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**The Impact of Food Insecurity on Academic Success:
An In-depth Analysis Amidst University Students**

by

Taylor Richards

A Thesis

Submitted to the Graduate Faculty of

St. Cloud State University

In Partial Fulfillment of the Requirements

for the Degree of

Master of Social Work

May 2020

Thesis Committee:

Deola Brumbaugh- Johnson, Chairperson

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Abstract

This quantitative study's purpose is to investigate the impact of food insecurity on the academic achievements of St. Cloud State University students. Previous research and literature shows a strong inverse relationship between academic achievement and student food insecurity. Research shows that a students' inability to achieve regular and healthy food intake can negatively affect their general health, mental health, physical health, and affect their academic success.

The quantitative research study uses a convenience sample of data collected in April 2019 at St. Cloud State University. Institution Review Board approval was collected prior to the collection of data. The participants in this study are comprised of currently enrolled university students from St. Cloud State University in the Spring 2019 semester. Students were given the option to decline the invitation to participate in this study. These participants were not offered incentives to participate in this study. The information collected from this study include fifteen (15) questions regarding food insecurity, academic achievement, and sociodemographic questions. The variables being measured in this study are food insecurity, academic achievement, gender, and university student status.

This quantitative research study will utilize the Statistical Package for the Social Sciences (SPSS) to conduct analysis on the data collected. Analysis will be conducted through descriptive statistics and frequencies as well as through bivariate Pearson Correlations to investigate relationships and frequencies between the aforementioned variables.

Key Words: Food insecurity, food security, academic success, academic achievement, gender, immigration status, university student

Acknowledgment

I would like to thank my family and my friends for encouraging me throughout the entire process and offering time to critique and review my thesis throughout the various stages and offer me words of support when I needed it. I would like to thank my thesis committee members, especially Dr. Deola Brumbaugh- Johnson, for being patient and offering words of encouragement throughout the entire process and always supporting me when I needed assistance. Professor Patience Togo and Professor Dick Andzenge, I would like to thank you being so supportive of this research. I would also like to thank the Social Work Department of St. Cloud State University, who have been there through every step and offering words of support and encouragement. I would like to thank Dr. Sheila Moriarty and Dr. Eunson Kwon for allowing me to be apart of this research experience and encouraging me to continue. Lastly, I would like to thank the Department of Statistics and Department of Education who took time to offer assistance with the data analysis and desegregation as well as offering support when they could.

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Chapter I: Introduction

Food insecurity amongst university students is a critical problem in the United States of America that is increasing at alarming rates. According to the most recent data collected from the United States Department of Agriculture and Economic Research Services, 11.8% of all American household's self identify as food insecure. Of that 11.8%, 7.3% identified as households with low food security and the remaining 4.5% identified as households with very low food security, meaning that 37.2 million American citizens are directly affected by food insecurity (2017). It is critical that there is a clear understanding of the potential relationships that pose between food insecurity and academic determination as well as understanding and identifying potential relationships between secondary factors in order to identify practical solutions to the social problem.

This research study attempts to explore the relationship between food insecurity and academic determination (grade point average) between university students at St. Cloud State University in St. Cloud, Minnesota. This research study will also take into consideration other secondary factors that could influence the relationship such as gender, racial background, and university student status. University is vulnerable time in many young Americans lives. The balance of classes, studying, and attempting to balance full or part time work can leave a burden on many students' mental and physical health. Imagine adding the stressor of being food insecure to the situation. These students' who do not have accessible access to food are at a higher risk of withdrawing from university as well as doing more poor academically in comparison to students who are food secure (Gallegoa, Ramsey, & Won Ong, 2014). The conclusion's drawn from Gallegos, et al., (2014) found that food insecurity can be known to compromise the academic successes and the integrity of students in a university setting. It is

critical that more information is collected to better understand the relationship of food insecurity amongst university students' academic determination and the aforementioned secondary factors in order to address retention rates and student success.

One of the primary values of social workers is service. The ethical principal "social worker's primary goal is to help people in need and to address social problems" (NASW, 2008) pertains closely to this research endeavor. As social workers it is our responsibility to draw on our past knowledge, values, as well as our skills to better serve the general population it is also important to gain further knowledge and skills through current research to help contribute to the development of a larger knowledge base (NASW, 2008). This research study will attempt to serve the university student population who experience food insecurity. This research also seeks to identify the relationship between food insecurity and academic determination as well as the secondary factors aforementioned. This research hopes to identify and highlight potential areas in which assistance can be provided to students so they can succeed to their highest potential.

According to the 2017 St. Cloud Minnesota Government Census survey, 15,600 of St. Cloud's community or 23.2% of the total population live below the poverty line. Within the St. Cloud community lies St. Cloud State University, one of the largest universities in central Minnesota. With the high costs to attend post secondary school and the increasingly high poverty statistics for the community, the St. Cloud State University student population is at a higher risk to become vulnerable to food insecurity. This study will help identify if there is a connection between students who identify as food insecure with lower academic success and higher rates of dropping out in comparison to their food secure counterparts as well as consider the impacts of other secondary factors on food insecurity.

Purpose

The purpose of this study is to highlight the prevalence of food insecurity and to provide evidence of academic determination; other secondary factors that will be considered in this research study are student status (i.e. domestic student status and international student status), gender (i.e. male, female, transgender, or other), as well as racial background (i.e. African America, African Born, Asian American, Asian Born, White, Native America, Latino or Hispanic, Middle Eastern, multi- racial, or other). Students will be prompted to self identify on the abovementioned criteria to the best of their ability.

This study seeks to investigate potential relationships between food insecurity and overall academic determination, gender differentiation, racial background, as well as current student status. This study also seeks to focus on the importance of improving the educational experience of students along with contributing to better long term health through food security. This study also seeks to understand and investigate the correlational relationships that have been identified for further examination.

Food insecurity has been chosen for study because many students are at a particularly vulnerable time in their lives with high tuition costs and in some cases little amount of time being able to work and to earn enough money to support themselves. There is currently a gap in the literature and in research regarding this specific population group. According to the review of literature, most studies on food insecurity address children and the general adult population, not the university student population. There is also a gap in the literature differentiating student status differences and food insecurity trends. Further, this research seeks to bridge the gap in literature on food insecurity rates between gender differentiation in university students.

This research endeavor seeks to identify and measure the aforementioned variables to further the knowledge of food insecurity in the university student population as well as to bridge the gap in the current literature. There is currently no intervention plans in place for university students who struggle with food insecurity at St. Cloud State University. However, many university campuses across the United States of America have introduced food banks in order to allow students access to food when they are unable to provide for themselves. At the recommendation of other research, proposals such as community gardens, affordable and healthy eating options on campus have been recommended (Chaparro, Zaghoul, Holck, & Dobbs, 2009). Many universities across the United States have begun adopting ideas of measuring food insecurity in order to confirm the need for intervention and university spending. This research will hopefully allow for the allocation of increased funding to address the the issue of food insecurity amongst the university student population on campuses across the United States of America. Food insecurity needs to be addressed in universities across the United States in order to allow university students who are food insecure to perform to their highest academic abilities.

Definition of Terms

For the purpose of this paper, the following definitions of the listed terms will be used to add clarity and to avoid misunderstanding. The key terms described below are directly related to the study of food insecurity and academic success. These definitions have been chosen based on previous literature reviews that are consistent with measuring food insecurity rates in the United States.

Food insecurity- Food insecurity exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain (Life Sciences Research Office, 1989).

University Student Status- For the purpose of this research university student status will refer to the the status of the university student being studied. Students will fall into either international student status or domestic student status.

Gender- For the purpose of this research gender categories will be divided into four self disclosed categories: male, female, transgender, and other.

Academic success- A broad concept that encompasses a wide variety of educational components such as grades and grade point averages for measuring students' academic success (York, Gibson, & Rankin, 2015).

Convenience Sampling Method- a non-probability sampling method where a sample will be taken from a large group of people who are easy to contact. There are no criteria to the sampling method except willingness to participate (Saunders, Lewis, & Thornhill, 2012).

