The Relationship Between Food Insecurity and Financial Behaviors Among Undergraduate College Students

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Authorization to Submit Thesis

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Abstract

Research indicates that college student food insecurity is prevalent in institutions of higher education in the United States, often at rates higher than the respective state rate (Chaparro, Zaghloul, Holck, & Dobbs, 2009; Morris, Smith, Davis, & Null, 2016; Patton-Lopez, Lopez-Cevallos, Canel-Tirado, & Vezquez, 2014). Food insecurity negatively affects many areas of students' lives including academic performance and achievement (Patton-Lopez et al., 2014; Silva et al., 2017) and feelings of social awkwardness and isolation (Henry, 2017). The Ohio State University's Study on Collegiate Financial Wellness surveyed undergraduate students at a public institution in the Pacific Northwest to determine if food insecurity is prevalent, and if it is significantly associated with college student financial management behavior and financial self-efficacy. Chi-Square and logistical regression results showed that food insecurity is significantly associated with both positive and negative financial management behaviors and self-efficacy. Limited research has been conducted to analyze the relationship between college student food insecurity and financial behaviors, however this study contributes to the literature by bridging gaps in understanding regarding the relationship between food insecurity and financial behaviors in this population.

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Chapter 1

Introduction

Overview

Over the last ten years, institutions of higher education across the United States have become increasingly aware of college student food insecurity on their campuses. The old adage that college students are surviving off of Top Ramen® and free pizza is very real for some students–some going so far as taking sauce packets from campus cafeterias in order to satisfy hunger pangs (Henry, 2017). There is a perception in our society that students should experience financial struggles and, more specifically, experience food insecurity as part of the normal college experience (Henry, 2017). However, these struggles can greatly and negatively impact academic and non-academic student life.

Food insecurity, defined as "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (United States Department of Agriculture, Economic Research Service, 2018), negatively impacts academic performance and mental health. Low GPA (Patton-Lopez et al., 2014), withdrawing from courses, and failing to register for more courses (Silva et al., 2017) have been significantly associated with being food insecure. Other academic responsibilities, such as purchasing course textbooks and attending class have also been forfeited or interrupted by food insecurity (Dubick, Mathews, & Cady, 2016). Student mental health is also compromised, with depression and anxiety reported by food insecure students more than twice as often compared to food secure students (Freudenberg et al., 2011).

Contrary to the fact that a large majority of traditional college students (aged 18-24) are relatively financially inexperienced compared to older adults (Chen & Volpe, 1998), students generally display practical, responsible money management strategies (Sallie Mae & Ipsos, 2016). Food insecure students are no different–often reporting deprioritizing spending on food in order to pay other bills (Hagedorn & Olfert, 2018; Henry, 2017), such as rent and utilities.

College students also display positive financial self-efficacy in that they feel confident in their financial management skills (Sallie Mae & Ipsos, 2016).

There is stigma related to food insecurity. Food insecure students often report feeling shameful that they cannot acquire food for themselves (Henry, 2017). Feelings of social awkwardness and embarrassment, and the inability to participate in entertainment with friends, such as going out to eat, are reported by food insecure students (Henry, 2017). Stigma and shame have even been reported as barriers to accessing food related resources (Henry, 2017), reinforcing food insecurity status.

Statement of the Problem

College students are struggling with food insecurity due to inadequate financial resources to obtain food. Implications of food insecurity during a student's academic career include stress (ACHA, 2018) and academic interference (Silva et al., 2017). Although students seem to display responsible financial behaviors (Sallie Mae & Ipsos, 2016), little research has been conducted to determine whether potentially risky or negative financial management behaviors exhibited by college students are related to their food insecurity status.

Purpose Statement

The purpose of this study is to contribute to the body of literature on college student food insecurity and to determine if a relationship exists between food insecurity and financial management behavior, having emergency savings, and financial self-efficacy.

Significance

Limited research has been conducted to analyze the relationship between college student food insecurity and financial behaviors. College student financial behaviors have been researched; however this study will help bridge gaps in understanding regarding the relationship between food insecurity and financial behaviors in this population. This study will provide insight for students, parents, and administrators of institutions of higher education to better understand

and increase awareness of how financial management behavior influences college student food insecurity.

Research Objective

This study aims to answer three questions related to college student food insecurity and financial behaviors and thus add to the literature on collegiate food insecurity:

i. Are the students who are food insecure displaying negative financial management behaviors?

ii. Are food secure students more likely to have emergency savings than food insecure students?

iii. Is student food insecurity negatively impacting their academic performance?

Summary

Chapter one provides a short overview of the literature related to student food insecurity and financial behaviors, the issue this study aims to address, and the purpose, significance, and objective of this study. Chapter two includes an in-depth review of the current body of research on the topics of food insecurity, food insecurity among college students, demographic factors associated with food security, food insecurity impacts on health and academics, college student financial wellness and money management, and the connections between collegiate food insecurity and money management. Chapter three details the methodology utilized for this study, including the design and statistical analyses. Chapters four presents study results, including descriptive statistics, Chi Square, and regression results. Chapter five includes a discussion of the results in context of the larger body of research, particularly the connections between demographic variables, financial management behaviors, self-efficacy in financial matters, and food security status. Chapter five then concludes with suggestions for future directions, implications for institutions of high education, and limitations of the study.

