_s = .28$, $p = .149$, $N = 29$ or between food security level and the number of courses withdrawn $r_s = .10$, $p = .612$, $N = 29$. Kendall's tau b (see Table 4.6) further confirms the lack of significant correlation between food

security level and the number of courses failed ($\tau_b = .25$, $p = .131$) nor between food

security level and the number of courses withdrawn ($\tau_b = .09$, $p = .603$).

Table 4.6

Correlations for Successful Course Completion

Kendall's tau b	Security Level	Correlation Coefficient	1.000	.112	.254	.091
		Sig. (2-tailed)	.	.474	.131	.603
		N	29	29	29	29
	Successful	Correlation Coefficient	.112	1.000	-.221	.071
		Sig. (2-tailed)	.474	.	.167	.672
		N	29	29	29	29
	F or NP	Correlation Coefficient	.254	-.221	1.000	.234
		Sig. (2-tailed)	.131	.167	.	.194
		N	29	29	29	29
	Withdraw	Correlation Coefficient	.091	.071	.234	1.000
		Sig. (2-tailed)	.603	.672	.194	.
		N	29	29	29	29
Spearman's rho	Security Level	Correlation Coefficient	1.000	.125	.275	.098
		Sig. (2-tailed)	.	.518	.149	.612
		N	29	29	29	29
	Successful	Correlation Coefficient	.125	1.000	-.268	.080
		Sig. (2-tailed)	.518	.	.160	.680
		N	29	29	29	29
	F or NP	Correlation Coefficient	.275	-.268	1.000	.245
		Sig. (2-tailed)	.149	.160	.	.199
		N	29	29	29	29
	Withdraw	Correlation Coefficient	.098	.080	.245	1.000
		Sig. (2-tailed)	.612	.680	.199	.
		N	29	29	29	29

To further investigate the relationship between attendance and the participant's

level of food security a One-Way ANOVA provided the statistical analysis. A test of

homogeneity of variance indicated the assumption of the model was not violated for the

variables of the number of courses failed $F(3,25) = 1.38$, $p = .271$ or the number of

courses withdrawn $F(3,25) = 2.25$, $p = .107$. Levene's Test of Homogeneity of Variances

for successful course completion did indicate a violation of the model, $F(3,25) = 3.44$, p

$= .032$. An alpha level of .05, p (.032) $< \propto$ (.05) indicates there is significance, therefore

the null hypothesis of no variance difference is rejected indicating the assumption of

homogeneity is not met for this variable (see Table 4.7).

Table 4.7

Tests of Homogeneity of Variances for Course Completion

Variable		Levene Statistic	df1	df2	Sig.
Successful	Based on Mean	3.447	3	25	.032
	Based on Median	2.566	3	25	.077
	Based on Median and with adjusted df	2.566	3	19.210	.084
	Based on trimmed mean	3.443	3	25	.032
F or NP	Based on Mean	1.677	3	25	.197
	Based on Median	.551	3	25	.652
	Based on Median and with adjusted df	.551	3	20.514	.653
	Based on trimmed mean	1.382	3	25	.271
Withdraw	Based on Mean	2.904	3	25	.055
	Based on Median	.247	3	25	.863
	Based on Median and with adjusted df	.247	3	23.994	.863
	Based on trimmed mean	2.253	3	25	.107

Based on the one-way ANOVA (see Table 4.8) there was not a statistically

significant difference between food security levels and the number of courses failed

$(F(3,25) = .498$, $p = .687)$ or between food security level and the number of courses

withdrawn $(F(3,25) = .247$, $p = .863)$. The researcher did not run a one-way ANOVA on

the variable of the number of courses successfully due to the violations of the assumption of the model.

Table 4.8

One-Way ANOVA for the Course Completion Variables

Variable		Sum of Squares	df	Mean Square	F	Sig.
F or NP	Between Groups	1.298	3	.433	.498	.687
	Within Groups	21.736	25	.869		
	Total	23.034	28			
Withdraw	Between Groups	.167	3	.056	.247	.863
	Within Groups	5.626	25	.225		
	Total	5.793	28			

Although the quantitative analysis did not indicate a relationship between food security level and successful course completion, the qualitative analysis provided the researcher with the students' perspective on the impact of food security on their academic success.

Qualitative data analysis. Participants responded to open-ended questions that inquired both about how food insecurity and other factors unrelated to food security impacted their ability to successfully complete their courses. The qualitative analysis revealed three themes. The themes that emerged included COVID-19, family, worry, and resources (see Table 4.9). The pandemic impacted students in a variety of ways. A move to fully online classes due to the pandemic impacted the participant's ability to complete their courses. A female participant who experienced marginal food security first noted, "It wasn't only that [lack of money for food] it was mainly this pandemic that the year 2020 has [impacted]. She further commented, "One class that I dropped for the spring semester of 2020 was because it was a writing class, and the teacher didn't quite know

how to explain herself since we transition to online classes." Another participant stated, "Internet was an impact on my courses." Other participants did not comment on the change of course delivery, rather they identified the pandemic alone as the source of their struggles. One participant who experienced very low food security identified "Adapting to a new lifestyle due to the new virus" as a significant impact, while two other participants simply stated, "COVID-19." Increased barriers due to food insecurity are not unique to students that utilize the South Texas College Food Pantry. Current research indicates COVID-19 disrupted food supplies (Hobbs, 2020; Laborde et al., 2020; Naja & Hamadeh, 2020), increased unemployment (Roberton et al., 2020; Wilson et al., 2020), and increased levels of stress and anxiety (Achdut & Refaeli, 2020). Another participant linked family to the pandemic noting, "Health, family burdens/problems/situations worse because of COVID." Others linked worry to family with one participant stating, "I would constantly worry about my family…" and another noting that they, "…have to worry how to feed everyone." A connection between family responsibility and worry is evident in prior research as well. Previous studies indicate parenting students experience higher rates of anxiety (Eltigani, 2020; Goldrick-Rab et al., 2020) A lack of resources impacted students as well. For some participants, a lack of resources required more time at their jobs. Once such student commented, "I needed to work more hours to get enough money for groceries and bills." Still, other participants simply noted the struggle to succeed in classes due to a lack of money. One female participant experiencing low food security expressed, "On one class I was not able to show up to school because I did not have the gas, therefore I missed out on some assignments." While another commented, "…I had to focus on money for my food," while another shared how food insecurity caused them to

make concessions between food and educational resources as she noted "money for books" as the reason she struggled to be successful in her courses.

Table 4.9

Description of Emerging Themes Related to Course Completion

Observation	Interpretation	Example of Student Statements
First-Order Reality	*Second-Order Reality*	*Support for Interpretation*
COVID-19	The pandemic added additional stressors for students	"…it was mainly this pandemic that the year 2020 has." "COVID-19"
Worry	Participants worried about family and resources	"Have to worry how to feed everyone." "stressful but able to get it done!"
Family	Family responsibility was linked to worry and the need for resources	"Health, family burdens/problems/situations worse because of Covid"
Resources	A lack of resources created stress and caused students to make choices	"Yes, I had to focus on money to pay for my food" "It was hard because I had to pay for books and tuition"

Food Insecurity and GPA

To better understand the impact of food insecurity on GPA participants self-reported their GPA at the end of the spring and fall semesters of 2020. The participants then responded to open-ended questions to help the researcher understand the students' experience through qualitative analysis.