First Generation Student- for the purpose of this paper first generation student refers to a student whose parent(s)/ legal guardian(s) have not completed a bachelor's degree (Chapman University, n.d.).

Student of Colour- students who self-identify as African American, Mexican American, Latino, Asian, Native American, and/or a mix of the aforementioned racial identities (University of California San Diego, n.d.).

Non Traditional Student- for the purpose of this study, the term non traditional student will be defined as a student who is over the age of 25, veterans, married, or those with dependents (Saint Cloud State University, 2019).

LGBTQ Student – for the purpose of this study the term LGBTQ refers to students who identify as lesbian, gay, bisexual, transgender, or queer (Saint Cloud State University, 2019.).

Student with Disability- for the purpose of this study the term student with disability refers to students who are registered at St. Cloud State University Office of Student Accessibility and have a disability recognized under the Americans with Disabilities Act (Saint Cloud State University, 2019).

Commuter Student- for the purpose of this study the term commuter student refers to a student who commutes at least twenty- five (25) miles to reach St. Cloud State University Campus.

The above terms will be used throughout this study to assist in the exploration of food insecurity and the academic success of university students as well as the aforementioned secondary factors. In the next section, the focus of this study as well as a brief description of what this study attempts to explore will be provided.

Research Questions and Hypothesis

These research questions focus on food insecurity and its predicted correlational relationship with the aforementioned factors.

1. *Does food insecurity impact the overall academic achievements of students at St. Cloud State University?*
 - a. *Does gender influence this relationship?*
 - b. *Is there correlation between food insecurity university student status such as domestic student versus international students?*
 - c. *Is there a correlation between racial identities and academic success as it relates to food insecurity?*

Chapter II: Review of Literature

The review of literature provides insight into the dilemma of food insecurity in university campus' in regards to physical and mental health, explores the relationship between food insecurity and academic success, as well as investigates gender differentiation across United States of America university campus'. The review of literature also illustrates the need for university based long-term invention programs to address the prevalence of food insecurity among university students. This review of literature also seeks new ways to eliminate the growing trend of food insecurity across university campuses in the United States.

Through the thorough and in-depth review of academic literature on the topic of food insecurity, it is important to further the conversation between food insecurity and university student status and ethnic differences between student populations regarding food insecurity.

Food insecurity amongst university students continues to be a critical problem in the United States of America that is increasing at alarming rates. These food insecurity rates can be in part due to economic resource constraints (National Research Council, 2006). According to the most recent data collected from the United States Department of Agriculture and Economic Research Services approximately 12% of all American household's self identify as food insecure. It is important to note that according to the United States Department of Agriculture and Economic Research Services there are varying degrees of food insecurity in low food security and very low food insecurity. Of that 12%, 7.3% identified as households with low food security and the remaining 4.5% identified as households with very low food security (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2018). It is critical that there be a clear understanding of the potential relationships that pose between food insecurity and academic success and other secondary factors in order to identify practical solutions to the problem of food insecurity across

American campus'. The review of literature illustrates the need for more attention directed at the university student population in regard to measuring food insecurity and its impact on academic success.

The Dilemmas of Food Insecurity in the University Student Population

Neighbourhood poverty is a predicative factor of students' level of food security. As aforementioned food insecurity has been shown through previous literature to have negative associations with individual's physical health and well-being, behavioural and mental health well-being, social development, physical development, as well as academic development (Jyoti, Frongillo, & Jones, 2005). Factors that are highly associated with food insecurity are individuals living in households below the poverty line, individuals who rely on income support, as well as individuals who are in renting housing (Gallegos, et al., 2014). According to Morrissey, Oellerich, Meade, Simms & Stock (2016) neighborhood poverty is detrimental to food insecurity rates. Individuals who live in food insecure neighborhoods may experience lower achievement and economic opportunities. Neighborhood poverty rates have been shown to be useful information for policymakers. Neighborhood poverty rates can be used to self identify students who are experiencing food insecurity in order to help make the necessary changes to address their basic human needs.

Food insecurity is a social problem with multiple circumstances. Many individuals who are faced with food insecurity also deal with a multitude of other social problems such as poverty and social exclusion (Purdam, Garratt, & Esmail, 2016). Food insecurity has been shown in a research study conducted in the United States to have influences on health and developmental effects as well as family stress rates. Safety net programs has begun to be implemented into communities and with families who are facing food uncertainty. Safety net programs include

Supplemental Nutritional Assistance Program, which allows family or individuals living below the poverty line nutritional assistance and provides economic benefits to communities. Research has shown that individuals who access to these programs have a higher likelihood of food security (Cook & Frank, 2008). Other short term safety net programs that are being introduced are access to food and nutritional pantries on university campuses as well as food shelves within the community. Long term safety nets considered successful in the reduction to food insecurity rates across American university campus' are budgeting and meal planning skills (Bruening, Brennhofer, Woerden, Todd, & Laska, 2016).

Food Insecurity and Mental Health

Previous literature shows that food insecurity amongst university students can also be related to student's mental health outcomes. According to Bruening, et al., (2016) individuals who identified as food insecure had higher associations of mental health issues such as depression and anxiety as well as unhealthy eating habits, alcohol use and behaviours.

Individuals who suffered from food insecurity were three times more likely to identify as having depression and/or anxiety in comparison to those who identified as food secure (Bruening, et al., 2016)

A study conducted by Farahbakhsh, Hanbazaza, Ball, Farmer, Maximova, & Willows (2016) measured food insecurity prevalence in university campus' in Canada, Australia, and the United States of America. Their research indicates that university students who identified as food insecure also self reported a lower sense of community belonging, as well poorer general and mental health. There has been research conducted that has investigated the relationship between academic success and a sense of community belonging. Educational theorists have stated that individuals who have an important sense of social and community belonging have stronger

academic retention and success (Quinn, 2005). It is also important to acknowledge the negative correlational relationship between a lower sense of community belonging and lower academic retention and success in university students. Food insecurity is a social determinant of health (Farahbakhsh, et al., 2016). Students in this study who reported lower food insecurity were more likely to report having suboptimal health as well as wellness in comparison to the general population. Many individuals who face food insecurity also deal with a multitude of other social problems such as physical health problems. Previous literature has illustrated that food insecurity has influences on both the mental and physical health of university students.

Food Insecurity and Physical Health

Previous literature asserts that food insecurity has negative associations with students' physical health and well-being, as well as academic development (Gallegos, et al., 2014). Individuals who participated in Gallegos, et al (2014) quantitative study who reported high level of food insecurity were less likely to consume the adequate amount of fruit and vegetables required daily in comparison to their food secure counterparts. These students were also twice as likely to report low or poor general health in comparison to their food secure classmates (Gallegos, et al., 2014). In a study investigating food security and overall health, individuals who identified as food insecure had a significantly lower rating of self reported health. Individuals who experience food insecurity have a general shift in lower self reported health outcomes. A significant predictor of later life chronic illness was when individuals and families stated that they experienced severe hunger and food insecurity (Cook & Frank, 2008).

Another aspect of physical health to consider when investigating food insecurity is weight. In a study done by Jyoti, et al., (2005) students were measured over a longitudinal duration of time regarding food security, physical health, and academic success. Results from

this study showed that students who remained food insecure over a longer period of time exhibited a greater weight gain of one pound in comparison to their food secure counterparts (2005). This differentiation in weight gain between food insecure and food secure students can be attributed to a multitude of factors. One of the major factors to consider is the student's inability to have their dietary needs and requirements met. Individuals who reported food insecurity had lower rates of consumption of fibre, calcium, whole grains, fruit, vegetables, and dairy (Farahbakhsh, et al., 2016). Previous studies have shown a relationship between dietary requirements not being met with individuals who reported higher rates of food insecurity. This relationship could in part be due to the higher cost of nutrient rich foods in comparison to more cost affordable food which in turn lack many elements of a healthy dietary requirement. It is important to consider the effects of food insecurity on the physical health of university students in order to address the issue of food insecurity.

