EXPERIENCES OF FOOD INSECURE COLLEGE STUDENTS
DURING THE COVID-19 PANDEMIC

A Dissertation presented
by
Amy E. Kendrick

Submitted to the Zuckerburg College of Health Sciences
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Susan and Alan Solomont School of Nursing Program
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EXPERIENCES OF FOOD INSECURE COLLEGE STUDENTS
DURING THE COVID-19 PANDEMIC

BY

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EXPERIENCES OF FOOD INSECURE COLLEGE STUDENTS
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Abstract of a Dissertation Submitted to the
Faculty of the Department of the Solomont School of Nursing
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Dissertation Chair: Heidi Collins Fantasia, PhD, RN, WHNP-BC, FNAP
Associate Professor and Department Chair, Solomont School of Nursing
ABSTRACT

**Background:** Food insecurity is defined as having limited ability to obtain or access adequate healthy foods due to a lack of money and other resources, as well as eating unhealthy but inexpensive foods to avoid hunger. Food insecure individuals often experience poorer self-rated health, more frequent school or work absences due to physical or mental health, higher body mass index (BMI), and higher prevalence of chronic disease such as diabetes and depression. College students are becoming increasingly food insecure. The Covid-19 pandemic has introduced yet another barrier for those who are food insecure. In the face of the pandemic, many institutions transitioned to online education and shut down their physical campus spaces for various lengths of time. This disruption of services included the inability of students to access on-campus dining services as well as campus food pantries, leaving more students vulnerable to food insecurity and with less access to a wider variety of affordable foods. The Covid-19 pandemic increased economic instability due to job or wage loss and an increased rate of housing insecurity.

**Aim:** The aims of this qualitative descriptive study were to describe the experiences and needs of food insecure college students during the Covid-19 pandemic and to obtain foundational information about food insecurity during a public health crisis to provide guidance for the development of future interventions.

**Method:** Interviews were conducted with 24 college students who self-identified as food insecure. The students ranged in age from 19 to 25 years with a mean age of 21. Most of the participants were female (79%) and identified as White (42%). Most of the students were enrolled as full-time students, received financial aid, were employed either full time or part time and lived off campus at the time of data collection.
**Findings:** Three major themes emerged from the analysis of the data: Access to more resources, multiple losses; and “college kids need help”.

**Conclusion:** While some students experienced an improvement in their food status due to increased support in the home or from government program accessibility, others experienced profound losses. Jobs, wages, and access to campus food sources were the most frequently reported losses among the participants. These losses had a combined negative impact on the participants’ food security. Finally, students expressed the need for help. College students require help accessing adequate amounts of healthy food and look to their academic institutions for support with this need. Commuter students were often at a disadvantage when being aware of or trying to access food resources on campus during the pandemic. Nurses who provide care to college-aged adolescents can take actionable steps, including early and frequent assessment for food insecurity, referral to food resources, support and management of physical and psychological issues related to food insecurity, and advocacy for improved food programs for this population to improve food insecurity going forward.
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CHAPTER I: INTRODUCTION

Statement of the Problem

Food insecurity is a growing problem in the United States, and college students are a unique portion of the population who are becoming increasingly at risk for being food insecure. In general, the characteristics of this population are associated with known risk factors for developing food insecurity. These include belonging to a historically underrepresented minority group or lower socioeconomic backgrounds or being a first-generation college student (Camelo & Elliot, 2019). Students who also deal with housing insecurity, are dependent upon need-based financial aid, do not have a strong family support or are not enrolled in campus meal plans experience food insecurity at higher rates than their peers (Bruening et al., 2017; Bruening et al., 2018; El Zein et al., 2019; Freudenberg et al., 2019; Henry, 2017; Nazmi et al., 2018; van Woerden et al, 2019; Willis, 2021). Students report being food insecure if they are unable to access healthy foods as often as they would like, skip meals to save money or choose unhealthy foods due to convenience or time (Bruening et al., 2017; Henry, 2017; Nazmi et al., 2019; Peterson & Freidus, 2020).

The impacts of food insecurity on college students are varied and may lead to long term consequences. Students who are food insecure report higher stress levels, lower self-rated mental and physical health, sleep disturbances, problems with disordered eating, increased depression, and lower quality relationships with peers (Becerra & Becerra, 2020; Daugherty et al., 2019; El Zein et al., 2019; Medina, 2018; Meza et al., 2018; O’Neil et al., 2017; Willis, 2021). These students also often experience academic difficulties such as lower grade point averages (GPAs), poor attention spans during class and while studying, and a higher rate of absences from class
compared to their food secure peers (Camelo & Elliot, 2019; Hagedorn et al., 2019; Meza et al., 2019; Silva et al., 2017; O’Neil & Maguire, 2017; Weaver et al., 2020).

The Covid-19 pandemic has added yet another obstacle for college students who were already experiencing challenges maintaining a healthy diet. Since the pandemic began, students have experienced higher rates of food insecurity (DeBate et al., 2021; Mialki et al., 2021; Owens et al., 2020). These findings have been correlated to factors such as job loss or lost income related to a decrease in work hours and a change in housing status (Owens et al., 2021). When campuses shut down their physical campus spaces due to the Covid-19 pandemic students also lost access to on-campus dining halls as well as any other food resources or assistance programs that they had been using (Lederer et al., 2021).

Motivation for this Research

Throughout my career as a nursing professor I have known many students who have struggled with meeting their basic needs. Years ago, I met a young man who, while enrolled in nursing school, was sleeping in his car and looking for food resources that he could access in the community. At the time, I was not aware that food insecurity was an issue for college students, and I considered this story to be an anomaly. However, as the years progressed, I began to see more and more of my students who would look forward to clinical days where they would be able to take advantage of quality food at low cost in the hospital cafeteria or who would ask to bring home the leftovers from a department potluck or party. Eventually I began to see various food resources on college campuses outside of the traditional dining halls, and food pantries became more commonplace on campuses. During a Health Promotion course in my PhD program, one of the assigned readings was about food deserts and food insecurity. That was when I finally made the connection between what I had been seeing my students experience and
what the underlying issues really were. When the Covid-19 pandemic began, the University
where I am employed announced that since the campus food pantry had to shut down because of
the campus closure, they were going to donate the food to a local community food bank. That
made me wonder what was happening to the students who had become dependent on that and
other campus resources. I wondered what other resources they would use, how that transition
home would affect them and how their food status would change.

**Importance and Relevance**

The concept of food insecurity among college students was explored using the framework
by Walker and Avant (2019) to clearly identify the defining attributes, antecedents,
consequences and empirical referents, and to develop a complete definition of this phenomena.
This concept analysis is presented in Chapter II. The experiences of college students who self-
identified as food insecure during the Covid-19 pandemic are presented in Chapter III. These
results add insight into this problem and assist researchers and health care providers with
identification of at-risk students and the unique ways they may present. The results will also
allow health care providers, nursing educators and researchers to better understand the scope of
this problem to develop improved screening, interventions, and policies to address this issue.
Based on the concept analysis and the experiences of college students who were food insecure
during the Covid-19 pandemic, recommendations for practice, policy, education, and research
are presented in Chapter IV.

**Conclusion**

As the Covid-19 pandemic continues, so does the issue of food insecurity among college
students. Researchers have clearly identified that this concern has become more prevalent and
calls for interventions have been made. The information gained during the concept analysis of
food insecurity among college students and the qualitative descriptive study allowing students to express their experiences will provide a foundation for interventions and future research.
LITERATURE CITED


CHAPTER II. FOOD INSECURITY AMONG COLLEGE STUDENTS: A CONCEPT ANALYSIS

Introduction

Food insecurity can lead to negative health outcomes and greater health disparities for at-risk populations. The likelihood of experiencing food insecurity increases when resources such as money, transportation, or access to nutritious food are lacking or unavailable (U.S. Department of Health and Human Services [DHHS], 2020). While there is published research surrounding food insecurity among the general population and documentation about the prevalence of food insecurity among college students, there is not a definitive use of the concept in this population.

Background

College students are increasingly experiencing food insecurity. Broton and Goldrick-Rab (2017) reported that 36% of college students had experienced food insecurity within the past 30 days. Similarly, Payne-Sturges et al. (2018) demonstrated that 15% of students enrolled in higher education were experiencing food insecurity, while another 16% were at risk for experiencing food insecurity. Other researchers have identified food insecurity in 56% of community college students and in 62% of college students living in off-campus housing (Maroto et al., 2015; Knol et al., 2017). Across student enrollment status, college type, and housing status, all reported measures of college student food insecurity are higher than the 12% of general households who report food insecurity (Payne-Sturges et al., 2018).

Food insecurity risk factors for college students include identifying as a minority race, being a first-generation college student, receiving financial aid, and experiencing unstable housing (Jesch et al., 2021; Knol et al., 2017; Maroto et al., 2015; Payne-Sturges et al., 2018). A lower-income background, rising tuition, insufficient financial aid, being responsible for a
dependent, and a poor job market for part-time student workers may explain food insecurity increases (Bruening et al., 2016; Daugherty et al., 2019; Freudenberg et al., 2019; Goldrick-Rab, 2016; Jesch et al., 2021; Maroto et al., 2015; Waity et al., 2020). Food insecurity places college students at risk for lower academic performance and negative physical and emotional health (Camelo & Elliot, 2019; Jesch et al., 2021; Medina et al., 2018; Meza et al., 2019; Nikolaus et al., 2019; Silva et al., 2015). Because risks factors are different, college students require a different approach to identifying and addressing food insecurity than the general public.

A concept analysis is an integral component of nursing research and supports universal knowledge of a concept among researchers. Walker and Avant (2019) highlight the importance of concept analyses, particularly related to the role of understanding a phenomenon and describing it in ways that are measurable and easily understood. The purpose of this concept analysis is to explore and develop a definition of food insecurity in college students based on current scholarly evidence and other literature.