Quantitative data analysis. In the first stage of quantitative data analysis, the researcher ran frequencies using SPSS (version 27) for each of the success metric of GPA. A GPA below 1.0 was reported by 13.79% of the participants. Only 3.45% of participants reported a GPA between 1.0 and 1.49. A GPA of 2.0- 2.49 and 3.5-40 were

both reported by 27.59% of the students while 17.24% reported a GPA between 2.5-2.99 and 10.34% reported a GPA of 3.0-3.49 (see Figure 4.8). Based on these frequencies 62% of students earned a GPA indicating a C average in their courses.
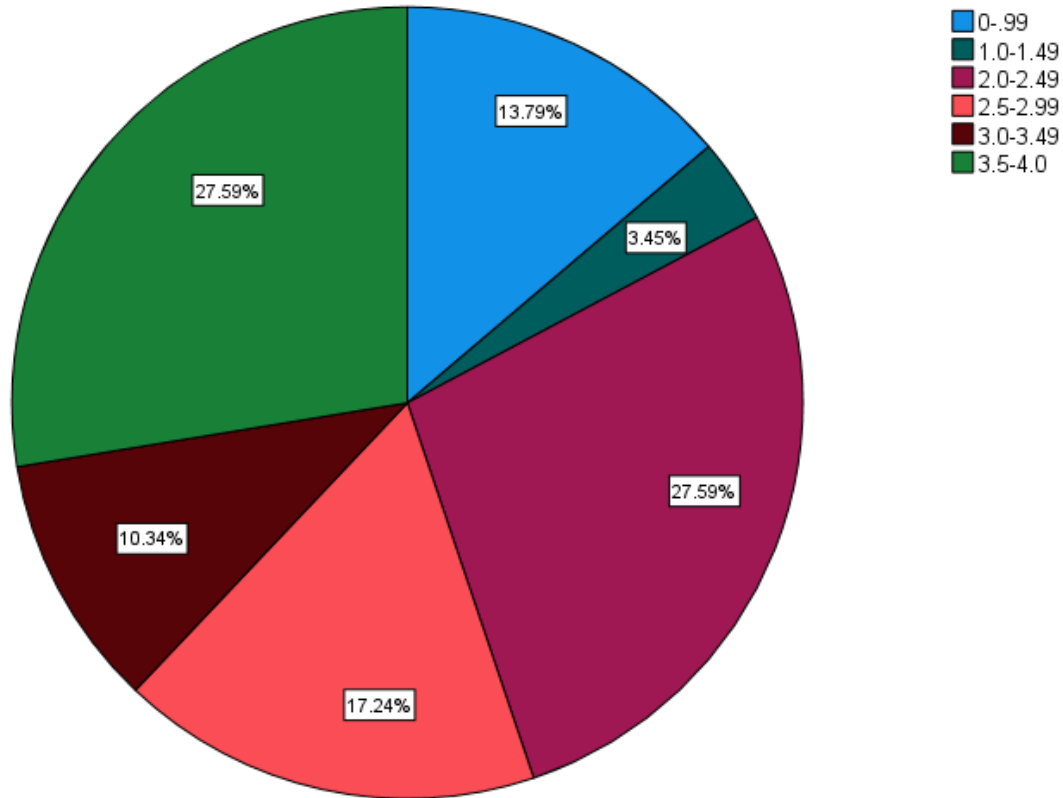
Figure 4.8. Frequency of GPA.

Before running correlation and regression the explore feature of SPSS (version 27) provided a snapshot for the variable GPA. The statistics provided indicate a 95% CI [2.96-4.49] with the trimmed mean falling within this range (*M*- 3.72). The data did not demonstrate skewness at -.605 (SE .43) or kurtosis at -.539 (see Table 4.10).

Table 4.10

Descriptive Statistics for the Variable GPA

Variable			Statistic	Std. Error
GPA	Mean		3.72	.374
	95% Confidence Interval for Mean	Lower Bound	2.96	
		Upper Bound	4.49	
	5% Trimmed Mean		3.80	
	Median		4.00	
	Variance		4.064	
	Std. Deviation		2.016	
	Minimum		0	
	Maximum		6	
	Range		6	
	Interquartile Range		3	
	Skewness		-.605	.434
	Kurtosis		-.539	.845

A Kolmogorov-Smirnov test (see Table 4.11) indicates the variable of GPA does not follow a normal distribution $D(29) = .187$, $p = .011$. The results of the Shapiro-Wilk test of normality confirms these findings. $W(29) = .87$, $p = .002$.

Table 4.11

Tests of Normality for the Variable GPA

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
GPA	.187	29	.011	.868	29	.002

Spearman's rho and Kendall tau (see Table 4.12) provided the correlation data used to investigate the relationship between food security level and the success metric of GPA. Spearman's rho did not indicate a significant relationship between the level of food

security and GPA r_s = -.12, p =.529, N = 29. Kendall's Tau-b further confirms no relationship where a significantly significant correlation does not exist between days missed and food security level (τ_b = -.11, p = .484).

Table 4.12

Correlations for the Variable GPA

			Security Level	GPA
Kendall's tau_b	Security Level	Correlation Coefficient	1.000	-.111
		Sig. (2-tailed)	.	.484
		N	29	29
	GPA	Correlation Coefficient	-.111	1.000
		Sig. (2-tailed)	.484	.
		N	29	29
Spearman's rho	Security Level	Correlation Coefficient	1.000	-.122
		Sig. (2-tailed)	.	.529
		N	29	29
	GPA	Correlation Coefficient	-.122	1.000
		Sig. (2-tailed)	.529	.
		N	29	29

Although the quantitative analysis did not indicate a relationship between food security level and the participants' GPA, the qualitative analysis provided the researcher with the students' perspective on the impact of food security on their academic success.

Qualitative data analysis. Participants responded to open-ended questions that inquired both about how food insecurity and other factors unrelated to food security impacted their ability to achieve their academic goals. While several of the respondents could not identify specific impacts, the analysis of the responses allowed the researcher to identify three themes that intertwined with one another. The themes which emerged

included worry, family, and resources (see Table 4.13). While one female participant simply notes "family responsibilities," another participant experiencing low food security provided a more specific response. She stated, "I was not able to work like I wanted to help out my family due to the pandemic." A female participant who experienced very low food security saw "having to care for my child at home" as a factor that impacted her success in class. Family responsibilities are a reality for untraditional students who now make up a great proportion of college students (Taylor et al., 2018; United States Government Accountability Office, 2018). The same student also stated, "I feel that it impacted my academic goals greatly because I was constantly not only thinking about school but also about my stability." She was not the only one who noted a lack of resources as a distraction to their education. A female participant who experienced very low food security commented, "If I had money to pay, I would focus more on my academic[s]." Participants also felt the stress of limited resources on their families as is noted by the participant who stated, "I was constantly worried about my parents and my economic stability." While students wanted to focus completely on their education the responses revealed that participants felt the stress of providing for their families. The need to provide for the family is a significant stressor for parenting students, especially those in Latinx households (Brown et al., 2020). This is of significance as South Texas College is a Hispanic Serving Institution. Although the data did not indicate a statistically significant relationship between GPA and food security levels, the qualitative analysis revealed that students who experienced food insecurity felt the connection between food security and achieving their academic goals This connection is supported by the literature (Broton et al., 2018; Goldrick-Rab et al., 2018; Maroto et al., 2015). It is evident in the

analysis of the qualitative data that there is a connection between the emerging themes of worry, family, and a lack of resources.