Academic Success of University Students

Recent studies conducted by Dennis, Phinney, & Cheateco (2005) highlight that there is a large amount of perceived barriers that impact an individual's academic success. Individuals who lack support from their peers or social systems act as a negative predictor for academic success and outcomes. Other studies that investigate academic success amongst university students take into account a multitude of factors that influence this relationship such as issues that first generation university students face such as job responsibilities, family responsibilities, perceived weak English and math skills, and inadequate study skills (Stebleton & Soria, 2013). Research conducted by Breier (2010) investigated the rates of student dropout and student retention in regards to student's financial security. This study found that students who were suffering from socio-economic deprivation were more likely to defer their studies or drop out prior to the

completion of their degree thus resulting in lower academic success than their non socio-economic deprived counterparts. These studies highlight that food insecurity levels, poverty levels, as well as a student's social support levels will all influence a student's academic success.

Food Insecurity and Academic Success

According to the most recent nationally collected data from the Hunger on Campus Champaign challenging food insecurity for college students (Dubick, Mathews, & Cady, 2016) approximately 48% of students across American universities reported experiencing food insecurity in the last 30 days. Neighbourhood poverty has been shown to be a predicative factor of student's level of food security. University students who are living in households below the poverty line and with reliance on income support, as well as students who rent and board are factors that are highly associated with food insecurity (Gallegos, et al., 2014).

As noted previously, food insecurity has been shown to be negatively associated with many aspects of an individual's physical and mental health. Another factor that has been shown to be affected by an individual's food insecurity is academic success either through perceived academic success or through academic completion rates. Previous literature done by Gallegos, et al., (2014) identified that students who identified as food insecure were three times more likely than their food secure counterparts to defer their academic studies. Other studies have shown a correlational relationship between food insecurity and academic success. In a study done by Jyoti, et al., (2005) they noted changes in student's mathematical and reading skills in student's who identified as food insecure. These students received lower mathematical and reading scores in comparison to their food secure counterparts. These students had smaller and slower developmental gains in these academic realms in comparison to their food secure counterparts. In a study conducted across the United States of America, Canada, and Australia students who

reported high levels of food insecurity reported at least one adverse academic experience (Farahbakhsh, et al., 2016). These experiences included being unable to concentrate in class or during an exam, unable to study for an exam, unable to complete and assignment, failed or withdrew from a course, and unable to attend class. In comparison to food secure students, students with food insecurity were more likely to report an adverse academic experience (Farahbakhsh, et al., 2016). This study also found that students in the United States of America who identified as food insecure had a lower grade point average in comparison to their food secure counterparts (Farahbakhsh, et al., 2016).

Overall, previous research on academic success shows a strong correlation between adverse academic experiences and food insecurity. Individuals who suffer from food insecurity are more likely than their food secure counterparts to struggle with adverse academic experiences including poor concentration and higher rates of withdrawal from classes. Students attending post secondary education through universities or colleges in the United States are part of a subgroup of individuals that are at a particularly high risk of food insecurity in part due to the high and increased cost of obtaining postsecondary education (Farahbakhsh, et al., 2016). Understanding the relationship between food insecurity and academic success of university populations is critical to alleviate barriers for students of this subgroup.

Food Insecurity and Gender Differentiation

Gender differentiation accounts for a multitude of social, behavioural, and physical differences between the sexes. Jyoti, et al., (2005) noted that females who identified as food insecure had significant associations such as changes in the female's body mass index and weight gain. Among girls who identified as persistently food insecure there was an association with smaller increases in reading abilities and scores. Females who identified as food insecure

had a strong association with poorer mathematical skills. Jyoti, et al., (2005) also noted that there was a strong association between food insecurity and change in social skills for males. Jyoti, et al., (2005) found that females who identified as food insecure were more likely to receive poorer mathematical performance, more likely to have higher body mass indexes and weight gains, and were likely to show greater improvements in social skills when transitioning from food insecure to food secure households in comparison to males.

Individuals who are able to transition from food insecure homes to food secure homes showed promising results in regards social, academic, and physical factors. For females who transitioned from food insecure houses to food secure houses showed an association with greater increases in social skill scores than their male counterparts (Jyoti, et al., 2005). In comparison, males who went from food secure housing to food insecure housing showed a significant association with weight and body mass index gains than their female counterparts.

According to research conducted by the Hope Center, students who identified as heterosexual, female, or male had lower rates of food insecurity in comparison to those who identified as transgender or other sex. Results of this study indicate that female and male university student's self reported similar rates of food insecurity. It is noted that females reported 3% higher rates of food insecurity in comparison to their male counterparts. Individuals who identified as transgender or did not identify as either male, female, or transgender had a much higher rate of self identified food insecurity. These students had approximately a 15% higher likelihood of reporting food insecurity in comparison to individuals who identified as male or female (Goldrick-Rab, Baker-Smith, Coca, Looker, & Williams, 2019). It is important to consider gender differentiation when investigating food insecurity rates amongst university students to best alleviate difficulties for these groups of individuals.

Food Insecurity and Ethnic Differentiation

It is important to consider racial differences when investigating food security throughout the United States in order to best serve each population group affected by food insecurity. The Hope Center in the United States of America distributes the nations largest annual assessment of basic needs in university and college students. In their annual 2018 report The Hope Center identified approximately 45% of student responders reported being food insecure in the previous thirty days. They also noted sizable racial and ethnic disparities in basic needs and insecurity amongst students. This study highlighted that students who identified as African American or Black had increased rates of self reported food insecurity in comparison to students who identified as Hispanic or Latinx. This study also noted that students identifying as African American, Black, Hispanic, or Latinx reported a 19% higher rate of food insecurity in comparison to students identifying as White or Caucasian (Goldrick-Rab, et al., 2019).

Food Insecurity and University Student Status

The cost of postsecondary education can be extremely high for individuals to afford to attend. The cost of postsecondary education is higher for students who identify as an international student as compared to a student identifies as a domestic student (Throsby, 1991). International students for the purpose of this section of the literature review will be considered as individuals who poses an F-1 Student Visa, M-1 Student Visa, or a J-1 Exchange Visa (United States Department of State Education, 2017). In a study done by Hughes, Serebryanikova, Donaldson, & Leveritt (2011), students who identified as international student's self reported 12% higher rates of food insecurity in comparison to domestic students. A study conducted by The Hope Center showed that post secondary students who were not citizens of the United States of American were more likely to experience housing insecurity and homelessness in comparison

to their United States born peers (Goldrick-Rab, et al., 2019). These findings can be directly related to instances in the United States where international students are required to pay substantially higher rates of tuition costs in comparison to students who identify as domestic. Universities in the United States may wish to practice price discrimination in order to higher their overall revenue (Throsby, 1991). It is noted that this in the long term will have more negative consequences in the for universities. With international students at risk for higher rates of food insecurity in comparison to domestic student it creates a disproportionate use of food programs on campus.

Limitations and Future Considerations

It is both necessary and important to investigate the relationship of food insecurity and the impact on academic success for university students. Coinciding with the previous literatures general conclusions, this research hypothesizes that food insecurity will have an inverse relationship with university student's academic success. This research study seeks to build upon prior studies by filling in the identified gaps in the literature. The largest gap in the literature and research is the population group being sampled. There lacks a large body of information and research studies that specifically identifies food insecurity amongst university students. This is an important gap to identify because there needs to be more information collected and reported regarding the university student population with regard to food insecurity and academic success. This research will help bridge the gap by sampling the university student population in particular. There is no current national procedure in the United States to identify and address the need of food insecurity in university students. However, many university campus' across America have introduced food shelves and banks in order to allow students access to food when they are unable to provide for themselves. As well, at the recommendation of other research,

proposals such as community gardens, affordable and healthy eating options on campus have been recommended (Chaparro, et al., 2009). This research will hopefully allow for greater amounts of funding to be allocated to address the issue of food insecurity amongst the university student population. Food insecurity needs to be addressed in universities across the country in order to allow students to perform to their highest academic abilities.