**Method**

Walker and Avant’s (2019) concept analysis methodology was used as a framework. The method includes eight specific steps: selection of a concept; determining the purpose of the analysis; identifying all uses of the concept; determining defining attributes; identifying a model case; identifying borderline, related, contrary, invented and illegitimate cases; identifying antecedents and consequences; and defining empirical referents (Walker & Avant, 2019).

**Data Sources**

A search of the literature for research on food insecurity was conducted to gain an understanding of the concept. CINAHL, EBSCO and Google Scholar were searched with the phrases “food insecurity or food security or food insufficiency or hunger or food disparity”. The
phrases “college students or university students or higher education” were then added to the search. The search was limited to peer-reviewed research conducted in the United States and written in English. There was no year limit applied in order to develop a thorough understanding of the scope of the concept over time. A Google search was conducted to identify gray literature and understand how the term is utilized in general discussion, as well as how it is defined by agencies serving students who require assistance.

Results

The initial search returned 424 results. Sources were reviewed by title and abstract to confirm relevance to the concept. A total of 32 articles met inclusion criteria, were reviewed by full text and were included in the review. After incorporating reports, books and conference materials from various agencies serving this population, a total of 39 resources were included for review of this concept analysis.

Uses of the concept

The United States Department of Agriculture (USDA) uses the term food insecurity to describe an economic and social condition of limited access to adequate food within a household (USDA, 2021). Characteristics of food insecurity according to the USDA (2021) include poor food quality, quantity or appeal, along with disrupted eating patterns or a reduction of food intake. The DHHS (2021) discusses food insecurity in terms of disrupted food intake due to lack of money or other resources. Schroeder and Smaldone (2015) completed a concept analysis on food insecurity among the general public. They defined food insecurity as “uncertain ability or inability to procure food, inability to procure enough food, being unable to live a healthy life, and feeling unsatisfied” (Schroder & Smaldone, 2015, p. 280). Although these definitions are
consistently utilized, college students may experience food insecurity differently and have varying outcomes compared to the general population.

**Defining attributes**

The defining attributes of food insecurity among college students emerging from the literature include 1. Lack of sufficient food 2. Negative academic implications 3. Negative physical health impacts 4. Negative psychosocial health impacts and 5. Learning to identify and use food resources.

**Lack of sufficient food**

College students who experience food insecurity lack sufficient food intake, both in terms of quantity and quality (Daugherty et al., 2019; Dubick et al., 2016; Fortin et al., 2021; Medina et al., 2018; Silva et al., 2017; Stebleton et al., 2020; Waity et al., 2020). At times, students reported having no food intake for more than one or two days at a time (Medina et al., 2018; Silva et al., 2017; Stebleton et al., 2020). Students also described experiencing food insecurity as not being satisfied with the food they do have (Daugherty et al., 2019; Dubick et al., 2016; Fortin et al., 2021; Waity et al., 2020), including a lack of healthy food options (Bruening et al., 2016; Hege et al., 2021; Fortin et al., 2021; Peterson & Freidus, 2020). Other concerns related to the availability of sufficient food resources include being unsure about where the next meal will come from or how long it will be until it comes (Bruening et al., 2018; Henry, 2017).

Financial constraints and transportation issues contribute to a lack of sufficient food. Financial constraints may include not being able to buy enough food due to the cost of being enrolled in college, being able to only work part-time, or being dependent on personal savings to pay for food (Adamovic et al., 2020; Camelo & Elliott, 2019; Hege, 2021; Henry, 2017; Peterson & Freidus, 2020; Silva et al., 2017; van Woerden et al., 2019; Waity et al., 2020; Willis, 2019;
Wooten et al., 2018, Zigmont et al., 2021). The rising costs of dining plans and other food expenses are also contributing factors with food insecurity among college students (Daugherty et al., 2019; El Zein et al., 2019; Peterson and Freidus, 2020; Riddle et al., 2020; Silva et al., 2017; van Woerden et al., 2019; Wooten et al., 2018). Transportation issues may include students not owning their own vehicles or not having access to reliable public transportation to obtain off-campus food resources (El Zein et al., 2019; Henry, 2017; Peterson and Freidus, 2020; Waity et al., 2020; Wood & Harris, 2018).

**Negative academic implications**

The academic implications of food insecurity for college students are far-reaching and varied and can include poorer class attendance, difficulty with attention span, decreased comprehension of material and impaired academic progression (Hagedorn et al., 2019; Meza et al., 2019; Payne-Sturgis et al., 2018). Grade point average (GPA) is often negatively impacted in this population (Camelo & Elliott, 2019; El Zein et al., 2019; Fortin et al., 2021). In addition, students may not be able to purchase all of the required course materials if they are using their financial resources for food (Dubick et al., 2016; Goldrick-Rab et al., 2015; Goldrick-Rab, 2016; Hege, 2021; Silva et al., 2015; Zigmont et al., 2021). Poor academic outcomes may be related to low energy from a lack of sufficient food or the need to miss class in favor of attending work to afford food (Henry, 2017; Phillips et al., 2018).

**Negative physical health impacts**

College students who experience food insecurity are at risk for negative physical health impacts and may report low energy, headaches, syncope, and poor sleep (Bruening et al., 2018; Fortin et al., 2021; Medina et al., 2018; Meza et al., 2019; O’Neil & Maguire, 2017; Payne-Sturgis et al., 2018; Stebleton et al., 2020). Reports of exhaustion and fatigue throughout the day
are also common (Bruening et al., 2018; Martinez, et al., 2020; Meza et al., 2019), as are reports of low self-perceived physical health (Becerra & Becerra, 2020; Fortin et al., 2021; Knol et al., 2017; O’Neil & Maguire, 2017; Payne-Sturgis et al., 2018). Food-insecure college students also report decreased physical activity (Bruening et al., 2018). Additionally, disordered eating and issues maintaining a healthy body mass index (BMI) may occur (Barry et al., 2021; Bruening et al., 2018; El Zein et al., 2019; Medina et al., 2018; Willis, 2021).

**Negative psychosocial health impacts**

Significant negative psychosocial health may include low self-perceived mental health, depression, and anxiety (Becerra & Becerra, 2020; Bruening et al., 2016; Bruening et al., 2018; Fortin et al., 2021; Martinez et al., 2020; Reeder et al., 2020; Stebleton et al., 2020; Willis, 2021). Students also experience higher levels of hopelessness and a sense of shame when experiencing food insecurity (Dubick et al., 2016; Henry, 2017; Meza et al., 2018; Payne-Sturgis et al., 2018; Stebleton et al., 2020). In addition, feelings of resentment and frustration stemming from food insecurity issues may lead students to self-isolate and avoid building relationships with peers, or to seek out assistance with food resources (Daugherty et al., 2019; Meza et al., 2018; Stebleton et al., 2020; Willis, 2021).

**Learning to identify and use food resources**

Food insecurity requires college students to develop a unique set of coping strategies. Students learn how to access food from a variety of resources, including food pantries, campus events offering free food and friends’ homes (Adamovic et al., 2020; Daugherty et al., 2019; El Zein et al., 2019; Fortin et al., 2021; Hege et al., 2021; Waity et al., 2020). They also report buying food in bulk, choosing cheaper, less nutrient-rich options, and at times asking friends or family for assistance in the form of food, money, or borrowed “meal swipes” at a campus dining
hall (Hege et al., 2021; Henry, 2017; Peterson & Freidus, 2020; Riddle et al., 2020; Stebleton et al., 2020; Waity et. al, 2019;). The Supplemental Food Assistance Program (SNAP), campus emergency funding programs, and other meal voucher programs are sometimes options for students experiencing food insecurity, although the eligibility criteria can be restrictive (El Zein et al., 2019; Fortin et al., 2021; Freudenberg et al., 2019; Goldrick-Rab, 2016; Peterson & Freidus, 2020; Zigmont et al, 2021).

In an effort to budget money for food, students who are food insecure may not pay their outstanding bills in full or find a less expensive housing option as opposed to living in on-campus housing (Dubick et al., 2016; El Zein et al., 2019; Hege et al., 2021; Henry, 2017; Maroto et al., 2015; Peterson & Freidus, 2020; Riddle et al., 2020; Stebleton et al., 2020). Students also report having to forgo paying for essential items like prescription medications to have money for food (Peterson & Freidus, 2020). Students also note avoiding participation in social activities related to school, such as outings or club memberships, due to cost so that they can save money for food (Daugherty et al., 2019; Henry, 2017).

Antecedents and Consequences

Antecedents of food insecurity among college students include lower familial socioeconomic status, eligibility for government or need-based grants, and depending on financial support from employment (Nikolaus et al., 2019). Being a first-generation college student, working more hours per week than planned (Carmelo & Elliot, 2019) and housing insecurity (Willis, 2019) are also antecedents. Unexpected employment changes from full-time to part-time or becoming unemployed (Owens et al., 2020), not participating in a meal plan (El Zein et al., 2019), and not having a well-defined sense of financial stability (Daugherty et al., 2019) are also identified antecedents of this concept.
Consequences of food insecurity in college students can be classified as either physiological or psychological. Physiological consequences include weight gain or weight loss, an unhealthy BMI, and an increased likelihood of developing chronic illnesses due to obesity, malnutrition and poor eating behaviors (El Zein et al., 2019; Park & Strauss, 2020). Psychological consequences of food insecurity include poor academic performance and attendance, a decreased sense of belonging to a peer group, less of a connection to faculty or staff members (Carmelo & Elliot, 2019; Silva et al., 2015), an increased likelihood of developing depression and anxiety (El Zein et al., 2019), and feelings of stress, resentment, hopelessness, frustration, and decreased ability to focus (Meza et al., 2019).