Table 4.13

Description of Emerging Themes Related to GPA

Observation *First-Order Reality*	Interpretation *Second-Order Reality*	Example of Student Statements *Support for Interpretation*
Worry	Participants often worried about meeting their other needs	"I was often worried…" "I was constantly worried…"
Family	A family increased the level of responsibility students had outside of the classroom	"…care for my child at home." "family responsibilities."
Resources	Limited resources created stress, reduced focus, and led to difficult choices.	"Money for school" "If I had money to pay, I would focus…"

Discussion of Identified Barriers to Success

While attendance was the only success metric where quantitative data analysis determined a relationship between food security levels, the examination of the participants' experiences with food insecurity revealed many challenges the students dealt with both due to food security and with other factors. Common themes emerged in the first phase of the framework where the researcher works to understand and define the problem. Throughout the first phase, participants expressed COVID-19, a lack of resources, family responsibility, worry, and employment as common factors that impacted their ability to achieve their academic goals. These five themes did not appear independently. Rather, each one seemed to connect to the other. The data provide a clear

view of how the pandemic magnified the barriers created by food security. The current

scholarship also supports the magnification of barriers due to COIVD-19 (Aucejo et al.,

2020; Son et al., 2020). Participants lost their jobs, worried about becoming sick

themselves, and caring for a sick family member. Additionally, students' courses moved

to online platforms and remained that way throughout both the spring and fall semesters

of 2020. Many of the students faced food insecurity for the first time due to the

pandemic, while others experienced a deeper level of food insecurity.

Although the pandemic intensified the conditions of food insecurity and the

barriers food insecurity creates existed before COVID-19 and will continue beyond the

pandemic. It became evident when analyzing the qualitative data that many of the

participants in this study lived away from their parents without their financial support,

cared for children, and worked full-time jobs. Although these attributes are not how we

traditionally thought of college students, they are representatives of the untraditional

students who now make up 71% of the college student population (United States

Government Accountability Office, 2018).

Although the results from this study did not demonstrate a relationship between

the level of food security and the success metrics, with exception of attendance, prior

studies have indicated students experiencing food security fail to successfully complete

their classes than their food-secure classmates (Goldrick-Rab et al., 2018; Silva et al.,

2015). The results of this study indicate students received a GPA of 2.9 or below more

frequently (62%) than a GPA of 3.0 or above (48%). This aligns with the study

conducted by Maroto (2013) where it was found that students are more likely to earn a

GPA between 2.0 and 2.9 than a GPA of 3.5-4.0. Prior studies also noted food insecure

students had more frequent absences from classes (Martinez et al., 2018; Silva et al., 2015) which is aligned with the results of this study where a significantly significant relationship was identified between the level of food security and attendance. Based on this observation the theory developed in this stage of the study is that barriers created by food insecurity are not independent.

<p align="center">*Investigation of Solutions*</p>

The second phase of the framework investigates solutions. In this phase, the researcher answered two questions. First, how does the student's education experience change after gaining access to the food pantry? Second, how do the student experience and the student outcomes explain both the impact and food insecurity, and how does the food pantry mitigate these challenges? The researcher analyzed the qualitative data collected which correlated with these questions to understand the student experience This section identifies observations or themes that have been identified as first-order realities. Then the researcher provides an interpretation of these observations identified as second-order realities.

Value of the Student Food Pantry

The researcher first investigated why students chose to use the food pantry. Four key themes emerged from this inquiry. The themes are a need for food, family responsibility, the Covid-19 pandemic, and a loss of income (see Table 4.14). In both the spring and fall semesters of 2020 students who used the food pantry, regardless of their level of food security, shared similar reasoning about why they decided to use the food pantry. While a need for food is an anticipated reason for students to utilize the food pantry, other responses provided a greater insight into the students' motivations. Family

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responsibility was a repeated reason noted by the respondents. The need to provide for

one's family and the lack of resources seemed to be exacerbated by the pandemic that

impacted students in both semesters of the study. This observation is consistent with the

recent literature which identifies the negative economic impact of COVID-19 and access

to resources due to the pandemic (Pérez-Escamilla et al., 2020; Roberton et al., 2020;

Wilson et al., 2020). One participant, a mother of three children whose family was

experiencing very low food security noted,

> My husband is unemployed, and we have three children. Since quarantine
> started my children were home with us most of the time. They had lunch
> provided to them, but it was too far to drive every day to pick up their
> school lunches since we live 10 miles from the school.

Another mother also experiencing very low food security shared a similar experience as

she commented, "Spring 2020 was very difficult due to the pandemic, my husband is the

one that supports the family economically and he got hours cut down so the food pantry

help[ed] us a lot." Her story is not uncommon according to recent research on the impact

of the pandemic on college students which report a loss of 31% of wages and a 37% loss

of hours while 40% of students lost their jobs (Aucejo et al., 2020). The crisis did not

only impact students who experienced very low food security. Another female student

whose family experienced marginal food security, which the USDA identifies as food

secure (Bickel et al., 2000), expressed,

> I chose to utilize the student food pantry because it was a very difficult
> year with the Covid-19 pandemic. It was a struggle when you are also the
> head of household and if I qualified for it why not take the opportunity to
> help myself out.

Although food and a lack of food could be connected to the pandemic for many of the

students, others only noted a lack of resources without identifying the cause. One of the

male students whose family experienced very low food security simply stated, "[Be]cause our household [was barely able to make] ends meet so I used the STC food pantry to better help put food on the table." Another student of marginal food security put it in even more simple terms, "To feed my family and myself."

Students did not only express that the food pantry provided food, but they noted the value of the food pantry in allowing them to use their money for other needs. A student with low food security commented, "The food pantry helps me to save an important amount of money to use on other expenses" while the same student also noted, "It helps me to supply 50% of my meals." These two comments together tell the story that if not for the food pantry other needs would not be met for this student. This is a significant observation as the literature identifies that students who experience food insecurity often struggle academically due to the pressure to make trade-offs (Dubick, et al., 2016) between educational expenses and food.

Students found other locations to fill the gap between resources they had and the resources they needed. Several of the students noted the use of the local food bank or their church food pantry to supplement the food provided from the student food pantry. While local food pantries provide some support to students access to these facilities is not always possible. Students noted the lack of transportation to get to another facility as a reason for only using the campus food pantry. Other students commented on using SNAP. Some students were not aware of programs that could help them, although other participants noted that they did not qualify for SNAP or other benefits. Whether or not students qualified for benefits is unclear. However, the literature notes many students who are eligible for benefits do not apply due to a lack of awareness of the application

process and eligibility (Smith, 2019; United States Government Accountability Office, 2018).

Table 4.14

Description of Emerging Themes on Why Students Use the Student Food Pantry

Observation *First-Order Reality*	Interpretation *Second-Order Reality*	Example of Student Statements *Support for Interpretation*
Food	Students needed food	"We had a limited food supply at home." "Need of food."
Family	Students utilized the pantry out of family responsibility	"It was a struggle when you are also the head of household." "…to feed my family." "it helped provide my family food."
COVID-19	The pandemic limited access to needed resources	"…it was a very difficult year with the Covid-19 pandemic." "…there was not enough food at home due to the pandemic." "I am having financial difficulties due to the Covid-19 crisis."
Loss of income	Reduced work hours and loss of employment limited money for food	"My husband supports the family economically and he got his hours cut down…" "My husband is unemployed."

Impact of Student Food Pantry

Participants responded to two questions the researcher used to investigate the impact of the student food pantry. While one question asked about the impact on the students' academic success, the other focused on the impact on the students' daily life.