Chapter III: Methodology

Research Design

This research study will use a quantitative design and administer a twenty (20) question survey to all selected participants at St. Cloud State University. Questions for this research study will consist of ten (10) sociodemographic questions and ten (10) questions measuring food and housing insecurity. For the purpose of this research, only questions pertaining to food insecurity and sociodemographic will be analyzed. The questions used in this research will be measured on a Likert scale; the three categories of household food security that will be measured are (1) food secure (2) low food security, and (3) very low food security. These measurements will be assessed based on accessibility, utilization, and availability of food based on a previous studies food insecurity measurement tool (Barrett, 2010). This tool will allow the researcher to edit and code responses, calculate household summary measures of food security, as well as understand the context within which this study will be conducted (Coleman- Jensen, Gregory, & Rabbitt, 2017). The strength of this research design are that the questions have been predetermined and used by the United States Department of Agriculture Food and Housing Insecurity (USDA) and thus show high validity as well as reliability. Other questions that will be explored in this study are the rates of food insecurity based on gender and racial identification in regard to academic success. The results of this study will be generalizable to the university student body population in the United States as the sample set to be used in this study is anticipated to exceed 400 responses. Qualtrics will be used to collect all responses from this research study. Qualtrics is an online research and study tool to collect data and synthesize the information presented.

Research Questions

A quantitative research method was chosen for this research study. This explanatory research study seeks to analyze the research questions:

1. Does food insecurity impact the overall academic success of students at St. Cloud State University?
 - a. Does gender influence this relationship?
 - b. Is there correlation between food insecurity and university student status such as domestic student versus international students?
 - c. Is there a correlation between racial identities and academic success as it relates to food insecurity?

This study also seeks to describe, explain, or predict relationships between the aforementioned variables. Thus allowing for the establishment of causation between the variables of food insecurity and academic success.

Setting

The survey will be administered to current students attending St. Cloud State University via their St. Cloud State University domain email. Participants will be given the opportunity to participate in this research study by simply clicking the link attached to the email. Clicking this link will forward them to Qualtrics where the twenty (20) question survey will be attached. Participants will be prompted to answer each of the twenty (20) questions to the best of their ability prior to submitting the completed questionnaire. Students will be able to participate in this research study at their own leisure and choice. The only requirements to participate in this study are that participants have access to an electronic means of communication (i.e. tablet, iPad, laptop, or cell phone).

St. Cloud State University was chosen as the setting to conduct this research based on previous research conducted by the Wilder Study. The Wilder Study illustrated that central Minnesota has a faster growing homeless and financially insecure population than in comparison to the rest of the state of Minnesota (Homelessness in Minnesota 2018 Study, 2019). Other statistics collected from St. Cloud State University shows that this particular institution has an overall high diversity score in comparison to the national average (Cobo, Coleman, Fernandez, Kay, & Saul, 2019). St. Cloud State University has a large representation of different racial backgrounds, with approximately 26.8% of students identifying as non-white students (Cobo, et al., 2019). This research study illustrates the unique needs and settings of St. Cloud in regard to financial security. Based on previous research and literature, St. Cloud State University was chosen as the designated University to conduct this research study on based on the aforementioned variables.

Participants

To be considered for this study, participants must be currently enrolled at St. Cloud State University either on a part time or full-time basis. Throughout the duration of the questionnaire, participants will be given the option to decline to answer particular questions. Participants have the right to choose to not identify or answer any of the sociodemographic questions. Participants can also choose not to answer the ten (10) questions pertaining to food insecurity and sociodemographic questions. Participants will not be penalized if they choose to not answer a question. Students will not be given incentives to participate in this research study.

Sampling

The sample population of this research design will be chosen from students who are currently attending St. Cloud State University. This include all currently enrolled students in

undergraduate, graduate, and doctoral programs in the semester in which the data is being collected. A convenience sampling method will be used to administer the survey and to invite participants for the research study. Students currently enrolled at St. Cloud State University will be invited to participate in this research study by receiving an email through their St. Cloud State University domain email.

In order to participate, students will agree by clicking on the link of the survey through their email. This survey will remain completely anonymous as participants will not be asked to provide any identifying information or provide their student identification. The entire St. Cloud State University student body population will receive three emails prompting them to participate in this research study. The first prompt will be administered March 1, 2019. The second prompt will be administered March 15, 2019. The third and final prompt will be administered March 30, 2019. Participants will not receive any monetary incentives by participating in this research study. This research study anticipates that the sample data collected will be representative of the entire St. Cloud State University. Potential strengths of this sampling strategy is low cost, as well as non invasive survey sampling which should result in nonbiased responses. Potential weaknesses of this study are low response turnout, as well as the data not being representative of longitudinal trends of food insecurity in the university student population.

Instrumentation

Questions for this research study will consist of ten (10) sociodemographic questions and ten (10) questions measuring food and housing insecurity. The ten (10) sociodemographic questions used in the measurement were chosen based on their ability to help better understand food insecurity, food insecure students attending St. Cloud State University. Of the ten (10) food and housing questions, this research endeavour will utilize three (3) questions pertaining

specifically to food insecurity. The three (3) food insecurity questions have been thoughtfully chosen from the United States Department of Agriculture Household Food Security Survey Module, please see attached Appendix A for the complete list of questions chosen for this research study. The United States Department of Agriculture's Household Food Security Survey has been previously tested and shows high levels of validity and reliability which is why it was utilized for this research study. These questions were chosen for this research study based on previous empirical data. The question pertaining to food insecurity throughout this research study have been previously normalized by the United States of America Department of Agriculture and Economic Research Services survey U.S. Household Food Security Survey Module (HFSSM). This survey tool was created in 1995 and is the currently used measurement tool throughout the entire United States of America to measure household food security nationally (House, Kirkendall, Citro, & Citro, 2013). Using empirically tested research questions will increase the reliability of this research study.

Data Collection

Data will be collected through Qualitrics, an online web-based survey tool, to collect data from participants. Data collection will remain anonymous as participants in this study will not provide any identifying information or use their student identification. Data collection will be done in three separate stages. Participants will be given the opportunity to participate in the research study and invited to participate via email on three (3) separate occasions. All three subsets of data collected will be compiled into one data set for further analysis through the online web-based survey tool, Qualitrics.

Data Analysis

Data analysis will be done through the Statistical Package for Social Sciences (SPSS).

The variables that will be used to conduct data analysis will include gender, university student status, current cumulative grade point average, racial and ethnic identification, and food insecurity measurements. Prior to data analysis, the data collected will be normalized and transformed to ensure all variables being measured are representative of the St. Cloud State University student population. Chi-square statistical tests and cross tabulations will be used for testing and examining relationships between the above mentioned categorical variables through SPSS. This research hypothesizes that individuals who identify as food insecure will be more likely to indicate a lower grade point average than their food secure counterparts. This research hypothesizes that individuals who identify as female or other as well as food insecure will have lower grade point average in comparison to those who identify as male and food insecure. Lastly, this research hypothesizes that individuals who identify as international will have higher rates of food insecurity than individuals who identify as domestic.

Ethical Considerations

This research study seeks to investigate the predicted correlational relationship between food insecurity and academic success as well as gender differentiation. The major variables of this study being conducted are food insecurity, academic success, gender, racial identification, and university student status. The independent variable of this study is food insecurity and the dependent variables are academic success, gender, racial identification, and university student status. This study will operationalize the aforementioned variables by providing clear and concise definitions to all participants in the research study of the variables prior to beginning it. These definitions will be chosen from the USDA which has already ensured their validity and reliability.

Protection of Human Participants

There is no potential for physical or emotional harm to the research participants in this study. Participants will remain anonymous and will not be asked to disclose any personal or identifying factors during the study. Participation will be voluntary and students will have the option to skip questions that they do not feel comfortable answering. This research study will be conducted using Qualtrics Research Tool which will allow for students to answer all the survey tool questions anonymously as well as skip over questions they do not want to answer. All data will be collected and stored securely on a designated computer for 3 years. After this time period the principal investigator of this study will dispose of the data in a safe and secure way. This research study was approved by St. Cloud State University Internal Review Board on February 19, 2019. There are currently no ethical or political issues that will need to be addressed as a result of this study.