**Identification of cases**

**Model case**

James is a Black first-generation college student who is receiving multiple need-based grants to support his education. He does not have strong family support and his mother lives three hours away from his campus. He is living off-campus with multiple roommates in order to save money and has decided not to enroll in his college’s commuter meal plan due to the cost. James does not have his own vehicle. He is having difficulty passing three of his classes, and subsequently receives academic warnings. He reports difficulty concentrating, is not sleeping well, and is feeling depressed and isolated from his peers. He discloses to student support services that he often picks up extra shifts at work to pay expenses, which often means missing class and social opportunities. He also reveals that he tends to eat fast food or quick snacks from the on-campus food mart because he is not able to afford enough groceries at one time to last until he is able to secure a ride to the grocery store again. He also frequently depends on friends
to let him use their meal plan swipes for food. He was aware of the on-campus food pantry but felt embarrassed to use it and thought that other students “probably need it more.”

**Borderline case**

Matthew was born in the Dominican Republic and is currently in his second year of college. He is living off campus in an apartment with roommates and doesn’t have a college meal plan. Although he does have a kitchen available in his apartment, he does not enjoy cooking and does not have access to a grocery store on a regular basis. When he does get a ride to the store with a friend, he stocks up on shelf-stable convenience foods and frozen items. He does not sleep well, is falling behind with his coursework and has stopped exercising. His college advisor mentions various student support services, including the campus food pantry but Matthew states, “I’m not that bad off” and declines the referral.

**Contrary Case**

Anna is a Caucasian female who is enrolled in her final year of college. She is living on campus and is participating in the unlimited dining hall meal plan. Her parents financially support her and pay for her college costs as well as providing her with extra spending money each week. Anna enjoys socializing in the dining hall and is always able to find something she enjoys eating there. She also often gets food at the various on-campus food cafes, which she uses her spending money to pay for. She is excelling in her studies and has made the Dean’s List each of her semesters at college. She does not work and is an active student athlete. At her yearly physical exam, she reports no physical or mental health concerns.

**Empirical Referents**

Based on synthesis of the literature, the empirical referents for food insecurity in college students include being enrolled in a college or university, having trouble obtaining food (being
unsure where to get food, not getting enough food, skipping meals or eating less healthy food due to cost), and experiencing negative physical, psychosocial or academic impacts.

**New conceptual definition**

This definition was constructed after careful synthesis of the material gathered for this analysis. Food insecurity in college students is a phenomenon that occurs when students who are enrolled in higher education institutions do not have adequate resources to secure the quality or quantity of food required to sustain their physical, emotional, social and academic health, and as a result may experience unique negative physical, emotional, social, or academic consequences.

**Theoretical implications**

The development of this concept analysis may have an important role in the use of a theoretical framework when caring for college students who are food insecure. The Socio-Ecological Model (SEM) demonstrates the important interactions between variables that influence health behaviors (Bronfenbrenner, 1979; Viner et al., 2012). McLeroy et al. (1988) included the following factors in the framework: intrapersonal (knowledge, attitudes, behavior); interpersonal (formal and informal social networks); institutional (institutions with formal and informal organizational characteristics); community (relationships among organizations and networks); and public policy (at the local, state, and national level). Schroeder and Smaldone (2015) further developed the SEM in their model, Food Insecurity Within the Nursing Paradigm. College students can easily be incorporated into this model as well, and nursing interventions for this population can be produced from each level. A conceptual-theoretical-empirical (CTE) structure identifies the concept, theoretical framework, and the empirical research methods of research (Fawcett & Garity, 2008). The figure (Appendix A) displays the CTE structure as it
relates to this concept analysis. The identified concept is shown in relation to the various levels of the SEM and is linked to nursing implications and outcomes.

**Discussion**

This newly defined concept can support interventions to aid college students who experience food insecurity. Nurses encountering college students in primary care, urgent care, college health, and other settings are well-positioned to assess for food insecurity and provide appropriate guidance and referrals. At the individual level, it is important to assess college students for factors that place them at risk for food insecurity. The students’ socioeconomic background, family support, housing status, and knowledge, beliefs and attitudes surrounding healthy food behaviors must be assessed. College students should also be asked about their access to nutrient-rich food, and if they are experiencing any barriers to obtaining sufficient food. There is a need for increased institutional and community resources, and those that do exist need to be well-advertised and made readily available to students who may need to access them. Finally, nurses must work to bring awareness and advocacy to policies that impact food programs, such as SNAP benefits, to make these resources more available to this population.

**Limitations**

Relevant literature may have been missed due to the exclusion of articles not written in English or conducted in the United States. The experience of college students outside of the United States was not examined. The majority of data sources used for this analysis were research publications, with a relatively small number of public documents and non-research-based information. Literature and web search inclusivity also depends on the accuracy of indexing. In addition, academic attention to this topic is relatively new, with much of the
research occurring in the past 15 years. This may limit the historical viewpoint of the concept of food insecurity as it relates to college students.

**Implications for nursing practice**

The proposed definition allows for early identification and support of college student needs regarding food. Thorough assessments may help prevent consequences such as an unhealthy BMI, future development of a chronic illness, poor academic performance, slowed progression of a college degree program, and psychosocial impacts such as depression, anxiety, and feelings of isolation and frustration. Educating students about the roles of and eligibility criteria for food pantries, as well as bringing more attention to programs such as SNAP benefits can also improve health outcomes for this population.

This concept analysis will also allow for future research to be conducted with a better understanding of the various causes and outcomes of food insecurity among college students. While there are existing tools used to identify food insecurity among the general population, there are none that specifically address college students and their unique risk factors. Existing tools need to be validated among the college population (Nikolaus et al., 2019). Since there are several risk factors related to food insecurity among college students, researchers should focus on prevention, early identification, improved outreach and utilization of food resources.

**Conclusions**

The purpose of this concept analysis of food insecurity in college students was to support improved identification of the population and allow for targeted assessment and intervention strategies. The proposed definition of this concept expounds upon current definitions of food insecurity and identifies the unique experiences and needs of college students who experience the phenomenon. College students’ familial socioeconomic status, financial needs, employment
status, housing status, and access to a consistent, healthy affordable food source both on and off-campus differentiate the concept of food insecurity among this group compared to the general population. Attributes such as a lack of access to adequate food, and trying to navigate food resources, having negative physical, psychosocial and academic impacts from a lack of food lead to extraordinary consequences for this population, leading to long-term adverse effects in a variety of areas.
LITERATURE CITED


CHAPTER III. EXPERIENCES OF FOOD INSECURITY AMONG COLLEGE STUDENTS DURING THE COVID-19 PANDEMIC

Introduction

Food insecurity occurs when individuals lack access to nutrient rich foods or foods that are less nutrient-dense due to a lack of money or other resources, such as time or transportation (Park & Strauss, 2020). This leads to poorer health outcomes, issues with mental or emotional health, and a higher likelihood of developing chronic conditions (Centers for Disease Control and Prevention [CDC], 2016). College students have been experiencing an increase in food insecurity in higher rates than general households (Payne-Sturges et al., 2018). Students who are non-Caucasian, the first in their family to attend college, dependent upon need-based financial aid to attend college, and who experience housing insecurity are more likely than their peers to experience food insecurity (Willis, 2019). In addition, the growing costs of a college education, coming from a low-income background, a lack of financial support for family, being responsible for a dependent and a loss of job income have added to the risk of food insecurity in this population (Bruening et al., 2018; Daugherty et al., 2019; Freudenberg et al., 2019; Waity et al., 2020).

The Covid-19 pandemic has introduced yet another barrier for college students who are food insecure. Beginning in March 2020, many institutions transitioned to online education and shut down their physical campus spaces for various lengths of time (Lederer et al., 2021). This disruption in services halted student access to on-campus dining services as well as campus food pantries, leaving more students vulnerable to food insecurity and with less access to a wider variety of affordable foods (Lederer et al., 2021). The Covid-19 pandemic increased economic instability due to job or wage loss and contributed to an increased rate of housing insecurity (Lederer et al., 2021). Laska et al. (2020) reported that 18- to 24-year-olds have experienced the
highest rates of job loss associated with the Covid-19 pandemic. In addition, many students who were living on campus when the transition to virtual learning occurred had to find alternate housing and may not have received any amount of reimbursement from their educational institution (Laska et al., 2020).

**Literature Review**

Researchers have identified certain risk factors that are associated with a higher likelihood of developing food insecurity while in college. These include a lower socioeconomic background, identifying as a racial or ethnic minority, and being a first-generation college student (Bruening et al., 2017; Bruening et al., 2018; El Zein et al., 2019; Freudenberg et al., 2019; Henry, 2017; Nazmi et al., 2018; Willis, 2021). Other factors that correlate with a higher prevalence of food insecurity among this population include living off campus, being dependent upon need-based financial aid or grants, not having strong family financial support, and not being enrolled in a campus meal plan or being enrolled in the least expensive meal/most restrictive plan (Bruening et al., 2017; El Zein et al., 2019; Freudenberg et al., 2019; van Woerden et al., 2019; Willis, 2019).