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While the questions focused on two aspects of the participant's experience, the answers to both questions told similar stories and led to the same emerging themes. The major themes that the researcher identified through the coding process of the data included reduced stress, increased focus, family wellbeing, health, and finances (see Table 4.15).

In both the spring and fall semesters of 2020 students from all levels of food security indicated the food they received from the campus food panty reduced their level of stress or worry. This is a significant benefit as stress is identified as a barrier to success among college students (Raskind et al., 2019). A student who experienced low food security commented, "…it gave me food security and more [peace] of mind when it came to making sure I had food on my table." The same student noted, "It has impacted my academic success because it has given me one less thing to worry about." Other students share this sentiment while sharing that the reduced stress also helped them to put more effort into their classes. A female student experiencing low food security emphasized this point stating, "The food pantry made me even try harder in school because I was not worried as much because I knew my family had something to eat." Another student enthusiastically stated a similar sentiment commenting, "I think it is awesome! It helps and it took a lot of weight, stress, and worries off of me. I didn't have to worry and could focus on my studies." The reduction of stress due to the student's experience with the food pantry also led to increased focus for other students. This indicates that the pantry was effective in reducing the impact of the mental trade-off between the focus on food and the focus on academics identified in prior research (Meza et al., 2018). A female student experiencing marginal food security highlighted this connection stating, "It took a weight off my worries to provide food for the household which in return helped me focus

more on my courses." Her comment revealed that the food she received from the pantry not only helped her as an individual but also reduced her stress because she was able to provide for her family.

Other students did not connect the reduced stress as the reason for increased focus, but rather they connected focus with improved health. A male participant experiencing low food security expressed this connection in his comment, "It gave me more energy to tackle the daily tasks at hand when it came to being in school and being able to concentrate." This is another positive observation in the effectiveness of the pantry to address a barrier to academic success identified in prior research (Maroto et al., 2015). While many students connected reduced stress, and increased health to focus on their courses, other students identified the financial benefits impacting their academic success.

One participant experiencing very low food security stated, "It really made a big difference, I pay most of my classes out of pocket, and having the food pantry really help me to save money and to pay for my classes and be able to graduate in the summer." Adding to the story of how the food pantry allowed students to continue a female student experiencing low food security commented, "It helped me to not drop my classes since I could use my money for school expenses instead [of] food." This statement reveals the food pantry is effective in reducing the trade-offs between food and educational resources which prior research identified (Broton et al., 2018).

Although many of the participants could identify a specific impact of the food pantry on their experience others only knew that it did. One such student a female experiencing marginal food security simply stated, "It helped me a lot more than I could

have imagined. Super thankful to the food pantry at our school." While students

expressed a variety of ways the food pantry impacted their experience both in school and

in life, the common thread is that the food pantry had significant value for the

participants. While student's comments allowed different themes to emerge, there is a

clear connection between each of them. While the food provided at the pantry was not

identified as a specific theme, the access to food created each of the positive impacts

identified by the participants. Additionally, links between the themes are clear. For

example, the ability to provide for one's family reduced stress and the reduced stress led

to increased focus.

Student Perceptions of the Student Food Pantry

Several students noted that they did not know that the service existed until the

COVID-19 pandemic or they did not know the process or who qualified for the pantry so

they had not used it before the Spring 2020 semester. One female participant

experiencing very low food security commented, "I didn't even know that the school

helped students like this." Another female participant experiencing low food security

reiterated this response stating, "I thought it was only for people in most need." Although

these comments indicate that better messaging about the food pantry is critical, once

students found the pantry, students expressed appreciation for not having to prove their

poverty to receive services. One student experiencing low food security expressed this

stating, "I thought it was only for emergency use and that we needed to submit financial

documentation, but I realized it's for everyone enrolled at school and is very easy to

enroll on it."

Table 4.15

Description of Emerging Themes on Food Pantry Impact

Observation *First-Order Reality*	Interpretation *Second-Order Reality*	Example of Student Statements *Support for Interpretation*
Reduced Stress	The food provided reduced worry and stress for students.	"…it has given me one less thing to worry about." "[It] helped me not worry about my food situation."
Increased Focus	The food provided helped students to focus on their education.	"It gave me a great way to make sure to concentrate in classes." "…being able to concentrate." "It really helps [s] you concentrate in other this in life not to have to worry about needed food."
Family Wellbeing	The food provided did not only impact the student but also their families.	"The food I received at the student food pantry impacted all my family…" "The food I received at the student food pantry had a positive impact on my family's daily routine as well as mine."
Health	The food provided at the food pantry improved students health	"Very much because it was good food and health." "It gave me more energy to tackle the daily tasks…"
Finances	Students could divert funds from food to other necessities	"…the food pantry really helps me to save money and pay for my classes." "I could use the money for school expenses instead of food." "It helped me better manage my financial aid reimbursement for school expenses."

Connecting students to services and information about the services especially in an online

environment is an issue for many colleges and universities (Guerra, 2021). The evidence

of this difficulty for the South Texas Food Pantry is not surprising, but certainly worth noting.

The overall perception of the student food pantry was positive. All but one participant who did not respond to the questions regarding perception responded positively to the services provided. The themes that emerged in the coding process included quality, gratitude (see Table 4.16). Participants noted the pantry was an "excellent support" and a "great help while also commenting that "It helps more than you think that it does." Other participants provided more specific feedback. A female student who in the spring of 2020 experienced marginal food security and in the fall 2020 semester experienced very low food security commented, "I like that now during this fall semester we are provided with also health and personal essentials. I am very grateful." The responsiveness of the student food pantry to the increased needs of students did not go unnoticed by students.

Participants expressed their appreciation in a variety of ways. A male participant experiencing low food security expressed his perception as "It was one of a gratitude for what it is doing to the school community by making sure that the students who do not have food security have it." Another male student who reported experiencing high food security in the spring and chose not to report food security in the fall noted his perception "…was positive and the food pantry is a major help for any family that requires the assistance." The gratitude did not come from simply providing a service, but rather a quality service.

Table 4.16

Description of Emerging Themes on Perceptions of the Student Food Pantry

Observation	Interpretation	Example of Student Statements
First-Order Reality	*Second-Order Reality*	*Support for Interpretation*
Quality	The students valued the quality of the product and the people in the food pantry	"It offers great help and the food given is of high quality." "The staff was awesome and so helpful." "It has a good variety of foods."
Gratitude	Students expressed gratefulness about the student food pantry	"It helped me a lot more than I could have imagined. Sure thankful to the food pantry at our school." "It [perception] was one of gratitude for what it is doing to the school community." "Overall grateful" "I am truly grateful"

Participants shared many comments about both the product and the individuals in the food pantry. Students experiencing both high and very low food security shared this perspective. One noted, "It offers a great help and the food given is high quality" while the other commented, "They had a good variety of foods." Yet another student commented on her positive experience stating, "…it was also not expired food to how they tend to give you in other food places." Comments extended beyond the food provided to the people involved. One participant experiencing low food security commented, "The staff was so awesome and helpful. They made you feel comfortable and not ashamed or embarrassed" while another stated, "it made me comfortable to ask for help." A female student experiencing low food security commented, "My overall

perception of the food pantry was great! I am truly grateful for STC." This comment identified the connection between students' perceptions of the student food pantry and their perceptions of South Texas College.

Student Perceptions of South Texas College

The positive experience of students with the food pantry carried over and impacted their perception of South Texas College. The two major themes of caring and support emerged from the question regarding the impact the food pantry had on the participants' perceptions of South Texas College (see table 4.17).