Chapter IV: Research Results and Data Analysis

This chapter reviews the results and analysis of the quantitative data collected, the compilation of the questionnaire dispersed, and the overall findings of the study with a statistical software (SPSS). The purpose of the study was to investigate the following: 1) the impact of food insecurity on the academic achievements of St. Cloud State University students which was measured by self-identified grade point average; 2) immigration status of the student status (i.e. domestic or international student status), 3) gender (i.e. male, female, transgender, or other), as well as their self-identified racial and ethnic background. The research questionnaire was distributed to all currently enrolled St. Cloud State University students in the Spring of 2019 using a convenience sample method of data collection. The online research platform Qualtrics was utilized to collect the data responses from all participants in the study. The use of Qualtrics allowed for anonymity of respondents and for coding of participant responses. A thorough description of the research methodology used for this research study was given in Chapter III Methodology.

Data Characteristics

This section provides insight into the general demographic characteristics of the data set collected. Consideration will be given to food insecurity rates, academic success which is measured as grade point average, gender, age, student status, racial and ethnic background, and their immigration status. Frequencies of the above outlined characteristics of this data set were synthesized using the statistical software package (SPSS). Participants who choose to not respond to particular questions were coded as uncategorized responses and were referred to as such throughout the analysis. The questionnaire was distributed to approximately 10,686 students and a total of 483 responses was received, giving it an overall response rate of 4.52%.

Food Insecurity, Self Reported

Participants in the study were asked to identify how often in a month they had concerns of running out of food. The options presented were 'never', '1-3 days per month', '4-7 days per month', and 'more than 8 days per month'. For the purpose of data analysis, the variable food insecurity was synthesized as never occurring or as always occurring. The variable 'always' consisted of participants who responded to this variable as '1-3 times per month', '4-7 days per month', or 'more than 8 days per month'. Results from this research illustrate that 46.50% (173 participants) identified as food insecure in comparison to 53.50% (252 participants) who identified as never having concerns of running out of food each month. This overall response illustrates a high level of food insecurity on St. Cloud State University. Students are not having their basic needs of food security met. These results illustrate that close to half of students who attend St. Cloud State University are not having their basic needs met which can result in poor academic success.

Self- Report Grade Point Average, Self- Reported

The information used in measuring participants' academic success was participants self-reported cumulative grade point average. Grade point average for the purpose of this study is on a scale of 0.0 - 4.0. The median self reported grade point average for participants was 3.43 on a scale of 4.0 GPA. The mode of self identified GPA was 4.0 and the mean was 3.36. Overall all, these results show that students attending St. Cloud State University have high academic success. A grade point average of 3.36 is equivalent to a B+ (87%-89%). This result illustrates that students attending St. Cloud State University, whether food insecure or not, have relatively high academic success.

Participants Gender Identification

Table 1

Research Participants Identifying with Gender

<u>Gender</u>	<u>Participants</u>	<u>%</u>
Male	143	29.60
Female	280	57.97
Transgender	3	0.62
Other	9	1.86
Uncategorized	48	9.94
Total (N=483)		

Table 1 shows the frequency of participants who self identified their gender as either male, female, transgender, other, or uncategorized. 48 participants in the survey identified as multiple genders and for the purpose of this paper will be considered uncategorized. The overall category with the most responses was female; this subgroup accounted for over 50% of the responses. Results collected from gender identification were not expected in regards to the amount of individuals who identified as uncategorized. Upon further investigation from researchers involved in this study it was made clear that there was discrepancy between students who identified as both male and female participants due to an issue on the software.

Age, Self- Identification

Table 2

Research Participants Age

<u>Age</u>	<u>Participants</u>	<u>%</u>
16-17	9	1.86
18-24	326	67.5
25-31	64	13.25
32-38	26	5.38
39-45	18	3.73
46-52	15	3.11
53-59	5	1.04
60-67	4	0.83
Uncategorized	17	3.52
Total (N=483)		

Table 2 illustrates the various age groups and frequencies of who participated in the study. The most frequently identified age in the is research-was nineteen (19). The youngest participate in this research study was sixteen (16) years of age and the oldest participant in this study was sixty-six (66) years of age. Important characteristics to note are the frequency and rate of participant's self identifying between the ages of 18-24. The majority of participant's (67.5%) in this study identified that they fell between the age category of 18-24. This is consistent with data illustrating the traditional age of university level students found on university campus'.

Immigration Status

Participants in the study were asked to identify as either a domestic student or an international student or they could choose to not disclose. 92.6% of respondents identified as a domestic student, 7.4% identified as an international student, and 1.9% of respondents choose to not disclose this information in the questionnaire.

Student Group Status, Self- Identification

Table 3

Research Participants Self Identified Status

<u>Student Status</u>	<u>Participants</u>	<u>%</u>
First Generation	179	37.06
Student of Colour	84	17.39
Student Parent	53	10.97
Veteran	14	2.90
Non-Traditional	109	22.57
LGBTQ+	56	9.52
Student with Disability	46	9.52
Commuter Student	91	18.84

To better understand the demographics of the students participating in the study, specific status groups were identified for future research studies. The specific status groups participants could identify with include First Generation Student, Student of Colour, Student Parent, Veteran,

Non-Traditional Student, LGBTQ+ Student, Individual with a Disability, and Commuter Student. These specific demographics were not utilized in this research analysis but serve as a tool to do future research studies on. However, for future studies it is important to not that more participants identified as first generation students and as non-traditional students than any other student group being measured.

Racial Background, Self- Identification

Table 4

Research Participants Racial Background

<u>Racial Background</u>	<u>Participants</u>	<u>%</u>
African American	14	2.9
White	362	74.9
Native American	3	0.6
Latino or Hispanic	17	3.5
Multi Racial	19	3.9
Other	12	2.5
Asian American	18	3.7
African Born	8	1.7
Asian Born	17	3.5
Middle Eastern	3	0.6
Uncategorized	10	2.1
Total (N=483)		

Participants were given the option to self identify on the basis of their ethnic or racial background. Overall, the majority of participants self identified as Caucasian. For the purpose of further examination and correlational relationships all participants who did not identify as White or Caucasian were classified as students of colour.

Research Results

This section of the paper will focus directly on the proposed hypotheses and research questions identified in Chapter I: Introduction. The research questions investigated include:

1. *Does food insecurity impact the overall academic success of students at St. Cloud State University?*

- a. *Does gender influence this relationship?*
- b. *Is there correlation between food insecurity and university student immigration status such as domestic student versus international students?*
- c. *Is there a correlation between racial identities and academic success as it relates to food insecurity?*

Research Question One: Food Insecurity and Overall Academic Achievement

This research study hypothesized that there would be a statically significant linear relationship between two variables, food insecurity and cumulative GPA. This study used a bivariate Pearson Correlation to test to identify if there was a statistically significant relationship between the two variables through the statistical software SPSS. This correlation was also used to identify the strength and direction of the association. The results of the bivariate Pearson Correlation, Food Insecurity and GPA based on 459 observations with pairwise non-missing values was $-.248$ giving a statistically significant linear relation ($p < .001$). The direction of the relationship is negative, meaning that food insecurity and GPA are negatively correlated. This correlation illustrates that as food insecurity increases than the student's GPA decreases. This result was as expected based on previous literature that investigated the relationship between food insecurity and academic success. When individuals experience food insecurity, their basic needs are not being met, which in turn results in individuals not being able to strive to their fullest potential. What was particularly interesting with the results of the study was high level of food insecurity rates on campus. The rates of food insecurity on St. Cloud State University were higher than the rates of food insecurity in the United States of America. These increased rates of food insecurity are hypothesized to have had a significant influence in students ability to meet higher levels of academic success. Previous literature has illustrated that as food insecurity, or

various other forms of basic needs are not being met, individuals experience obstacles and barriers to their everyday lives. Table 5 illustrates the correlational coefficient identified when the statistical software SPSS was used.