Many students who self-identified as food insecure report not being able to access healthy foods as often as they would like, skipping meals to save money, or choosing unhealthy foods due to convenience (Bruening et al., 2017; Henry, 2017; Nazmi et al., 2019; Peterson & Freidus, 2020). Time is also a factor in food insecurity among this population. Food shopping, meal preparation and commuting to and from campus were all identified by students as barriers to maintaining a healthy diet. Other barriers, such as transportation, access to food stores, off-campus housing costs and the costs of campus meal plans were also identified by food insecure students (Bruening et al., 2017; Henry, 2017; Nazmi et al., 2019; Peterson & Freidus, 2020).
The consequences of food insecurity for college students are numerous and may have long-lasting effects. Impacts such as higher stress level, lower self-perception of both physical and mental health, poor sleep, disordered eating, strained relationships with peers, increased feelings of frustration, lower perceived social status, increased symptoms of depression, and increased weight have been identified (Becerra & Becerra, 2020; Daugherty et al., 2019; El Zein et al., 2019; Medina, 2018; Meza et al., 2018; O’Neil et al., 2017; Willis, 2021). Students experiencing food insecurity frequently identified academic hardships, reflected in lower grade point averages (GPAs), self-reports of having poor attention spans during class or while trying to study, and a tendency to be absent from class (Cameo & Elliot, 2019; Hagedorn et al., 2019; Meza et al., 2019; O’Neil & Maguire, 2017; Silva et al., 2017; Weaver et al., 2020). Students also experienced an increase in feelings of frustration and isolation due to embarrassment and withdrawal from friends and peers who were not food insecure, as well as a sense of being let down by their university (Becerra & Becerra, 2020; Bruening et al., 2018; Cameo & Elliot, 2019; Hagedorn et al., 2019; Henry, 2017; Meza et al., 2019; Nazmi et al., 2019; O’Neil & Maguire, 2017; Silva et al., 2017; Waity et al., 2020; Weaver et al., 2020).

Since the Covid-19 pandemic began, an increase in food insecurity has been seen among the public as well as among college students (Fitzpatrick et al., 2021; Niles et al., 2020; Owens et al., 2020; Soldavini et al., 2020). Niles et al. (2020) and Soldavini et al. (2020) reported a 32.3% and a 20% increase, respectively, in household food insecurity since the pandemic began, with correlations linked to unemployment and a decrease in work hours resulting in lost income. Owens et al. (2020) found that the rate of food insecurity among college students had risen 15% between 2019 and 2020. Students who also reported that their housing or employment status had
been impacted by the pandemic were more likely to experience food insecurity during this time as well (Owens et al., 2020).

Although the COVID-19 pandemic resulted in widespread disruptions to how individuals lived, worked, and attended school, little is known about the effect of the pandemic on food insecurity among students attending colleges and universities. There is a critical need to identify college student experiences during this time to identify strategies to better meet the needs of students who are food insecure. Therefore, the purpose of this study was to describe the experiences of college students who were food insecure during the Covid-19 pandemic.

Methodology

A qualitative descriptive design was used in this study to uncover an accurate account of events from the perspective of those who have experienced them. Study approval was obtained from the institutional review board (IRB) of the principal investigator (PI).

The goal of this study design is to provide a rich description of the phenomenon in language that is easily understood, and in a way that other researchers and study participants would concur is accurate (Bradshaw et al., 2017; Colorafi & Evans, 2016; Doyle et al., 2020; Sandelowski, 2000; Sandelowski, 2010; Sullivan-Bolyai et al., 2005). Qualitative description is well suited when the phenomenon under exploration is complex, encompasses concepts that may not be easily measurable or when the population of interest is typically under-studied or under-represented (Colorafi & Evans, 2016; Sullivan-Bolyai et al., 2005). This design allows researchers to produce a comprehensive summary of the event or experience from the point of view of the participants.

In order to best capture the essence of the events under investigation, data collection most often includes either individual or group interviews which are guided by minimal or semi-
structured interview guides (Doyle et al., 2020; Sandelowski, 2000). This allows the study participants to describe experiences in their own words (Sullivan-Bolyai et al., 2005). Transcripts or recordings are reviewed and coded in order to identify similarities in thoughts, phrases, patterns, or relationships. While some interpretation of data may occur during the coding process, the researcher will not manipulate or change the data (Bradshaw et al., 2017; Doyle et al., 2020; Kim et al., 2017; Sandelowski, 2010).

**Theoretical Framework**

The Socio-Ecological Model (SEM) was used as broad, guiding framework for this study. The SEM guides recognition of the importance of multiple variables on a behavioral outcome such as food insecurity and facilitates understanding that the interaction of the variables influences health behaviors (Bronfenbrenner, 1979; Viner et al., 2012). McLeroy et al. (1988) included the following factors in their framework: intrapersonal (knowledge, attitudes, behavior); interpersonal (formal and informal social networks); institutional (institutions with formal and informal organizational characteristics); community (relationships among organizations and networks); and public policy (at the local, state, and national level). This model has been widely utilized in nursing research as it relates well to health promotion. It has also been used in research specific to food insecurity (Andress & Shiri, 2017; Brothers et al., 2020).

For the purposes of this study the institutional, interpersonal, and individual levels of the SEM were used to guide the formulation of interview questions and follow-up probing questions. Institutional level questions focused on the availability of a food pantry or other food resources at the participant’s institution or in the community. Interpersonal level questions assessed social networks, with a focus on relationships with family, friends, and peers, supports and the impact of food insecurity on connections. Individual level questions focused on the participant’s
knowledge and beliefs about food insecurity and the use of resources (Brothers et al., 2020). The SEM also guided the analysis of the data and final organization of results. To remain consistent with the qualitative descriptive research method there were no a priori codes taken from the SEM. Rather, the framework was used to guide the organization of the data analysis into individual, interpersonal and institutional levels. A concept analysis on food insecurity among college students (author, under review) also supports the inclusion of these questions and organization of the interview guide.

**Participant Recruitment**

Announcements about the study on the social media platforms Facebook, Instagram and Twitter served as one recruitment source. Administrators of food resource organizations (e.g., community food pantries, institution-based programs which serve this population, and community organizations which provide food resources) shared information about the study with their populations via e-mail or posts on their own social media pages. In addition, recruitment e-mails were sent to student listservs at two large public universities in the Northeastern United States. The recruitment post, flyer, and email included prompts for students to understand how food insecurity was conceptualized for the study. These were taken from the literature and included: unsure where to get food, not getting enough food, eating less to make food last longer, or eating less healthy food because of cost. Across recruitment methods, potential participants were informed of the study purpose, time commitment of up to one hour, use of video conferencing, and a method to contact the PI for study enrollment. To incentivize participation and in appreciation of participant time, participants were entered into a drawing for a $100 gift card to a grocery store or food delivery service of their choice.
Procedure

Study recruitment took place between May 2021 and October 2021. An initial screening survey was then sent to the students to confirm eligibility and to gather characteristics including gender identity, age, racial and/or ethnic identity, location (city and state), name of institution, type of institution (2- or 4-year), enrollment status, employment status, financial aid, housing status, and if the participant cared for a dependent in order to describe the sample. Inclusion criteria were: 1. Age 18 years or older, 2. Enrolled in at least one course at either a two-year or four-year higher education institution since March 2020, 3. Have experienced food insecurity while enrolled in college either part-time or full-time and 4. English speaking. Students enrolled in either face-to-face or on-line courses were allowed to participate in the study and could live either on or off-campus. Exclusion criteria were not currently being enrolled in at least one college or university course, not having experienced food insecurity while enrolled in college, being non-English speaking, and being younger than age 18. Eligible participants were then contacted via email to carry out interview scheduling.

Data Collection

An overview of the study was provided to the participants along with a copy of the informed consent no less than 24 hours before the interview was to take place. This allowed the participants to be clear about the nature of the study, their ability to withdraw at any time, decline to answer any of the questions, or to decline to be audio and/or video recorded during the interview. The interviews took place via the Zoom platform (Zoom Video Communications Inc., 2016). This allowed for flexibility in scheduling, the ability to reach a wider sample of students, and increased safety during the pandemic. A semi-structured interview guide was utilized for all meetings. The first question “Can you begin by telling me a bit about yourself, and what a
typical day looks like for you?” was meant to build rapport between the PI as the researcher and the student, and to encourage the student to become comfortable with discussing more personal issues throughout the interview. From there the questions related to the student’s experience with food insecurity, how this experience changed during college, and how the Covid-19 pandemic impacted this experience. Through the interview questions the PI explored students’ thoughts on food resources, their support systems, and how they feel their colleges may be better able to support them were also included. Finally, the PI asked the students to share anything else that they felt was important for people to know about this topic. This allowed the student to include information that they felt strongly about that may not have been included in a question during the interview. The PI also took notes during and after each interview to assist with recall and accurate descriptions of the interview. Enrollment continued until data saturation occurred and no new information was obtained.

Data Analysis

The PI reviewed the Zoom recording and transcript immediately after each interview, as well as after each subsequent interview and corrected any errors that occurred with auto transcription. Additionally, a co-investigator (Co-I) reviewed all completed transcripts. The PI reviewed field notes after each interview took place. This allowed for data immersion and continued analysis of the data. When all interviews were completed content analysis was conducted as described by Bradshaw et al. (2017) and Sandelowski (2000). This analytical method consists of allowing the units of exact text to illustrate the key concepts of the data. The PI began with open coding followed by axial coding, using an inductive approach. As the PI reviewed the transcripts, quotes were extracted that represented straight descriptions of data (Sandelowski, 2000) and the PI grouped the broad categories into subthemes by identifying
similar patterns (Bradshaw et al., 2017). To complete this step, the PI made notations, underlined phrases and used color coding to group like statements or ideas in order to create a visual representation of the data. Finally, the PI created a document with like statements grouped under potential themes and identified three final themes. The PI compiled and analyzed participant characteristics collected from the screening survey. A co-I with qualitative research experience reviewed coding and themes.