Table 4.17

Description of Emerging Themes on Perceptions of South Texas College

Observation *First-Order Reality*	Interpretation *Second-Order Reality*	Example of Student Statements *Support for Interpretation*
Caring	The students see the food pantry as an expression of caring for them as individuals	"I was able to see the college cared for us" "STC cares about its students and gives resources for us to stay in school" "It shows they really care for us, not only as a student but human beings." "I felt cared for in a different way."
Support	Students feel a newfound level of support for themselves and the community	"They are not only a school, but they are great community helpers." "…STC is showing it supports students when they need it." "STC would help me non-academic wise."

Although students maintained a positive perception of South Texas College before using the student food pantry, their experience created a new level of appreciation of the college. A participant expressed this by stating, "Even without the food pantry STC has been proven to be a leader in education in the community, but this food pantry has brought it to a new level. Another student shared this sentiment commenting, "It brought an even better perspective of a school I already loved." Students appeared to be overwhelmed by what they identified as "very generous" efforts. One female participant who experienced marginal food security expressed her feelings stating,

> Everything has changed because now I know that our college is not just books and homework. If not a place that helps you in any way that they can to better your education for a better life. I was able to see that our college cared for us and does its part to help its students not struggle.

The fact that the pantry met needs not related to academics increased the positive perception of students. Students from all levels of food security shared the belief that the pantry demonstrated the school cared about them. One female participant experiencing low food security commented, "I thought it was a great thing for STC doing something for their students. It shows they really care for us, not only as students but as human beings. They too understand that we have needs." Another female student experiencing marginal food security stated, "I thought it was very helpful and felt/feel cared for in a different way." The idea of being cared for by the institution creates a sense of belonging which can increase student success and persistence (Hausmann et al., 2009). Students also identified that the pantry showed that it supported them and the community. This is seen in the comment by one student who expressed,

> The food pantry South Texas College give made me love STC even more, the way they help out their students in this hard time made me look at it that they are not only a school, but they are great community helpers.

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Another student shared this sentiment noting, "I believe that STC is showing that it supports students when they need it." While another commented, "It made me happy to know that I had somewhere I could rely on." Participants did not see the student food pantry as a service separate from South Texas College. Rather, for them, the student food pantry is South Texas College. The pantry creates a connection to the college for the food-insecure students because they see the pantry as a way the college community expresses the people at the college care and support them in their time of need. This perceived expression of caring and the connection to the food pantry is an important link to understanding the effectiveness of the food pantry. Prior research indicates that connection to non-academic programs in college increases persistence and completion (Roberts & Styron, 2010). Additionally, this connection creates a sense of belongingness which further supports student success.

Discussion of the Investigation of Solution

This study utilized the constructionist theory of social work to both identify the barriers to academic success for food-insecure college students and investigate the effectiveness of institutional interventions. This section reviews the data on the effectiveness of the student food pantry on reducing the barriers created by food insecurity. When investigating the effectiveness of the student food pantry on reducing the barriers created by food insecurity the researcher collected data on student need, student perception, and the impact on the students' experience. The investigation of need confirmed the data analyzed in the first phase of the framework, the investigation of barriers. While a need for food brought students to the food pantry, this need came from other factors. The pandemic experienced in 2020 resulted in a financial crisis for

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students. Many of the participants could not work because they tested positive for the virus or shared a household with a family member who tested positive resulting in a self-quarantine. Other students worked for businesses that either closed or reduced their hours which left them without an income to cover the basic needs in their homes. Students did not only seek food for themselves, but much of the data revealed that they needed to feed their families. Not only did many of the students experience a loss of income, but many parenting students needed to feed children who normally ate at school or in daycare, both of which closed due to the pandemic. The responsibility to feed their family created feelings of stress and anxiety for students. This is critical as increased stress impacts an individual's ability to perform academically (Goldrick-Rab et al., 2018). The thought of disappointing one's family compound the anxiety which stems from food insecurity and further impacts a student's ability to achieve academic success (Martin et al., 2016; Meza et al., 2018).

Students view the food pantry as a quality operation where both the product and the people gave students a perception of quality. Students expressed that they felt welcomed each time they went. They expressed gratitude and appreciated both the quality and variety of the food. This was important to students who experienced other food pantries where expired and low-quality foods were provided. This is key as food insecurity reduces an individual's dignity that increases overall stress (Pryor et al., 2016). The quality of the product and service demonstrates to the students that they are respected as individuals and not looked down on due to their circumstances. Participants made comments that the pantry made them feel cared for not just as a student but as individuals. These feelings rolled over to their perception of the college. It made an

impact on the students to know that the school provided support to them beyond their academics. This made them feel proud and they recognized the school as "a leader in education and the community." Several students mentioned the school community which expressed a sense of belonging. This is a key to the service as a sense of belonging results in increased persistence and completion (Hausmann et al., 2009; Martin et al., 2016).

The themes which emerged on the impact of the student food pantry directly aligned to the barriers which were discussed during the investigation of the problem. Students noted reduced stress due to the pantry while also indicating an increased ability to focus on schoolwork. Discussion included positive impacts on both their mental health and physical health due to reduced stress and increased nutrition in their household. This is a critical point as prior research shows that stress and poor nutrition have adverse effects on learning and academic success (Goldrick-Rab et al., 2018; Pryor et al., 2016) Participants noted less strain on their finances because they could use the money for other needs rather than food. Several students commented that the pantry allowed them to pay for either books or tuition. The common theme that ran throughout the discussion of the impact of the food pantry was family wellbeing. For many of the participants, their concern for meeting the needs of their families seemed to outweigh their personal needs. A sense of relief, because they had food on the table for both their children and their parents, was expressed by multiple participants. Helping students to provide for their families can reduce the stigma and stress associated with food insecurity (Martin et al., 2016). While the pantry does not directly address mental health, financial, or family issues the participants in this study indicated the food provided by the pantry helped to reduce these barriers to success. Based on the investigation in the second stage of the

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constructivist theory of social work the theory developed by the researcher is, while student food pantries address immediate needs, holistic approaches that address codependent barriers are critical to meeting the needs of food-insecure students.

Implications

The results of this study provide new insights into the struggles food insecure students experience as they seek to achieve academic success. Additionally, the study reveals the benefits for both the student and the institution created by the student food pantry. The following is a discussion of the implications of this study where recommendations are provided for the continuation and expansion of the product and services provided by the student food pantry.

Implication One

While this study confirmed prior studies that identified stress, anxiety, lack of concentration, financial trade-offs, and employment as barriers to academic success for food-insecure students, this study revealed that these barriers are not only connected with one another but are also frequently connected to family responsibility. Today's college student maintains significant responsibilities beyond their academics (United States Government Accountability Office, 2018). Students come to college to improve the lives of their families, but they also must care for them while they continue their studies. Addressing food insecurity for the students is not just about providing food for the student but helping them to provide for the others in their households. By helping students support their families the college reduces unnecessary stress, so they can focus on their education. By addressing the needs of the student's family, many of the

identified barriers will be reduced and the student will be more likely to reach their academic goals.

Recommendation One

The institution must continue to develop, expand the student food pantry to meet the needs of not only the student but also their families. Individualized product distribution processes should be put into place. This will allow sufficient products to be given to those who need them while reducing the amount of product for students who live alone or have smaller households. Options to provide for more individualized selection processes for the items distributed should also be investigated.