Table 5

Correlation Between Academic Success and Food Insecurity

		What is your current GPA?	food_insecure
What is your current GPA?	Pearson Correlation	1	-.248**
	Sig. (2-tailed)		.000
	N	459	459
food_insecure	Pearson Correlation	-.248**	1
	Sig. (2-tailed)	.000	
	N	459	483

** . Correlation is significant at the 0.01 level (2-tailed).

Research Question Two: Gender

This research study hypothesized that there would be a statically significant relationship between three variables, food insecurity, gender, and current GPA. As noted above, for the purpose of this study gender will be categorized as male, female, transgender, or other. This study used a bivariate Pearson Correlation test to identify if there was a statistically significant relationship between the three variables. This correlation found was also used to identify the strength and direction of the association. Based on the results of the bivariate Pearson Correlation, Food Insecurity, Gender, and GPA did not have a statistically significant linear relationship ($p < .001$). Gender does not appear to have an influence on the relationship between food insecurity and grade point average. This result differs drastically from previous food insecurity literature. Previous literature illustrated that women who identified as food insecure

were more likely to experience obstacles and barriers to their academic success than their male or other gendered counterparts.

Research Question Three: Immigration Status

This research study hypothesized that there would be a statically significant linear relationship between three variables, Food Insecurity, Immigration Status, and cumulative GPA. As noted above, for the purpose of this study participants had the option to either identify as an international student or a domestic student. Students who identified as international experienced higher rates of food insecurity by 16.5% in comparison to students who identified as domestic students. 63% of participants in this study who identified as international students experienced food insecurity. Table 6 identifies the correlational coefficient found when comparing students of colour, cumulative grade point average, and food insecurity. Similar to previous literature, participants who identified as international versus domestic immigration status were more likely to experience food insecurity. This information collected as expected based on immigration status influencing the ability for individuals to access resources required to be successful.

Table 6

Correlation Between Academic Success, Food Insecurity, and Racial Identify

		food_insecur e	stu_color	What is your current GPA?
food_insecure	Pearson Correlation	1	-.179**	-.248**
	Sig. (2-tailed)		.000	.000
	N	483	483	459
stu_color	Pearson Correlation	-.179**	1	.179**
	Sig. (2-tailed)	.000		.000
	N	483	483	459
What is your current GPA?	Pearson Correlation	-.248**	.179**	1
	Sig. (2-tailed)	.000	.000	
	N	459	459	459

** . Correlation is significant at the 0.01 level (2-tailed).

Research Question Four: Race

This study hypothesized that there would be a statically significant relationship between three variables, Food Insecurity, Students of Colour (race of student), and cumulative GPA based on perceived barriers for population groups. As noted above, for the purpose of this study all participants who did not self-identify as white or Caucasian will be identified as students of colour. From the analysis of the data 46.50% of all participants in this research study identified as food insecure. 60.3% of participants who identified as students of colour experienced food insecurity and 39.7% of participants who identified as white or Caucasian experienced food insecurity. Based on the results of the bivariate Pearson Correlation of Food Insecurity, Students of Colour, and GPA have a statistically significant linear relationship ($p < .001$). Overall, participants who identified as Asian America, Middle Eastern, or African American were more likely to experience food insecurity at higher rates than participants who identified as Caucasian. Participants who identified as Native American were the least likely to identify as food insecure.

Chapter V: Discussion

A quantitative methodology was used in this research. A questionnaire was used to collect the data from currently enrolled St. Cloud State University students in the Spring of 2019 using a convenience sample method of data collection. An SPSS software package was used to synthesize and analysis the results of the questionnaire. Four distinct themes emerged from the data in relations to grade point average. The major themes identified were the following: 1) Food insecurity, 2) Gender , 3) Race, and 4) Immigration. These themes were identified from the figures and information collected utilizing the statistical software package SPSS. The themes, strengths of the research, as well as limitations, and implications to the social work profession will be thoroughly discussed in this chapter.

Themes

Food insecurity and Academic Success

The results from the study illustrated that there is a large prevalence of food insecurity on the St. Cloud State University campus. Food insecurity was measured by four levels of security; high security, meaning students never experienced worry or concerns about not getting enough food for the month, marginal security meaning students experienced 1-3 days per months having concern, low security meaning they experienced 4-7 days per month with concern, and very low security meaning they experienced 8 or more days per month with concern of not having enough food. Results from this research illustrated that 26.3% of participants experienced concern or worry for not having enough food 1-3 times per month. Overall results showed that 48% of participants in this research study experienced marginal to very low food security meaning they worried or had concern about not having access to food at least one to eight or more times per calendar month.

The information used to collect and analysis student's academic success was done through self-reported cumulative grade point average of each participant in the study. The University uses a GPA scale of 0.0- 4.0 for all students, thus all respondents of the study had a grade point average falling between the scale identified. The mean grade point average self reported by participants in this study was 3.36, the mode was 4.0, and the median was 3.43. Overall, students attending St. Cloud State University self disclosed a relatively high grade point average in comparison to other American Universities. These individuals high grade point average illustrates a high rate of academic success for students attending this institution.

This study analyzed the relationship between food insecurity and grade point average by running a bivariate Pearson Correlation through the statistical software package SPSS. Results from this correlation showed a statistically significant negative correlation between the two variables. This showed an inverse relationship between food insecurity and academic success, meaning that as food insecurity decreased (meaning the participant was no longer concerned or worried about running out of food) the participants grade point average increased. Although the data collected from this research was statistically significant it is important to understand that this was a point in time measure which does not show causation. The results of this study in regard to food insecurity rates and academic success was to be expected. Previous literature illustrated a strong negative correlation between the aforementioned variables. This was to be expected, as individuals struggle or experience a barrier in their basic needs it is to be expected to influence another area of their life. In this regard, the barrier of food insecurity directly related in their struggles academically. This information collected shows the importance of basic needs being met by students in order for them to strive to their fullest potential academically. This information can be used to shape and transform programs on campus to allow for inclusivity of

all students in consideration of their barriers. With consideration of food insecurity and lower academic success showing a strong relationship, this information can be used to create programs to address food insecurity on campus.

Gender

The second variable that this research study examined was the relationship between food insecurity and differential gender status. The results from this research study were unable to show a relationship between identifying as female and lower academic success. This research study was unable to further the literature on gender differentiation in regard to food insecurity and grade point average. Considerations to why this phenomenon was unable to be calculated may be due to the fact that there was a significantly lower response rate from male and transgender individuals in comparison to female response rate. This is an area that of study that requires more time and effort to study in order to understand the relationship between the three variables. This area of the study was proven to be inconclusive, however, there needs to be more information collected regarding gender inequality and food security to understand how these relationships influence one another. With a greater understanding of how gender influences the relationship between food insecurity and academic success programs can be put into place that specifically target that group.

Racial Identity

The study hypothesized that there would be a statically significant relationship between three variables, Food Insecurity, Race, and cumulative GPA. As noted above, for the purpose of this study all students who did not self-identify as white or Caucasian were identified as students of colour. From the analysis of the data 46.50% of all participants in this research study identified as food insecure. 60.3% of participants who identified as students of colour

experienced food insecurity and 39.7% of students who identified as white or Caucasian experienced food insecurity. Based on the results of the bivariate Pearson Correlation of Food Insecurity, Students of Colour, and GPA have a statistically significant linear relationship ($p < .001$). Overall, participants who identified as Asian America, Middle Eastern, or African American were more likely to experience food insecurity at higher rates than students who identified as Caucasian.