**Rigor and Trustworthiness**

The framework provided by Lincoln and Guba (1985) was used to ensure rigor and trustworthiness in this study. Credibility was obtained by establishing a rapport with the participants, expressing empathy and compassion during interviews, and participating in member checking. Member checking occurred at the end of each interview when the participants each had the opportunity to summarize the interview and clarify any concerns or questions with the researcher at the end of the call. Confirmability was achieved by note taking in a reflective journal, obtaining the sample population demographics and using direct quotations from participants in the data analysis. In addition, a second experienced qualitative researcher also reviewed the transcripts and thematic findings. Dependability was supported by maintaining field notes and reflective journaling, which described the study procedures. In addition, bracketing was completed throughout the reflective journaling process. This allowed the PI to separate previous clinical and work-related experiences with this population from the data that emerged from the interviews (Tufford & Newman, 2010). Transferability was ensured by utilizing purposeful sampling, providing a rich descriptive study so that replication may occur, and accurately describing the study methods (Lincoln & Guba, 1985).
Confidentiality & Ethics

To protect participant privacy no protected health identifiers were collected. All participants were given a study number and names were removed from all transcripts and demographic surveys. Written consent was waived by the IRB but verbal informed consent was obtained at the start of each interview. The PI downloaded the Zoom recordings and transcripts and stored them on a private, password protected computer. Only study team members had access to deidentified transcripts. All study data will be destroyed after three years in accordance with IRB policies.

Results

Sample

Although data saturation was reached after 18 interviews, appointments that had been scheduled were kept. A total of 24 interviews were conducted, and the final interviews confirmed that no new insights were discovered. Most study participants were female (79%) and ranged in age from 19 to 25 years with a mean age of 21 years. Forty-two percent of the students identified as White. Black and Hispanic students each accounted for 17% of the sample. Forty-six percent of the students were enrolled in their third year in a four-year college. Most of the students were enrolled as full-time students, received financial aid, were employed either full time or part time, and lived off campus at the time of data collection. Table 1 displays participant characteristics.

Table 1

Demographic Characteristics of Study Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender Identity</td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>79.2%</td>
</tr>
<tr>
<td>Male</td>
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<td>20.8%</td>
</tr>
<tr>
<td>Age</td>
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<td></td>
</tr>
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<td>0%</td>
</tr>
<tr>
<td>19</td>
<td>4</td>
<td>16.7%</td>
</tr>
<tr>
<td>20</td>
<td>5</td>
<td>20.8%</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>----------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
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</tr>
<tr>
<td>22</td>
<td>2</td>
<td>8.3%</td>
</tr>
<tr>
<td>23</td>
<td>3</td>
<td>12.5%</td>
</tr>
<tr>
<td>24</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>25/25+</td>
<td>3</td>
<td>12.5%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
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<td></td>
</tr>
<tr>
<td>White</td>
<td>10</td>
<td>41.7%</td>
</tr>
<tr>
<td>Black</td>
<td>4</td>
<td>16.7%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4</td>
<td>16.7%</td>
</tr>
<tr>
<td>Asian PI</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Scandinavian</td>
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<td>4.2%</td>
</tr>
<tr>
<td>Mixed</td>
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<td>4.2%</td>
</tr>
<tr>
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<td></td>
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<tr>
<td>Enrollment Status</td>
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<tr>
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<tr>
<td>Financial Aid</td>
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<td>95.8%</td>
</tr>
<tr>
<td>No</td>
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<td>4.2%</td>
</tr>
<tr>
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<tr>
<td>Off campus</td>
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<td>66.7%</td>
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<tr>
<td>Employment Status</td>
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<tr>
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<tr>
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</tr>
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<tr>
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</tr>
<tr>
<td>MS State</td>
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<td>8.3%</td>
</tr>
<tr>
<td>Northern Essex C.C.</td>
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<td>4.2%</td>
</tr>
<tr>
<td>UMass Boston</td>
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<td>4.2%</td>
</tr>
<tr>
<td>U.C. Davis</td>
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<td>4.2%</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
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<td>12.5%</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>87.5%</td>
</tr>
</tbody>
</table>

**Interviews**

Following analysis, two broad categories emerged. When discussing food insecurity, college students identified that the pandemic either *didn’t change* or *improved* their access to food because they moved home with family. Others identified that their food insecurity *worsened*, especially if they were living independently away from family. Within these overarching
categories, there were three distinct themes: 1. Access to more resources 2. Multiple losses, and 3. “College kids need help”

**Theme 1: Access to more resources**

Students reported vast differences in their food insecurity situations during the pandemic. For some participants who had a stable family and housing situation to return to, the move off campus meant increased family support and improved access to food. Participant 23 stated “When I was home different story...I have a grandmother that cooks, I have my aunt that cooks, my mom cooks, so there’s always food. So, when I got back home...I was back to my regular schedule”. Other participants stated, “I was not worrying about paying for my own food...I did have more access” (Participant 18); and “…my parents made sure I had food and I didn’t have to worry about that” (Participant 8). These statements reflected a decreased level of stress related to worrying about food access or cost when the pandemic required them to move back home.

Consistent with normative gender roles in the U.S., students consistently identified a female family member (mother, grandmother) as the person who assisted with food procurement and preparation (Taillie, 2018).

The participants also identified increased community and government supports that helped to alleviate some of the food insecurity. Students noted that since the pandemic started there were “a lot of donations” that they were able to access. Participant 7 stated “I actually applied for SNAP [Supplemental Nutrition Assistance Program] which I guess I’m eligible for now because of some recent changes regarding how students can apply”. Other students commented on various resources with statements such as “the option of delivery now is available, and I feel like that’s more accessible...I feel like that’s more available” (Participant 16) and “I feel like [resources] has actually increased after the pandemic” (Participant 22). These
improved resources, such as food pantry donations, increased accessibility to food, and improved eligibility for food assistance assisted students who were challenged with access to these resources prior to the pandemic.

**Theme 2: Multiple losses**

Other students discussed multiple losses that worsened their food insecurity when colleges and universities closed or switched to remote learning during the pandemic, particularly in the spring semester of 2020. These losses included employment, wage reductions, access to university meal plans and other campus resources that they had utilized prior to Covid-19. Of note, no participants discussed personal losses of a family member, friend or loved one due to Covid.

Job loss was experienced by both students and their parents and had a cumulative negative impact on their food insecurity. Participants described that their “father and my mother lost jobs…It was hard for us to find resources, along with money to save up to have food on our plate and to pay the bills” (Participant 22) and “My mom wasn’t working for a long time…we didn’t know what to do…there was no money” (Participant 24). Other participants described personal losses: “I was only working a minimum wage job and then…they cut staff down. So granted I was still working, but you know I wasn’t working as much as I was before Covid” (Participant 21) and “We were just praying that we would have at least enough to pay rent and get food on the table” (Participant 1).

When campuses closed or remained virtual, students also lost access to a variety of resources that had been used to assist them with food access. This was true for both residential and commuter students. Food pantries, discounted meal plans, and even things like free food at events or food vendors on campus were lost to students when the campus switched to virtual
operations and course delivery. Participant 4 summed this up with the statement “A lot of options that I knew would be available to me were not just because of campus being shut down.” Other participants shared “When campus wasn’t open, having the food pantry on campus…that immediately takes something away” (Participant 21) and “They used to have stations…popcorn…soup…things like that that the students could get for free. But due to Covid those are gone now” (Participant 16).

Some participants discussed campus food pantries and how that specific resource was lost. Participant 11 stated “Because they closed the campus so there was none of that…it was not a good moment in time and I’m like ‘Okay, you have to figure out what to do for yourself.’” At some universities the food pantries that did remain open to students needed to adapt their procedures which made it more challenging to access food. Participant 12 stated “You have to place an order online so it’s kind of hard…it’s a bit harder to access because you just can’t go in and get what you need at any time”; Another participant described a similar procedure and discussed that “You have to pick a general thing on a form, and they pick it for you…I asked for hand soap and instead I got hand sanitizer. So, it’s like a gamble now. And I feel really guilty because I end up with things that I won’t use…like a cereal I won’t eat or something like that” (Participant 10). One participant talked about the frustration of not being able to easily access food resources: “I started to look at food banks, I started to contact the school…just trying to figure out a way…and it took a while to get appointments or access to the food” (Participant 2).

**Theme 4: “College kids need help”**

The third theme that emerged was a universal need for help and support. Students clearly expressed their need for help and the desire that their institutions would address the issue of food insecurity. Not being able to meet their own basic needs left some students feeling hopeless and
alone when there was no acknowledgement or assistance from the university. Participant 19 stated “I feel like an educational setting is like…people sometimes underestimate how your food intake affects the way you learn and the way that you like perform as a student…and if your students are not eating how can you expect for them to…even just get to class”. Another participant shared their thoughts bluntly: “In order to succeed in school you got to eat…tackle it as a ‘we’ problem and not a ‘you’ problem” (Participant 6); Participant 1 stated that “So many on college campuses suffer trying to get basic needs…open up the idea of reaching out about resources and knowing that you have resources” as a change that colleges and universities might consider making.

Participants also expressed the desire that their colleges would assess for food insecurity and refer students to resources. Participant 5 stated that “if someone came and asked me I feel like oh…Yes, I do need help with this” and Participant 8 shared that food insecurity “…should be assessed every year like honestly every semester…a lot of people feel like they can’t go to the food pantry or feel looked down…I feel like if colleges made more…maybe explain the popularity and how many people use it…” There were other suggestions for universities to “realize that…college kids need help when it comes to food…don’t just assume…talk to us and…you will get your answer” (Participant 23) because “I wouldn’t go out of my way to tell someone…so I think if someone came and asked me, I feel like…oh…yes, I do need help…I’d be more likely to tell them if I was asked” (Participant 20).

**Discussion**

In this study of college students who experienced food insecurity during the Covid pandemic, the investigators identified three themes: access to more resources, multiple losses, and “college kids need help”. The themes reflected both positive and negative effects of the
Covid-19 pandemic on their experiences with food insecurity. The Covid-19 pandemic impacted food access of college students who had been experiencing food insecurity in different ways. Students who moved home when campuses closed found that being in a home with their parents improved their food access. This was mainly due to their parents taking on the responsibility of providing and preparing food for the household. Some students also found themselves with increased access to community and government food resources. Other students experienced multiple losses during the pandemic which impacted their access to food, such as job loss, decreased wages, and the loss of food resources they had been dependent upon on campus. Finally, students expressed a need for help. Participants identified that food insecurity impacted their academic success and conveyed the desire for academic institutions to acknowledge the issue of food insecurity among students and take action to improve food access.