Implication Two

While students who found the food pantry expressed that they were both impressed and thankful for the needed service, many students noted that they needed the service in the prior semester but did not know the food pantry existed. The promotion of the food pantry must improve to ensure all students who need the service receive it. The research indicates that the pantry is effective in reducing barriers for students. Therefore, it is reasonable to conclude that ensuring access for all food-insecure students will increase student success that will positively impact the college. Additionally, students' perceptions and connection to the college improved when students experience the campus food pantry. Research support that a sense of connection and belonging also increases persistence for students (Allen & Alleman, 2019; Meza et al., 2018).

Recommendation Two

Develop a promotional plan for the food pantry to increase awareness of the services offered. The college must increase the marketing of the food pantry through effective channels such as the LMS where all students will see it (Guerra, 2021). Additionally, social media accounts linked to student activities and college programs are effective in not only sharing information but also normalizing the use of the pantry.

Implication Three

The need for food is a symptom of a more complex issue that needs to be addressed on campuses. In an acknowledgment that barriers created by food insecurity are not independent, food pantries should be designed to not only provide food for the students but also serve as a central location for access to information and services. Participants identified employment and family responsibilities as factors related to stress, anxiety, and reduced focus on academics. Connecting students to services to address these factors would lessen the impact of the identified and linked barriers.

Recommendation Three

Rather than operating a student food pantry as a stand-alone service, food pantries should be an expanded service access point on campuses. Students should receive information about other internal and external services, and be provided with assistance for the application processes. Services such as childcare assistance, affordable housing, health care services, mental health services, career or workforce centers, and utility assistance would further support students in times when they struggle. Centralized student support offices have shown success in increasing student persistence (Daugherty et al., 2016a; RAND Corporation, 2016). However, the researcher recommends that the

pantry be utilized as the central point of connection to provide immediate emergency food support while connecting students to the other services.

Implication Four

The COVID-19 pandemic magnified the barriers for food-insecure students and increased the need for support services for students. Participants in this study indicated the increased need for food, greater family concerns, reduced employment and income, higher levels of stress, difficulty with course delivery, and overall anxiety due to the pandemic. This is confirmed by other research (Amour, 2020; Aucejo et al., 2020; Goldrick-Rab et al., 2020; Son et al., 2020), which additionally identifies the negative impacts on the academic performance of food insecure students due to the pandemic. The COVID-19 pandemic led to significant changes in the delivery of courses and significant efforts to ensure college students could continue their academics even when access there was no access to the campus. However, services such as the food pantry lagged due to insufficient student access and a lack of a clear plan (Guerra, 2021).

Recommendation Four

Colleges must put continuity plans for heightened student services into place for times of school closures or community crises. Continuity plans need to include the development of external partnerships where students have access to services in the event of a campus closure. Additionally, systems of communication to ensure access to students utilizing services need to be in place. Most importantly the college must make every effort to continue to provide services such as the food pantry in times of crisis.

Recommendations for Future Research

This study provided valuable insight into the experiences of food-insecure students at South Texas College. However, further research is needed to investigate both the barriers and the solutions for food insecurity on college campuses. Recommendations for further study include the expansion of holistic services and codependent barriers to academic success.

The literature supports the value of centralized offices for providing holistic services for food-insecure students (Daugherty et al., 2016a; RAND Corporation, 2016) for increasing persistence rates. However, the effectiveness of such offices on mitigating specific barriers to academic success is not clear. It is the recommendation of this study to develop expanded and centralized services to provide a more holistic approach to addressing food insecurity. Further investigation needs to be conducted to better understand the value of these services.

This study recognized the connections between identified barriers to academic success. Most commonly this link was connected to family responsibility. While research confirms this link within Latinx households (Brown et al., 2020), further research needs to be conducted to study this link within other groups. A study beyond the bounds of South Texas College would better inform decisions on services to assist food-insecure students. Additionally, a study conducted outside of the bounds of the COVID-19 pandemic would be critical to further investigate the link between variables.

Conclusion

Food insecurity among students on college campuses is an ongoing and growing problem. This problem continues to grow as student populations shift from traditional

students to non-traditional students who have significant responsibilities beyond the classroom. It has been identified that food-insecure students will face significant barriers to academic success including family hardships, mental and physical health issues, and sociological impacts. Although these factors are known barriers to success, a lack of research has clearly defined how students' educational experience and success are impacted by food insecurity. Nor has prior research demonstrated the effectiveness of institutional interventions. This study has furthered the research through an investigation of both the barriers created by food insecurity and the effectiveness of a student food pantry at mitigating these barriers.

Using grounded theory, the researcher generated explanations, uncovered relationships, and defined issues through the life experiences of the participants. With the use of the postmodernist lens and investigation process defined by the constructivist theory of social work the researcher developed meaning and understanding of the problem of food insecurity and the solution of the food pantry. Mixed methods research allowed the researcher to put outcomes based on quantitative measures into context through the participant experiences captured through qualitative measures. The use of the convergent mixed methods design allowed for simultaneously collected qualitative and quantitative data. This design allowed the researcher to make clear connections, provided for corroboration and validation of the data, and allowed for the generation of theory. The first theory generated through the first phase of the study where the problem was defined, states that barriers created by food insecurity are not independent. The second theory developed in the investigation of the solutions identified that although the food pantry

addressed the immediate need for food, holistic approaches that address co-dependent barriers are critical to meeting the needs of food-insecure students.

The findings of this study will inform decision-makers on college campuses on how to best serve their food-insecure students. While the student food pantry was shown to be effective in limiting the impact of barriers to student's academic success by meeting the immediate need for food, utilizing the food pantry and a central location to access services that address the cause of food insecurity will expand its impact. Furthermore, creating more individualized distribution of food, increasing awareness of services, and developing continuity plans for times of emergency will strengthen the services provided and better support students.

CHAPTER FIVE

Executive Summary

As food insecurity rates increase among college students, institutions not only need to recognize that the problem exists but also begin to establish programs that address the issue. Understanding the true impact of both the problem and the effectiveness of the programs allows colleges to better serve their student body. This study identified barriers created by food insecurity, investigated the effectiveness of a student food pantry for mitigating the identified barriers to academic success, and identified solutions to further improve the success of programs designed to serve food-insecure students on college campuses.

Problem Identification

A primary reason for the growing problem of food insecurity on college campuses is the change in student demographics. Studies indicate most college students are no longer supported by their parents and entering college immediately after their high school graduation. Rather the new college students are independent of their parents and have responsibilities beyond their education (Taylor et al., 2018; United States Government Accountability Office, 2018). The nontraditional student is more likely to experience food insecurity with prior studies indicating that between 16% and 57% of college students now experience food security to some degree (Bruening et al., 2017; Cady, 2014; Fincher et al., 2018; Martinez et al., 2016; Meza et al., 2018; Payne-Sturges et al., 2018a; Phillips et al., 2018).

Food insecurity leads to significant impacts on students' physical and mental health, their ability to create strong sociological bonds, and additional stress that creates barriers to their success in college. According to Broton et al. (2018), "Food insecurity is associated with adverse outcomes including poorer academic achievement and attainment undermining investments in higher education" (p. 195). Food insecurity can create real challenges for academic success due to the effects on physical health as well as the mental battle between focusing on food, and focusing on academic performance (Meza et al., 2018). Although several studies have shown that there is a greater likelihood of reduced academic success due to food insecurity, it is a very difficult measurement to correlate with strictly food insecurity. However, a clear gap was identified in the research in understanding the role of food insecurity-specific indicators of success. This study identified and explained these connections and established the effectiveness of a student food pantry to mitigate barriers to student success.