This conclusion is similar to what recent literature shows in regard to food insecurity trends based on perceived barriers from population groups. An important aspect to consider when reviewing the data set collected from this research study is that racial differential was considerably lower and could give a non generalizable result. This research study received significantly more responses from students who identified as white or Caucasian and thus can make the data collected non generalizable to the general public. This information is consistent with previous literature that investigated the relationship between race and food insecurity. Its important to understand this relationship between racial identity and food insecurity rates in order to make a larger change effort in the future. Individuals who identify as students of colour identified more barriers to their success then students who identified as Caucasian. Using this information, universities can create programs to help reduce these barriers and obstacles in order to create equality on campus for all students. Programs that are targeted towards serving specific population groups in consideration to food insecurity can help reduce the over all rates. If more information is collected about this phenomena, then greater resources can be used to support students' success in the future and allow for great equality in relation to access to programs directed at food insecurity.

Immigration

This research study hypothesized that there would be a statically significant relationship between three variables, Food Insecurity, Student Status, and cumulative GPA. As noted above, for the purpose of this study students had the option to either identify as an international student or a domestic student. Students who identified as international experienced higher rates of food insecurity by 16.5% in comparison to students who identified as domestic students. 63% of participants in this study who identified as international students experienced food insecurity. Considerations to be addressed regarding the correlational information collected from this study is in relation to the response rate. There was a significantly lower response rate from students who identified as international. 439 participants in this study identified as a domestic student in comparison to the 35 participants who identified as international. The lower response rate for international students can have an overall effect on the data gathered and thus not be generalizable to the public.

This information collected regarding immigration status for students at St. Cloud State University is astounding. This data set shows the direct barriers individuals who have immigration status in the state of Minnesota face. This information can be understood as students who identify as international do not have access to the same resources that their domestic status peers do. International students do not have readily available access to food banks, SNAP food program, or various other entities based on immigration status as well as perceived fear of accessing them. This research illustrates a direct relationship between immigration status and food insecurity and its overall effect on academic success. This information can be used to challenge current legislation that only allows individuals of domestic status access to the much needed resources in order to have their basic needs met.

Strengths and Limitations of the Study

It is both necessary and important to investigate the relationship of food insecurity and the impact on academic success for university students. Coinciding with the previous literatures general conclusions, this research hypothesized that food insecurity would have an inverse relationship with university student's academic success. This research study sought to build upon prior studies by filling in the identified gaps in the literature. The largest gap in the literature and research is the population group being sampled. There lacks a large body of information and research studies that specifically identify food insecurity amongst the university student population. This was an important gap to identify because there needs to be more information collected and reported regarding the university student population with regard to food insecurity and academic determination. Thus this research study sought to fill the gap in the previous literature and research by sampling the university student body.

This research sought to bridge the gap in literature by sampling the university student population at St. Cloud State University. However, based on the sampling method used for this research study the results may not be generalizable to the entire United State of America university student population. This is based on two observations: 1) The only students taken into consideration for this research study all belong to St. Cloud State University which is not generalizable to the larger population based on student attendance rates. There are significantly fewer people of colour that attend St. Cloud State University than other educational institutions. St. Cloud State University only offers undergraduate, certificate, and Master programs with the exception of one doctoral program. These two items need to be taken into consideration when considering the generalizability of the research findings. 2). This research endeavor had a relatively large response rate, however, there were significantly more women who responded,

domestic students, and students who identified as Caucasian, thus not making it generalizable to the entire student body population at St. Cloud State University.

Implications for Social Work Practice

Food insecurity is an important topic to both understand and research as a social work professional. According to the National Association of Social Workers [NASW], (2017), social workers hold the ethical principal to challenge social injustice. It is the work of the social worker to challenge social injustices and pursue social change on behalf of oppressed or vulnerable groups or individuals (NASW, 2017). According to the NASW (2017), the social work professions primarily focused change efforts are on the issues of poverty by raising awareness to promote sensitivity, diversity, and understanding. This research endeavor sought to raise awareness of the food insecure population of university students located on St. Cloud State University.

This research seeks to promote sensitive, diversity, and understanding for each student struggling with food insecurity to allow for them a fair and equal chance at succeeding academically whilst in university. With the information collected from this research study there is significant amount of work that can be done in order to serve the food insecure population on St. Cloud State University. The numbers and information collected from this research study can be utilized to create programs on St. Cloud State University campus that can directly benefit the food insecure population. These programs include but are not limited to a food shelf, food donation centers, and a community garden. It is the work of the social work profession to continue these change efforts in order to better serve and ensure access to resources for all food insecure students. Further work and research needs to continue on food insecurity and its direct relationship with student academic success.

Implications for Future Research

There is a gap in the literature regarding food insecurity and university students. This research illustrates a direct link between food insecurity rates and overall lower academic success for students directly impacted. This information collected can be used to open programs on campus such as food banks or discounted food programs to allow all students access to meet their basic needs. This information collected illustrates a high level of food insecurity prevalence rates on St. Cloud State University. With the data collected, new initiatives and programs can be created to bridge the gap between students who identify as food insecure or as individuals whose basic needs are not being met. Its important to understand that as an individual's basic needs are not being met it can directly affect their success in other areas of their lives. This study took into consideration how the basic need of food was not being met and how it directly affected student's ability to succeed academically. This study does not suggest that food insecurity is limited to effected only academic success, rather it encourages further investigation into its relationship with physical and emotional well-being of individuals.

Areas to focus more attention to in regard to food insecurity rates and the university student population are longitudinal studies. There are minimal longitudinal food insecurity studies done specifically on the university student population. Longitudinal studies done on food insecurity could prove to be useful to show the changes in student's academic success overtime impart due to food insecurity. With the implementation of programs directed at addressing this issue, longitudinal studies can show its success in changing academic determination. Longitudinal studies can also illustrate areas that require a different intervention to achieve success. This is an area that requires more focus and attention to in further studies.

There is currently no national procedure in place in America to identify and address the need of food insecurity for university students. However, many university campus' across America have introduced food shelves and banks in order to allow students access to food when they are unable to provide for themselves. As well, at the recommendation of other research, proposals such as community gardens, affordable and healthy eating options on campus have been recommended (Chaparro, Zaghoul, Holck, & Dobbs, 2009). The use of future research can help bridge the gap between the literature and findings as well as provide concrete support for programs that can directly assist this population in the future.

Conclusion

To conclude, this research study highlighted the relationship between food insecurity and academic success of students located at St. Cloud State University, Minnesota. This research identified the positive and negative correlational relationships between food insecurity and academic success with consideration to secondary factors including self identified gender, racial background, and immigration status. This research showed that there is a strong negative correlation between food insecurity and academic success. Meaning that as student become further food insecure their academic success will in turn get lower. This research will hopefully allow for greater amounts of funding to be allocated to addressing the issue of food insecurity amongst the university student population. Food insecurity needs to be addressed in universities across the country in order to allow students to perform to their highest academic abilities.

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Appendix A: Survey Questions

Codebook

Variable Name	Description	Responses
Gender	Gender: male, female, transgender, other	0=Male, 1= Female, 2=Transgender, 3=Other
Age	What is your age?	Continuous
Student Status	Please check all that apply to your student status:	0=Non-Selected Students, 1=Commuter Student, 2=Student of Color, 3=Student Parent, 4=Veteran, 5= Non- Traditional Student (25+), 6=LGBTQ
Current Student Status- Course Load	What is your current student status? Part time or full time (study load)	0=Full Time Student, 1= Part Time Student
Academic Program	Academic Program? Certificate, Undergraduate, Graduate, Postgraduate, Non-Degree Seeking	0= Graduate, Postgraduate, 1=Undergraduate, 2=Certificate, 3= Non-Degree Seeking
University Student Status	University Student Status: Domestic or International student	0= Domestic Student, 1=International Student
GPA	What is your current GPA?	Frequency
Demographic Identification	How do you identify: (optional)	0=White, 1=African American, 2=African Born, 3=Asian American, 4=Native American, 5=Latino/Hispanic, 6=Middle Eastern, 7= Multi-Racial, 8=Other: (Explain)
Dependents in Home	Number of dependents in your home:	
County	County you currently live in:	0=Stearns, 1=Hennepin, 2=Wright, 3=Isanti, 4=Benton, 5=Morrison, 6=Anoka, 7=Sherburne, 8=Other: (Explain)
Concerns of Running Out of Food	In the past 12 months I have had concerns that I will run out of food: (Frequency)	0=Never, 1= 1-3 Days per Month 2= 4-7 Days per Month 3= More than 8 days per Month 4= Other: (Explain)