While there is not a large body of knowledge regarding college students’ roles in their parents’ homes regarding food choices, the findings of this study mirror recent literature. Students in this study who returned home when campuses closed took on a more passive role in food choices, meaning their family members did the food shopping and were identified as the main cooks in the home, which is consistent with findings by Davitt et al. (2021) and Powell et al. (2021). Student participants also found that eating healthier in the home was easier and felt that there was a sense of accountability for food choices with parental involvement, which is also consistent with findings from researchers (Amore et al., 2019). Students in this study expressed they had increased access to government programs such as SNAP for college students, which has also been reported by Silva et al. (2021) and USDA (2021). Participants in this study felt that their access to food improved when they moved home. This mirrors the finding that students who moved home to live with relatives during the pandemic had lower odds of experiencing food
insecurity compared to those who continued to live on their own during this time (Owens et al., 2020; Soldavini et al., 2021).

Students in this study also experienced multiple losses due to the pandemic. These losses ranged from loss of employment and wages, and access to food resources due to campus closures. The U.S. Bureau of Labor Statistics (2020) reported that 18 to 24-year-olds experienced among the highest rates of job loss due to the pandemic. Students in this study experienced financial strain due to job losses, both among themselves as well as among family members, that translated to having limited funds for food or depending on unemployment benefits to shop for food. This finding has also found reported by Owens et al. (2020) and Silva et al. (2021). Often students depend on institutions for dining hall access, need-based food programs or campus food pantries. When campuses closed during the pandemic and students were required to leave, students reported that these resources were also taken from them. Students who participated in this study and were living independently and could no longer access campus food resources experienced food insecurity at higher rates than those who were not dependent on those resources. Davitt et al. (2021), Lederer et al. (2020) and Manboard et al. (2021) all reported similar findings.

The final theme in this study was “college kids need help”. Students identified the desire to have more assessment and outreach related to their food needs. Social support, including student organizations and local organizations, was identified by students as a potential way to improve food resources, which has also been reported by Manboard et al. (2021). The call for help from their institutions by students in this study has also been mirrored by Lederer et al. (2021), who identified the need for colleges to use student-driven data to support the needs of
their students, prioritize student support service programs, and foster an atmosphere of communication between students and their institutions.

**Study limitations and strengths**

The results of this study are limited to the experience of food insecure college students who chose to participate in this research. While saturation was achieved, the sample was fairly homogenous, with a majority of participants identifying as White females. Recruitment included college students throughout the U.S. but the majority of participants were from the Northeast. In addition, the potential differences between traditional and non-traditional college students were not explored in this study. These factors limit the transferability of the findings to students from more diverse backgrounds and those from other parts of the country where different supports may be available. Food insecurity is a sensitive topic and some students may not wish to discuss their personal experiences with this issue, and self-reported data may be inherently limited due to social desirability and recall bias.

Despite the limitations, this study also has strengths. A qualitative descriptive study design allowed for the students to discuss their experiences with food insecurity during the Covid-19 pandemic in their own words and to express their needs and ideas for future improvement. Conducting interviews via Zoom allowed for students outside of the PI’s geographical area to participate in the study, as well as allowing for more flexibility in scheduling which may have impacted students’ willingness to participate in the study. Finally, adding data to literature that is underexplored is also a strength of this study. Gaining a deeper understanding of what food insecure college students experienced, by their own account, during the Covid-19 pandemic will allow for the development of improved assessment and interventions for this population.
Recommendations

This study provides important data that can be used to improve support of college students who are experiencing food insecurity. Consistent with the SEM, findings can be described at individual, interpersonal and institutional levels. Participants in this study felt strongly about how food security could be addressed by their institutions. Students commented that colleges should provide increased availability of dining hall hours and other on-campus food assistance programs which were noted to close early and do not necessarily accommodate the class and study schedules of students. Other suggestions included expanding coupons or vouchers for free meals in the dining hall. Most universities have emergency funds for students and incorporating access to meals is one potential use of these resources. Participants also spoke about the disconnect between government food assistance programs on and off-campus. For students who are receiving federal food assistance, universities may consider ways in which these resources can be used on-campus, which was noted by a participant who wished campus food stores would accept food stamps, especially if students also pay for a university meal plan. This is consistent with the findings from researchers who have also encouraged institutions to make food resources more accessible to their students, particularly during the pandemic (Laska et al., 2020; Lederer et al., 2020; Zigmont et al., 2020).

Commuting students also felt the impact of the pandemic and had a different viewpoint regarding campus resources, which may require further discussion and intervention by institutions. Students who were not living on campus before, during or after the pandemic did not feel as if they were as aware of food resources at their colleges. One participant explained commuters seemed to have less information about programs and resources available on campus and a different participant stated that they thought the on-campus food pantry was accessed less
often by commuters. These statements highlight that although resources might be available, certain students may be unintentionally excluded. There needs to be awareness that commuting students also have unmet needs when it comes to food, and a commitment to communicating with these students about available resources. In addition to improved promotion of available on-campus resources, academic institutions can develop innovative partnerships with community organizations, food pantries, and food banks. Access to resources outside of the university environment will increase access to availability and diversity of food and provide an additional safety net for students who are having challenges with on-campus resources.

Restrictive university policies that potentially penalize students must be examined and refined. In an effort to hold classes and activities in person, academic institutions implemented a range of health and safety protocols for residential students and commuters. Although these protocols differed among institutions, Covid-19 testing was frequently used to help diminish the spread of the virus and identify individuals who needed to isolate (Leidner et al, 2021). While testing is an important Covid-19 mitigation strategy, how it is implemented and managed is also important. One participant shared that when they missed their required weekly testing appointment, the consequence was not being able to “go to the dining hall or anywhere on campus” for a week until their next scheduled testing appointment. Punitive policies that restrict food access can exacerbate food insecurity among students who live both on and off campus and can be detrimental to student health and wellness (Hockstein et al., 2021). See Box 1.
Box 1

Recommendations to improve food insecurity among college students include:

- Expanded dining hall hours
- Wider availability of emergency funding for meals
- Allowing use of EBT or other government resources on campus for eligible students
- Increased outreach for commuter students
- Development of partnerships with community resources (e.g., food pantries, farmer’s markets)
- Review policies surrounding Covid-19 testing that restrict campus access to students

Implications for nursing practice

Nurses working in college health, primary care and in the community can identify food insecurity among college students and intervene to improve their food situation. Students identified unhealthy eating habits, including skipping meals, eating small portions, or eating foods with little nutritional value as they are less expensive because of food insecurity. For some, this resulted in excessive weight gain. It is well documented that students who experience food insecurity have lower self-rated health and experience more physical and mental health concerns than their peers who are food secure (Bruening et al., 2018; Laska et al., 2021; Martinez et al., 2018; McArthur et al., 2017; Payne-Sturgis et al., 2017; Wattick et al., 2018; Willis, 2021). Screening for food insecurity at student health services and by off-campus primary care providers would be an effective way to identify food insecure students and might lead to referrals for appropriate services (Zigmont et al., 2020). Since food insecurity is a fluid situation, Feeding America (2022) calls for providers to include screenings at each health encounter. While there is currently no screening tool specific to the college population, the Hunger Vital Sign (HVS) has
been used in recent research for this population (Duke et al., 2021; Hagedorn et al., 2021). This tool consists of two questions: “Within the past 12 months I/we worried whether food would run out before I/we got money to buy more”; “Within the past 12 months the food I/we bought just didn’t last and I/we didn’t have money to get more” (Hager et al., 2010). As with other routine health screening, these questions could be included in the health history with a prompt built into the electronic health record.

Nurses are also in a position to provide a sense of support to students who are experiencing the impacts of food insecurity, and to refer them to appropriate food resources as needed (Fortin et al., 2021; Hagedorn et al., 2021; Manboard et al., 2021; Royer et al., 2021). Finally, nurses can advocate for and support legislation that improves student access to nutritious food resources and work to meet the needs of students who are most at risk (Laska et al., 2021; Manboard et al., 2021).

**Implications for Research**

Additional information is needed on the continuing experiences of students who are food insecure as the Covid-19 pandemic continues to evolve. Students in this study spoke about the difference between perceived resources for commuting students and resident students. There may also be differences in the experiences of traditional and non-traditional college students related to food insecurity, which this study did not explore. Researchers will need to identify to what extent this disparity exists, and what can be done to increase equity and access in these populations, so that commuting or non-traditional students do not feel marginalized and excluded. In addition, participants in the current study noted the potential to link resources in the community surrounding a college with those college students who may need them. Further research can
explore these potential partnerships between local resources and colleges, and how these relationships may benefit the population of food-insecure college students.

Conclusion
A qualitative descriptive design was used to describe the experiences of food insecure college students during the Covid-19 pandemic. The results of this study provide insight into how a global respiratory pandemic impacted the food status of the participants. While some students experienced an improvement in their food status due to increased support in the home or from government program accessibility, others experienced profound losses. Jobs, wages, and access to campus food sources were the most frequently reported losses among the participants. These losses had a combined negative impact on the participants’ food security. Finally, students expressed the need for help. College students require help accessing adequate amounts of healthy food and look to their academic institutions for support with this need. These findings are consistent with the emerging literature related to the widespread impacts of the Covid-19 pandemic. However, new insights were gained and commuter students were often at a disadvantage when being aware of or trying to access food resources on campus during the pandemic. Findings of this study also indicate that while students can more easily access government food programs due to the pandemic, they are calling for their institutions to allow these funds to be used in campus dining halls and in other campus food stores. Colleges as well as nurses who provide care to college-aged adolescents can take actionable steps, including early and frequent assessment for food insecurity, referral to food resources, support and management of physical and psychological issues related to food insecurity, and advocacy for improved food programs for this population to improve food insecurity going forward.
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CHAPTER IV. RECOMMENDATIONS

This dissertation consists of a concept analysis of food insecurity among college students and a qualitative descriptive research study exploring the experiences of students who were food insecure college during the Covid-19 pandemic. College students are experiencing food insecurity in growing numbers and have different risk factors for developing this phenomenon than other populations (Broton & Goldrik-Rab, 2017; Payne-Sturges et al., 2018). While Schroder and Smaldone (2015) previously conducted a concept analysis of food insecurity, there was no definition of this term related to college students that would encompass the various risk factors, experiences, and consequences specific to this group. Following analysis of qualitative data, three distinct themes emerged among food insecure college students during the pandemic: access to more resources, multiple losses, and “college kids need help”. To improve food security for this population, particularly during times of crisis, programs and initiatives specific to clinical practice, policy, education, and research must be addressed.