Data Collection and Analysis

The purpose of this mixed-methods study is to describe and interpret the experiences of students at South Texas College who utilize the student food pantry. Additionally, the research connects the experiences and the student outcomes to explain both the impact of food insecurity and how the student food pantry mitigates challenges students face. This study answers the following three research questions: What is the relationship between food insecurity and academic success? How does the student's educational experience change after gaining access to the food pantry? How do the student experiences and the student outcomes explain both the impact of food insecurity

and how the food pantry mitigates these challenges? To answer these questions, the researcher will be utilizing grounded theory and constructionist theory of social work.

Using grounded theory, the researcher generated explanations, uncovered relationships, and defined issues through the life experiences of the participants (Lawrence & Tar, 2013). With the use of the postmodernist lens and investigation process defined by the constructivist theory of social work, the researcher developed meaning and understanding of the problem of food insecurity and the solution of the food pantry (Loseke, 1999). Wood and Tully (2006) noted, "Postmodernism seeks to interrogate how meaning is produced, to uncover the ideologies and vested interests that inform its generation" (p. 16). This integration allows for better-designed programs, and support systems for students experiencing food insecurity. Mixed methods research allowed the researcher to put outcomes based on quantitative measures into context through the participant experiences captured through qualitative measures. The use of the convergent mixed methods design allowed for simultaneously collected qualitative and quantitative data. This design allowed the researcher to make clear connections, provided for corroboration and validation of the data and allowed for the generation of theory.

Key Findings

Common themes emerged in the first phase of the framework where the researcher works to understand and define the problem. Throughout the first phase, participants expressed COVID-19, a lack of resources, family responsibility, worry, and employment as common factors that impacted their ability to achieve their academic goals. These five themes did not appear independently. Rather, each theme seemed to connect to the other indicating each factor in many cases was codependent on the other.

The data provide a clear view of how the pandemic magnified the barriers created by food insecurity. Participants lost their jobs, worried about becoming sick themselves, and caring for a sick family member. Many of the students faced food insecurity for the first time due to the pandemic, while others experienced a deeper level of food insecurity. The results of this study indicate students received a GPA of 2.9 or below more frequently (62%) than a GPA of 3.0 or above (48%). This aligns with the study conducted by Maroto (2013) where it was found that food insecure students are more likely to earn a GPA between 2.0 and 2.9 than a GPA of 3.5–4.0. Prior studies also noted food insecure students had more frequent absences from classes (Martinez et al., 2018; Silva et al., 2015), which is aligned with the results of this study where a significantly significant relationship was identified between the level of food security and attendance. Based on this observation the theory developed in this stage of the study is that barriers created by food insecurity are not independent.

The themes that emerged on the impact of the student food pantry directly aligned to the barriers that were discussed during the investigation of the problem. Students noted reduced stress due to the pantry while also indicating an increased ability to focus on schoolwork. This is a critical point as prior research shows that stress and poor nutrition have adverse effects on learning and academic success (Goldrick-Rab et al., 2018; Pryor et al., 2016). A common theme that ran throughout the discussion of the impact of the food pantry was family wellbeing. For many of the participants, their concern for meeting the needs of their families seemed to outweigh their personal needs. Helping students to provide for their families can reduce the stigma and stress associated with food insecurity (Martin et al., 2016). While the pantry does not directly address mental health, financial,

or family issues, the participants in this study indicated the food provided by the pantry helped to reduce these barriers to success. Based on the investigation, the theory developed by the researcher is, while student food pantries address immediate needs, holistic approaches that address codependent barriers are critical to meeting the needs of food-insecure students.

Recommendations

The findings of this study will inform decision-makers on college campuses on how to best serve their food-insecure students. While the student food pantry was shown to be effective in limiting the impact of barriers to student's academic success by meeting the immediate need for food, a broader approach is needed to address the factors linked to food insecurity. The food pantry must become a central location to access information and expanded services that address the cause of food insecurity including mental health services, career, and employment services, and external services such as housing and utility assistance will expand its impact. Furthermore, creating more individualized distribution of food will ensure students can meet the needs of their families. Increasing awareness of services will ensure students who are food-insecure find the help they need. Developing continuity plans for times of emergency will ensure students who are already struggling continue to have access to services and communication in times of campus closures. Following the recommendations of this study will strengthen the services provided and better support students to promote student success.

Distribution of Findings

The findings of this study will contribute to the current discussion on the problem of food insecurity on college campuses. It will both inform college administration on the

impact food insecurity has on academic success but will also inform colleges on how they can better serve these students. The researcher identified three audiences to distribute the findings of this study. First, the South Texas College faculty and administration so they can better understand the students they serve. Second, administration from other colleges, especially Hispanic serving institutions, to inform the design and development of services for food-insecure students. Third, fellow researchers in the field of college food insecurity to build on and inform future studies.

The researcher proposes multiple outlets to distribute the findings of this study. First, the researcher aims to develop multiple articles for publication in research journals. Journals targeted by the researcher include *The Journal of College Student Retention: Research Theory and Practice, The Community College Journal of Research and Practice, and the Journal of Nutrition Education and Behavior*. All of these journals have published articles from leading researchers in the area of college food insecurity. Second, the researcher intends to present the study at the next NASPA Multicultural Institute: Advancing Equity and Inclusive Practice Conference in December 2021. The researcher presented on the student food pantry in 2020 during the development of the research and is now prepared to present the findings. This audience is open to discussion and action on addressing the needs of students, especially those of underserved minorities. Third, the researcher intends to utilize this research to inform her further research to write a book on addressing hunger and poverty.

The materials used to distribute the findings include the development of manuscripts for publication. The researcher believes that the study is easily broken down into multiple articles for publication. For the conference presentation, the researcher will

prepare a visual presentation to accompany a verbal presentation and a Microsoft Sway to support the presentation as well.

Conclusion

This chapter provided a snapshot of the research including the need for the study, the purpose of the study, the methods used, the results, the implications, and the recommendations based on the results. Additionally, it created a path for disseminating the new-found knowledge. In doing so it creates opportunities to move the study beyond the literature and into action. This study added to the conversation on food insecurity on college campuses through the creation of a new theory. While the results tell a new story, they are also confirmed by previous studies. Finding avenues for the distribution of the findings is critical to ensure future research can build upon it, and to allow colleges to better serve their students.

APPENDICES

APPENDIX A

Informed Consent-Interview

Baylor University

School of Education

Consent Form for Research

PROTOCOL TITLE: Feeding Success: A Mixed Methods Study on the
                                   Impact of Food Insecurity on College Students'
                                   Educational Goals and the Effectiveness of
                                   Institutional Interventions

PRINCIPAL INVESTIGATOR: Jennifer J. Guerra

Purpose of the research: The purpose of this study is to identify barriers that exist for students who experience food insecurity. It will also provide data to determine how effective the food pantry is in reducing these barriers to support academic success. We are asking you to take part in this study because you currently utilize the student food pantry at South Texas College

Study activities: If you choose to participate in the continuation of the study, you will be asked to participate in a virtual interview conducted through Zoom.

Risks and Benefits:

Minimal Risks
To the best of our knowledge, there are no risks to you for taking part in this study.

Interview
This addition to the research study involves participating in an interview. The interview will explore a variety of themes identified in the questionnaires completed during the study. It is possible that discussing your experience may cause some stress. It is your right to decline to answer any question which you feel is too personal.