Food Insecurity Affecting Academics	In the past 12 months, food insecurity has affected my academic progress in the following ways (<u>check all that apply</u>):	0=Not at All, 1= I have been unable to concentrate in class, 2= I missed class(es) 3= I received a poor grade(s) 4= I had to take a semester or more off 5= I had to work more hours 6= Work another job 7= Other: (Explain)
Access to Free Food	If I had access to free or reduced food options on campus I would use them:	0= Never, 1= 1-2 Times per Month 2= 3-4 Times per Month 3= Most of the Time Each Month 4= Other: (Explain)
Current Living Arrangement	What Is your current living arrangement?	0= Own a House, 1= Rent Apartment Alone, 2= Rent Apartment with Roommates, 3= Parents House 4= Residence Hall 5= Fraternity or Sorority House 6= Public or Subsidized Housing 7= Shelter 8= Car 9= Other: (Explain)
Housing Due to Economic Hardship	In the past 12 months, due to economic hardship or loss of housing, I have (check all that apply):	0= those who did not select any of these options 1= Doubled up temporarily with other family or friends, 2= Stayed in a shelter, 3= Slept or lived out of my car or public place, 4= Lived temporarily in a hotel or mother 5= Other: (Explain)
Duration of Hardship	If you checked yes to the above question, how long were you without secure housing?	
Missed Paying Rent/Mortgage	In the past 12 months, I have missed paying or been late in paying my rent/mortgage:	0= Never, 1= 1-2 Months per Year, 2= 3-4 Months per Year,

		<p>3= 6 or More Months Out of the Year, 4= I Have Been at Risk of Eviction, 5= To the Point of Being Evicted, 6= Other: (Explain)</p>
Fear of Eviction	In the past 12 months, my struggles with housing have included fear of eviction:	<p>0= Never, 1= Have received a warning for eviction, 2= Have an eviction on my record, 3= Have been evicted once, 4= Have been evicted more than once, 5= Other: (Explain)</p>
Housing Insecurity Academic Impact	In the past 12 months, housing insecurity has impacted by academic progress in the following ways: <u>(check all that apply)</u>	<p>0= Not at All, 1= I was Unable to Concentrate in Class, 2= I Missed Class(es), 3= I Received a Poor Grade(s) 4= I Had to Take a Semester or More Off 5= I Had to Work More Hours in Order to Make Rent/ Mortgage 6= Other: (Explain)</p>
Housing Situation Barriers to Education	Does your current housing situation create barriers to education in any of the following ways? <u>(check all that apply)</u>	<p>0= Distance to Campus, 1= Safety, 2= Cost of Rent or Mortgage, 3= Roommate Difficulties, 4= Access to Public Transport, 5= Landlord Issues 6= Lack of Student Parent Housing (Affordable) Family Housing, 7= Overcrowding 8= Other: (Explain)</p>

Appendix B: Email Letter to Possible Participants

[SCSU-Studentlist] Food and Housing Insecurity Survey- *Second Request*

SD

scsu-studentlist-bounces@lists.stcloudstate.edu on behalf of
Student Life & Development <sld@stcloudstate.edu>

Mon 3/25/2019 11:57 AM

scsu-studentlist



Recently, we invited you to participate in the Food & Housing Insecurity Survey and would like to thank all of you who have already responded to our survey. So far, about 300 survey responses were received and we are hoping to get more survey responses so we can get a genuine snapshot of what students are experiencing. If you have not yet participated, please take a few minutes to do so by following the hyperlink below.

The Food & Housing Insecurity Survey is part of an initiative to gather university-level baseline data regarding resources available to students who need assistance meeting their food, housing, or other basic needs.

https://stcloudstate.co1.qualtrics.com/jfe/form/SV_0IKrgaRRLS6zPSd

Dr. Sheila Moriarty
Assistant Professor, Social Work
232 Stewart
320-308-2127
smmoriarty@stcloudstate.edu

Office hours:
Tuesdays/Thursdays: 11-2 p.m.
Mondays/Wednesdays 11-12:30, 3:30-5 p.m.
Please email for appointment

Appendix C: IRB Approval



Institutional Review Board (IRB)

720 4th Avenue South AS 210, St. Cloud, MN 56301-4498

Name: Sheila Moriarty
Email: smmoriarty@stcloudstate.edu

IRB PROTOCOL DETERMINATION: **Expedited Review-1**

Co-Investigator: Eunsun Kwon, Taylor Richards

Project Title: Study on Food and Housing Insecurity at St. Cloud State University

The Institutional Review Board has reviewed your protocol to conduct research involving human subjects. Your project has been: **APPROVED**

Please note the following important information concerning IRB projects:

- The principal investigator assumes the responsibilities for the protection of participants in this project. Any adverse events must be reported to the IRB as soon as possible (ex. research related injuries, harmful outcomes, significant withdrawal of subject population, etc.).
- For expedited or full board review, the principal investigator must submit a Continuing Review/Final Report form in advance of the expiration date indicated on this letter to report conclusion of the research or request an extension.
- Exempt review only requires the submission of a Continuing Review/Final Report form in advance of the expiration date indicated in this letter if an extension of time is needed.
- Approved consent forms display the official IRB stamp which documents approval and expiration dates. If a renewal is requested and approved, new consent forms will be officially stamped and reflect the new approval and expiration dates.
- The principal investigator must seek approval for any changes to the study (ex. research design, consent process, survey/interview instruments, funding source, etc.). The IRB reserves the right to review the research at any time.

If we can be of further assistance, feel free to contact the IRB at 320-308-4932 or email ResearchNow@stcloudstate.edu and please reference the SCSU IRB number when corresponding.

IRB Chair:

Dr. Benjamin Witts
 Associate Professor- Applied Behavior Analysis
 Department of Community Psychology, Counseling, and Family Therapy

IRB Institutional Official:

Dr. Latha Ramakrishnan
 Interim Associate Provost for Research
 Dean of Graduate Studies

OFFICE USE ONLY

SCSU IRB# 854 - 2424	Type: Expedited Review-1	Today's Date: 2/26/2019
1st Year Approval Date: 2/26/2019	2nd Year Approval Date:	3rd Year Approval Date:
1st Year Expiration Date: 2/25/2020	2nd Year Expiration Date:	3rd Year Expiration Date:

Appendix D: Letter of Support for Use of Data**ST. CLOUD STATE UNIVERSITY**

DEPARTMENT OF SOCIAL WORK
231 Stewart Hall, 720 Fourth Avenue South
St. Cloud, MN 56301-4498
Tel: 320-308-1608
Email: ekwon@stcloudstate.edu

September 30, 2019

Dear St. Cloud State University Institutional Review Board,

I have been asked to provide a letter of support for Taylor Richards who is submitting the IRB Protocol form on Existing Data for her thesis research. Currently, I am working as an Assistant Professor in the Department of Social Work at St. Cloud State University. For the last two semesters, I have worked with her on several projects and taught her two social work Masters courses including Research Methods. I believe I know her fairly well enough to feel confident to recommend her to have an approval of data access and management.

The Existing Data was collected via Qualtrics in March 2019 and the respondents were SCSU students who were invited to participate in the survey on food and housing insecurity and voluntarily completed the survey without providing identifying information. Taylor was involved in all the procedures such as survey design and data collection (e.g., creating and finalizing survey questionnaire, revising Qualtrics questionnaire, and monitoring survey responses through Qualtrics).

From my experience with Taylor in my courses and projects, she clearly has demonstrated her ability to carry out following sound ethical principles in her academic work. As a co-principal investigator of the data on food and housing insecurity, I agree that Taylor Richards's thesis research may be conducted using this existing data.

With appreciation for your consideration,

A handwritten signature in cursive script that reads "Eunsun Kwon".

Eunsun Kwon, PhD, MSW, LGSW
Assistant Professor
Department of Social Work at St. Cloud State University