Clinical Practice

College students seek care in a variety of settings including primary care, college health centers, and community health centers. Screening for food insecurity can be implemented as a routine part of health care encounters for this population. Adding this component is consistent with the established protocol of screening for other prevalent conditions that are related to health outcomes, such as domestic violence and depression (Cutts & Cook, 2017). Since individuals may move between being food insecure or secure, researchers and policy makers from Feeding America (2022) call for providers to include screenings at each health encounter. Previous researchers demonstrated that conducting food insecurity screenings with patients increased referrals to and improved utilization of food resource programs (Barnidge et al., 2016; Bayoumi
et al., 2021; Diallo et al., 2020). There is currently no screening tool specific to the college population. However, the Hunger Vital Sign (HVS) has been used in recent research for this population (Duke et al., 2021; Hagedorn et al., 2021). This tool consists of two questions: “Within the past 12 months I/we worried whether food would run out before I/we got money to buy more”; “Within the past 12 months the food I/we bought just didn’t last and I/we didn’t have money to get more” (Hager et al., 2010). As with other routine health screening, these questions could be included in the health history with a prompt built into the electronic health record.

Clinicians must also recognize that college students experiencing food insecurity may present with health concerns that, at first, may seem unrelated to food access. Students with food insecurity tend to have a higher prevalence of an eating disorder diagnosis, with binge eating, compensatory fasting, and bulimia nervosa being the most common (Barry et al., 2021; Christensen et al., 2021). Depression is also frequently seen among students who are food insecure (Reeder et al., 2020). Providers need to consider food insecurity as a factor when college students present with these conditions. It’s important that providers recognize that not all food insecure college students appear malnourished or underweight. In fact, students who are food insecure are significantly more likely to be overweight or obese than their food secure peers (Zein et al., 2020). Clinicians cannot rule out issues with food access based solely on body habitus or body mass index (BMI). Destigmatizing food insecurity within the college student population can be prioritized when providers remain non-judgmental and allow patients to disclose this issue in a safe way. Finally, food resources on campus, in the community, and eligibility for government assistance programs must be offered to students who are food insecure.
Policy

Health policies that improve college students’ access to nutrient-rich food need to be developed and implemented, and nurses who work with this population are in the position to advocate for such policy changes. Although the eligibility rules for government assistance programs such as SNAP have expanded to allow more student access, this is a temporary measure related to the Covid-19 pandemic (USDA, 2021). In addition, SNAP benefits are not approved for use at campus food stores or to pay for college meal plans unless the institution has applied for a federal waiver or has negotiated with an outside food vendor (Broton & Cady, 2020). Participants in this dissertation study articulated the desire for their institutions to accept these food benefits on campus. College students will continue to experience food insecurity beyond the pandemic, and these programs can continue to meet their needs even after the pandemic has ended. Institutions could apply for the federal waiver allowing for the use of SNAP benefits on campus and enter negotiations with food vendors to increase student access to food and nutrition. Future policy initiatives may include tying federal funding to whether or not a college supports the use of government assistance programs on campus. Locally, institutions may consider increasing their outreach to food insecure students and providing use of emergency funding for on-campus meals.

Food resource options for college students, such as food pantries and dining halls on campus, can be often limited. Study participants mentioned both the lack of nutrient-rich foods and the lack of culturally appropriate foods. Students with dietary restrictions due to allergies or other medical issues also expressed frustration with food options on campus. Nurses who are involved in college or adolescent health are qualified, and should be empowered, to write or suggest policy regarding diversity in food choice and also advocate for improving this issue. This
may include implementing assessments of the student population to determine cultural and dietary needs in general, as well as seeking out partnerships with community resources that might assist in providing for these dietary needs.

**Education**

Food insecurity is a social determinant of health. In 2019, the National League for Nursing called for the inclusion of social determinants of health in nursing curricula (National League for Nursing, 2019). It would be appropriate for undergraduate nursing program initiatives to focus on introducing students to the concept of food insecurity and recognizing that the Covid-19 pandemic has increased the number of patients they will care for who are food insecure. Relating food insecurity to long-term physical and mental health problems and identifying the importance of community resources could also be a focus in undergraduate nursing education. Teaching students about the aforementioned brief screening tool can be included in foundational courses, so students employ this two-item tool in thorough assessments going forward.

Schools of graduate nursing education also may also consider addressing the issue of food insecurity in their curriculum. Advanced practice nurses should learn how to assess college students for food insecurity and recognize the different risk factors and consequences that this population may have related to food insecurity. Graduate nursing education may also focus on identifying community resources and encouraging students to collaborate with these resources when caring for patients. Finally, advanced practice nurses assess diet with patients and may help students identify healthier available food choices and eating habits, as well as referring students to food resource programs.

Nursing program faculty across programs are encouraged to remember that their own students may be food insecure. Acknowledging this will help faculty approach class sessions
with content related to food insecurity in a sensitive manner and be aware during private discussions with students or advising appointments that appropriate referrals may be needed for those presenting with food security concerns.

**Future Research**

This qualitative study consisted of mostly participants living in one area of the Northeast. Another qualitative descriptive study with a national focus could be conducted. This may uncover differences in resource availability or experiences throughout the country. Resources and experiences may differ across climates or region types (e.g., rural compared to urban.) A larger study more representative of the United States college-attending population may be accomplished by obtaining funding to allow for stronger recruitment and by developing a partnership with college health and food insecurity researchers with diversity in location and type of college.

More research aiming to assess the differences in food insecurity among community college and baccalaureate degree programs, and between traditional and non-traditional college students should be conducted to determine whether there is a difference in available food resources for these populations. Community college students are more likely to depend on full-time employment, come from a family with lower overall household incomes, have dependent children, and be first-generation college students (ThinkImpact, 2022). Broton and Goldrik-Rab (2017) have identified that college students with these characteristics are also more likely to experience food insecurity than their peers. The population of the present study consisted primarily of students who were enrolled in four-year institutions. A quantitative study using a survey could be utilized to as a data collection method in a study aiming to assess the differences in prevalence, availability of resources across college types and use of these resources among
various student populations. Similarly, another qualitative study ought to be conducted to
determine the different experiences students across populations may encounter.

Currently there is no validated assessment tool that specifically assesses for food
insecurity among college students. Nikolaus et al. (2019) found that the widely used 10-item
USAD Adult Food Security Survey Model (FSSM) and its 6-item variation were not consistently
accurate in identifying food insecurity among this population (Nikolaus et al., 2019).
Researchers have recently employed the Hunger Vital Sign (HVS), but there is no psychometric
validation for the tool’s use with college students. These existing tools may be adapted for use
with college students, and the HVS should be validated in the college-student population.
Researchers need to assess measures of validity and reliability if this tool is to be used with
college students moving forward (Polit & Beck, 2011). In addition, the concept analysis of this
dissertation may be used to improve accurate measurement and targeted questioning of food
insecurity among college students for future instrument development.

Researchers might also aim to describe the utilization of campus food pantries.
Participants in the present study consistently reiterated the belief that their campus pantries were
not well utilized, and other researchers support this (McArthur et al., 2020). Potential reasons for
this are varied. Participants mentioned the stigma of needing help with food, the ‘hidden’
location of food pantries, and food pantries on campus not being well advertised or discussed
compared to other student support resources. A longitudinal study would evaluate the use of
campus food pantries over time. It would be beneficial to first survey institutions to find out
where on campus their food pantries are located and how they are advertised to students. If
changes are made to these factors, and the usage is tracked, campus resources may find an
increase in the number of students who seek them out.
A pre-posttest study might also be implemented to investigate if the availability of food resources impacted the food security of college students. A food insecurity assessment survey would be conducted prior to and after each intervention. Interventions may include access to meal vouchers, assistance in applying for government or other need-based assistance programs, and increased referrals to campus food pantries. Each intervention would then be assessed to determine whether an improvement had been made among the participants’ food insecurity measures.

Students in this dissertation had varying experiences when campuses closed due to the Covid-19 pandemic. These disparities often centered around whether or not the participant was able to move home to a more stable, supportive family situation or if they were left to support themselves during the pandemic. Some participants felt that going without was an expected part of the college experience, while others did not wish to further burden their family or friends with their food concerns. Future research could work towards how college students’ social supports and family relationships impact their food insecurity status and willingness to seek out assistance.