Future Benefits
Others may benefit in the future from the information that is learned in this study.

Confidentiality:

The risk of taking part in this study is the possibility of a loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality.

Confidentiality will be maintained to the degree permitted by the technology used. Your participation in this study involves risks similar to a person's everyday use of the Internet, which could include illegal interception of the data by another party. If you are concerned about your data security, contact the researcher to schedule a time to complete all research items in a traditional format.

We will keep the records of this study confidential by maintaining a research shell in Blackboard where only participants and the researcher will have access. Additionally, no other participants will have access to your submissions. The researcher will make every effort to keep your records confidential. You will have an opportunity to change your screen name before the session being recorded. It is your choice if you want to keep your camera on or off. There are times when federal or state law requires the disclosure of your records.

Authorized staff of Baylor University may review the study records for purposes such as quality control or safety.

By law, researchers must release certain information to the appropriate authorities if they have reasonable cause to believe any of the following:
- Abuse or neglect of a child
- Abuse, neglect, or exploitation of an elderly person or disabled adult
- Risk of harming yourself or others
- Alleged incidents of sexual harassment, sexual assault, dating violence, or stalking, committed by or against a person enrolled at or employed by Baylor University at the time of the incident

Compensation:

There is no compensation being offered for accepting to participate in an interview.

Questions or concerns about this research study
You can call us with any concerns or questions about the research. Our telephone numbers are listed below:
Jennifer Guerra: (956) 872-2214
                                       Jennifer_guerra1@baylor.edu

Tony Talbert (mentor):   tony_talbert@baylor.edu

If you have questions about your rights as a research participant or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-3708 or irb@baylor.edu.

Taking part in this study is your choice. You are free not to take part or to stop at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. Information already collected about you cannot be deleted.

By accepting to participate in an interview, you are providing consent.

APPENDIX B

Informed Consent-Original

Baylor University
School of Education

Consent Form for Research

PROTOCOL TITLE: Feeding Success: A Mixed Methods Study on the
                                 Impact of Food Insecurity on College Students'
                                 Educational Goals and the Effectiveness of
                                 Institutional Interventions

PRINCIPAL INVESTIGATOR: Jennifer J. Guerra

Purpose of the research: The purpose of this study is to identify barriers that exist for students who experience food insecurity. It will also provide data to determine how effective the food pantry is in reducing these barriers to support academic success. We are asking you to take part in this study because you currently utilize the student food pantry at South Texas College

Study activities: If you choose to be in the study, you will:
- Complete questionnaires about your academic progress and internal and external factors that have had a positive/negative impact on you.
- Keep a reflective journal. This journal will provide information about your personal experiences throughout the semester. You will document your personal experiences and emotions throughout the semester.

Risks and Benefits:

Minimal Risks
To the best of our knowledge, there are no risks to you for taking part in this study.

Questionnaire/Survey
You may be uncomfortable with some of the questions and topics I will ask about. You do not have to answer any questions that make you feel uncomfortable.

Reflective Journals
This research study involves maintaining a reflective journal. Although there will be general prompts to guide your journals the information you chose to share may be

sensitive and personal in nature. It is possible that keeping a journal may cause some stress. It is your right to omit any information which you feel is too personal.

Future Benefits
Others may benefit in the future from the information that is learned in this study.

Confidentiality:

The risk of taking part in this study is the possibility of a loss of confidentiality. Loss of confidentiality includes having your personal information shared with someone who is not on the study team and was not supposed to see or know about your information. The researcher plans to protect your confidentiality.

Confidentiality will be maintained to the degree permitted by the technology used. Your participation in this study involves risks similar to a person's everyday use of the Internet, which could include illegal interception of the data by another party. If you are concerned about your data security, contact the researcher to schedule a time to complete all research items in a traditional format.

We will keep the records of this study confidential by maintaining a research shell in Blackboard where only participants and the researcher will have access. Additionally, no other participants will have access to your submissions. The researcher will make every effort to keep your records confidential. However, there are times when federal or state law requires the disclosure of your records.

The authorized staff of Baylor University may review the study records for purposes such as quality control or safety.

By law, researchers must release certain information to the appropriate authorities if they have reasonable cause to believe any of the following:
- Abuse or neglect of a child
- Abuse, neglect, or exploitation of an elderly person or disabled adult
- Risk of harming yourself or others
- Alleged incidents of sexual harassment, sexual assault, dating violence, or stalking, committed by or against a person enrolled at or employed by Baylor University at the time of the incident

Compensation:

Your name will be entered into a drawing for one of four- $50 gift cards. The drawing will be conducted by the principal investigator after all subjects have completed the study which will be on or about, 12/31/2020. You will be contacted only if your name is drawn.

Questions or concerns about this research study

You can call us with any concerns or questions about the research. Our telephone numbers are listed below:

Jennifer Guerra: (956) 872-2214
Jennifer_guerra1@baylor.edu

Tony Talbert (mentor): tony_talbert@baylor.edu

If you have questions about your rights as a research participant or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), you may contact the Baylor University IRB through the Office of the Vice Provost for Research at 254-710-3708 or irb@baylor.edu.

Taking part in this study is your choice. You are free not to take part or to stop at any time for any reason. No matter what you decide, there will be no penalty or loss of benefit to which you are entitled. If you decide to withdraw from this study, the information that you have already provided will be kept confidential. Information already collected about you cannot be deleted.

By continuing with the research and completing the study activities, you are providing consent.

APPENDIX C

Food Security Survey for Spring 2020

For the following statements, please indicate whether the statement was <u>often</u> true, <u>sometimes</u> true, or <u>never</u> true for (you/your household) from January 2020- May 2020

1.   "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more."

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

2."The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more."

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

3."(I/we) couldn't afford to eat balanced meals." Was that <u>often</u>, <u>sometimes</u>, or <u>never</u> true for (you/your household) from January 2020- May 2020?

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

4.From January 2020- May 2020, did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

        [ ] Yes
        [ ] No
        [ ] DK

5.How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK
[ ] This did not happen

5. From January 2020- May 2020, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

6.From January 2020- May 2020, were you ever hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

7.From January 2020- May 2020, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

8.From January 2020- May 2020, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD5a)
[ ] DK (Skip AD5a)

9.From January 2020- May 2020 How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

APPENDIX D

Food Security Survey for Fall 2020

For the following statements, please indicate whether the statement was <u>often</u> true, <u>sometimes</u> true, or <u>never</u> true for (you/your household) since June 2020

1.   "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more."

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

2.   "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more."

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

3.   "(I/we) couldn't afford to eat balanced meals." Was that <u>often</u>, <u>sometimes</u>, or <u>never</u> true for (you/your household) since June 2020?

        [ ]   Often true
        [ ]   Sometimes true
        [ ]   Never true
        [ ]   DK or Refused

4.   Since June 2020 did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

        [ ] Yes
        [ ] No
        [ ] DK

5.   How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

        [ ] Almost every month
        [ ] Some months but not every month

[ ]   Only 1 or 2 months
[ ]   DK
[ ]   This did not happen

6.   Since June 2020, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

7.   Since June 2020 were you ever hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

8.   Since June 2020, did you lose weight because there wasn't enough money for food?

[ ]   Yes
[ ]   No
[ ]   DK

9.   Since June 2020, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ]   Yes
[ ]   No (Skip AD5a)
[ ]   DK (Skip AD5a)

10.   Since June 2020, how often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ]   Almost every month
[ ]   Some months but not every month
[ ]   Only 1 or 2 months
[ ]   DK

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