Finally, the use of the concept analysis from this dissertation could be used by future researchers when studying food insecurity among college students. A concept analysis provides a refined understanding of a phenomenon of interest and allows for the use of a clarified operational definition among researchers (Walker & Avant, 2019). This concept analysis provides a clear definition of the concept within a certain population, as well as risk factors and consequences specific to college students. This allows for future development of frameworks that can provide structure to clinicians, educators and policy makers working with food insecure college students.
Conclusion

This dissertation provides foundational data for a better understanding of food insecurity among college students during a time of crisis. The concept analysis will allow for improved identification of the population, targeted assessment, and refined intervention strategies. The qualitative descriptive study provides insight into the impact that the Covid-19 pandemic had on food insecure college students. Overall, nurses need to be aware that college students are increasingly experiencing food insecurity while having fewer resources to deal with the issue. Nurses in clinical settings may be able to incorporate screenings for food insecurity when they care for college students, and must be aware that issues such as depression, anxiety and eating disorders may be indicators of food insecurity. All providers need to approach every patient, regardless of physique or appearance, as if they may be food insecure. It takes a thorough assessment including patient report to identify food insecurity. Policy regarding college students’ access to food resources require improvement and nurses have a responsibility to advocate for this population. Improved community partnerships and attention to cultural and dietary restrictions should also be considered. Nurse educators can include concepts related to food insecurity at each level, focusing on assessment, identifying resources, and making referrals to those resources, and the long-term health consequences that patients may experience. Future research needs to be conducted to identify or develop improved screening tools, analyze potential differences in resources in various geographic settings as well as among different types of higher education institutions. Assessing the impact of various food resources on long-term food insecurity measures among college students also needs to be considered.
LITERATURE CITED


Appendix A. CTE Structure of Food Insecurity among College Students and the SEM

**Concept:**
**Food Insecurity Among College Students**

**Theoretical Framework:**
**Socio-Ecological Model (SEM)**

**Public Policy**
- Government programs and policies to address FI
- Accessibility of programs to students

**Community**
- Accessibility of food resources in the community to students
- Partnerships among community stakeholders

**Institutional**
- Availability of a food pantry or other food resources
- Assessment of FI among students

**Interpersonal**
- Level of support within relationships
- Awareness of support system about FI

**Intrapersonal**
- Knowledge and beliefs about FI about use of food pantries/other resources
- Willingness of student to disclose FI status

**Nursing Implications:**
- Assessment of students for FI
- Early identification of FI among students
- Outreach to FI students
- Improved education of students re: eligibility criteria for food resources at all levels

**Outcomes:**
- Prevention of FI among students
- Prevention of negative consequences (unhealthy BMI, chronic illness, poor academic performance, slowed progression through a college degree program, depression, anxiety, isolation, frustration)
- Improved use of existing food resources among students
- Development of increased food resources for students

**Empirical Research Method:**
Walker & Avant (2019) Concept Analysis
Appendix B. Participant Recruitment Flyer and Social Media Scripts

Experiences of Food Insecure College Students during the Covid-19 Pandemic: Study Flyer/Social Media Posts

Have you been enrolled in college and taking at least one course since the COVID-19 pandemic began in March 2020?
Have you had trouble obtaining food (unsure where to get food, not getting enough food, eating less to make food last longer, skipping meals, eating less healthy food because of cost)?
Researchers are working to understand the experiences of students during this time and are seeking volunteers to participate in an hour long Zoom interview.
As a thank you for participating, you will be entered in a raffle to win a $100 gift card to a grocery store or food delivery service.
If you’re interested, please contact Amy_Kendrick@student.uml.edu.
Please feel free to share with others who may be interested!

E-mail script to be shared via e-mail blasts with interested groups

Have you been enrolled in college and taking at least one course since the Covid-19 pandemic?
Have you had trouble obtaining food (unsure where to get food, not getting enough food, eating less to make food last longer, skipping meals, eating less healthy food because of cost)?
Researchers are working to understand the experiences of students during this time and are seeking volunteers to participate in an hour long Zoom interview.
As a thank you for participating, you will be entered in a raffle to win a $100 gift card to a grocery store or food delivery service.
If you’re interested, please contact Amy_Kendrick@student.uml.edu.
Please feel free to share with other who may be interested!

Facebook posts to be shared in groups/pages:
Have you been enrolled in college and taking at least one course since the COVID-19 pandemic began in March 2020?
Have you had trouble obtaining food (unsure where to get food, not getting enough food, eating less to make food last longer, skipping meals, eating less healthy food because of cost)?
Researchers are working to understand the experiences of students during this time and are seeking volunteers to participate in an hour long Zoom interview. As a thank you for participating, you will be entered in a raffle to win a $100 gift card to a grocery store or food delivery service.
If you’re interested, please contact Amy_Kendrick@student.uml.edu.
Please feel free to share with others who may be interested!

Twitter posts to be tagged/shared:
1/4 Have you been enrolled in college and taking at least one course since the COVID-19 pandemic began in March 2020?
2/4 Have you had trouble obtaining food (unsure where to get food, not getting enough food, eating less to make food last longer, skipping meals, eating less healthy food because of cost)?
Researchers need volunteers to understand the experiences of students during this time.
3/4 Interviews will be conducted via Zoom and will be approximately an hour long. Participants will be entered in a raffle to win a $100 gift card to a grocery store or food delivery service.  
4/4 If you’re interested, please contact Amy_Kendrick@student.uml.edu. Please feel free to share with others who may be interested!
Appendix C. Participant Informed Consent

Hello, my name is Amy Kendrick from the Solomont School of Nursing at the University of Massachusetts Lowell and I am conducting a research study titled “Experiences of Food Insecure College Students during the Covid-19 Pandemic”. The purpose of the research is to obtain information about this experience in order to provide guidance for future interventions.

With your permission, I am asking you to participate in a Zoom interview and I will ask you questions about your experience with being food insecure during the pandemic. The interview will take approximately one hour of your time. With your permission, the interview will be audio and video recorded and then transcribed. If you choose not to be audio recorded, handwritten notes will be taken.

Your participation in this interview is completely voluntary. This means you do not have to participate if you don’t want to and you can stop the interview at any time and for any reason.

With any type of research participation there is the risk for stress or disclosure of information. Some questions may be personal or uncomfortable to answer. You can skip any questions you do not want to answer.

All identifying information will be removed and replaced with a study ID. All information will be kept confidential, your name will not be used in any transcript created from the recording. Transcripts and recordings will be kept in a password-protected computer, and destroyed after 3 years. We will be collecting your name and phone number with your responses in case we need to contact you again for a follow-up question. However, your name will not be released in any results that may be published about the study.

As a thank you for your time, you will be entered into a raffle to win a $100 grocery store or food delivery service gift card. We hope that the results of this study will help us to understand how to better assist college students who are food insecure during a public health crisis. There are no direct benefits to you from participating.

If you have questions or concerns regarding this research, you can contact me at: Amy_Kendrick@Student.uml.edu. You may also contact my advisor Heidi_Fantasia@uml.edu. For questions about your rights as a participant, concerns or complaints contact the UMass Lowell Institutional Review Board at IRB@uml.edu or at 978-934-4134.

Before we begin,
1) Are you 18 years of age or older?  ___Yes or ___No  If no, thank you for your time!
2) Do you have any questions?  ___Yes or ___No
3) Do you agree to voluntarily participate in this research?  ___Yes or ___No (STOP HERE)
4) Do you agree to be audio and/or video recorded?  ___Yes or ___No
Appendix D: Demographic Enrollment Survey

**Food Insecurity Among College Students During Covid-19 Pandemic Enrollment Survey**

Are you enrolled in at least one course at a college or university or were you enrolled since March 2020? Yes  No

Have you had trouble obtaining food (unsure where to get food, not getting enough food, eating less to make food last longer, skipping meals, eating less healthy food because of cost) Yes  No

1. Age:
   18  19  20  21  22  23  24  25/25+

2. Racial/Ethnic identity (choose all that apply):
   White
   Hispanic or Latino
   Black or African American
   Native American or American Indian
   Asian/Pacific Islander
   Mixed race
   Other: ________________________________

3. Gender Identity:
   Female
   Male
   Non-binary
   Prefer not to disclose

4. Location:
   City  State

5. Name of institution:

6. Type of institution:
   2-year
   4-year

7. Enrollment status:
   Full-time or Part-time
   Freshman  Sophomore  Junior  Senior

8. Employment status: Are you currently…?
   Employed for wages
   Part-time  Full-time
   Out of work and looking for work
   Out of work but not looking for work
   Participating in work-study program

9. Financial Aid:
<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

10. Housing status:
   - On-campus
   - Off-campus

11. Do you care for a dependent or older adult?
   - Yes
   - No
Appendix E: Interview Guide

**Food Insecurity Among College Students During Covid-19 Pandemic Interview Guide**

Can you begin by telling me a bit about yourself, and what a typical day looks like for you?  
**PROMPT:** Live on/off campus, work, school, etc.

Can you explain what experiencing food insecurity means to you?  
**PROMPT:** Do you skip meals, eat less than you would like, save food for later in case you can’t get more, etc.?

Please describe your experiences with food insecurity during your time at college.  
**PROMPT:** Can you describe the circumstances that led to food insecurity? (explore length of time food insecurity has been an issue, new issue since college or ongoing from childhood)

Please describe your experiences with food insecurity during the Covid-19 pandemic?  
**PROMPT:** Describe any changes that happened with the pandemic (changes in job, housing, etc.)

I’d like to talk about resources. Can you tell me about the availability of food resources?  
**PROMPT:** On campus, off campus, how did you hear about resources

Please describe how you feel the pandemic has impacted food resources?  
**PROMPT:** More available, less available

Please describe your support system and their awareness of your food insecurity.  
**PROMPT:** Awareness of food insecurity among those around you? Describe their involvement, how they have supported you.

Please describe your thoughts on food pantries in general.  
**PROMPT:** Other food resources that you’ve heard of (free food at school events, dining hall meal donations through “card swipe programs”)?

Please describe your thoughts on food pantries on college campuses.  
**PROMPT:** Utilization of food pantries at college

Please describe what you think the role of colleges should be to address food insecurity among students?  
**PROMPT:** More affordable dining options, assessing for FI

Please describe how you think resources need to change based on the pandemic?  
**PROMPT:** Ease of access, frequency of availability, locations

Is there anything else you feel is important for me to know?