Chapter 2

Review of the Literature

Food Insecurity

Household food insecurity among college students is an emerging issue nationwide. Although the United States Department of Agriculture (USDA) has conducted household food security measures since 1995 (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2018), the collegiate population has rarely been purposefully sampled. Many college students are suffering from food insecurity, often at a rate higher than the general population (Chaparro, Zaghloul, Holck, & Dobbs, 2009; Morris, Smith, Davis, & Null, 2016). A recent study at a rural, midsize Pacific Northwest university found that food insecurity affected 59% of students (Patton-Lopez, Lopez-Cevallos, Canel-Tirado & Vezquez, 2014).

Definition and Cause

United States Department of Agriculture Economic Research Service (USDA ERS) categorizes food security into four levels: *high*, *marginal*, *low*, and *very low* food security status (2018). *High* food security status involves no indication of food access problems, and *marginal* food security status includes indicators of food insecurity, including anxiety about food shortage (USDA ERS, 2018). *Low* food security status is applied when a person's diet is reduced in quality, variety, or desirability, but there is no indication of reduced food intake (USDA ERS, 2018). At this stage, a person may adjust their budget to afford food, such as buying less expensive frozen or canned fruits instead of pricier fresh fruits. *Very low* food security results in reduced food intake (USDA ERS, 2018) in the form of skipping or stretching meals due to lack of food. This level is often referred to as *food insecurity with hunger*. The term *food insecurity* combines the levels *low* and *very low* food security. The USDA ERS defines food insecurity as "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (2018). Table 1.1 provides a visual hierarchy of the USDA's food security levels.

Table 1.1: Food Security Levels

USDA Status	Food Security Level
"Food Secure"	High
	Marginal
"Food Insecure"	Low
	Very Low

National and Local Data

The United States Census Bureau conducts the annual food security survey by asking one adult respondent per household about experiences that indicate food insecurity (Coleman-Jensen et al., 2018). In 2017, the Census Bureau reached 37,389 households, comprising a representative sample of 127 million U.S. households (Coleman-Jensen et al., 2018). From these survey results, the USDA Economic Research Service determined 11.8% of U.S. households are food insecure (Coleman-Jensen et al., 2018). Of those households, 7.3% were at low food security status, and 4.5% were at very low food security status (Coleman-Jensen et al., 2018). Although the national rate of food insecurity has decreased since 2016 (12.3%), the difference is minor (0.5%) (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). The rate of food insecurity for the state of Idaho is near the national average at 11% of households, with 4.0% experiencing very low food security in 2017 (Coleman-Jensen et al., 2018).

Feeding America, a national non-profit network dedicated to hunger relief (https://www.feedingamerica.org), provides county-level food security data specific to each state. In 2016, Map the Meal Gap reported a statewide food insecurity rate of 13.2% for the state of Idaho (Feeding America, 2016). Latah County, which includes a land-grant university, had the highest food insecurity rate for any Idaho county at 17.5%, with 51% of the county population falling below 130% of the federal poverty line (Feeding America, 2016). Map the Meal Gap's food insecurity rates are determined using data from the 2001-2016 Current Population Survey on individuals in food insecure households, and poverty rates are determined from the 2016 American Community Survey (Feeding America, 2016).

Race and Gender

Among those who are food insecure, racial and gender disparities exist. Nationally in 2017, women living alone and men living alone experienced food insecurity at 13.9% and 13.4% respectively, with slightly more women experiencing very low food security (7.0%) compared to men (6.5%) (Coleman-Jensen et al., 2018). In a study of adults conducted by Hernandez, Reesor, and Murillo (2017), a greater percentage of food insecure women were overweight or obese compared to food secure men in all race and ethnicity categories. Hernandez et al. (2017) also found that food insecurity was most prevalent among African American and Hispanic people, regardless of their gender. Differences between men and women in self-rating and self-reporting food insecurity may be attributed to distribution of household work, such as grocery shopping and/ meal preparation, and may explain why low food security is more prevalent in women than men (Hernandez et al., 2017). Hernandez et al. notes, traditionally, men have not been in charge of food shopping and meal preparation. Therefore, men may not be aware of the severity of food insecurity women are aware of, ultimately leading to differences in reporting (2017).

Contributing Factors

The primary cause of food insecurity is the lack of monetary resources to obtain food (USDA ERS, 2018). Inadequate financial resources can lead to prioritizing other expenses over food. Feeding America (2014) surveyed over 60,000 clients of food programs and found that 69% had to choose between paying for food and paying for utilities, 66% had to choose between food and medical care, and 31% had to choose between food and education. These findings suggest that spending on food becomes deprioritized as a strategy that allows for more money to pay other necessary bills. Notably, 41% of the households surveyed have an adult member with a post-high school education, and one in ten adult clients are currently enrolled at a university, college, or community college (Feeding America, 2014).

Coping Strategies

Coping mechanisms like stretching one meal into two, skipping meals completely, and buying cheaper and less healthful foods are strategies often employed by food insecure people. Feeding America (2014) found that 55% of households reported using three or more coping strategies in the past year, with purchasing inexpensive and unhealthy food being the most utilized strategy (79%). Other strategies include receiving help from family or friends (53%), watering down drinks and foods (40%), selling or pawning personal property (35%), and growing food in a garden (23%) (Feeding America, 2014).

Food Security Among College Students

Food insecure college students report constant preoccupation with finding their next meal, and define food insecurity as "always wondering when you're going to get food and how much" (Henry, 2017). There is a societal perception that struggling with the ability to feed oneself while pursuing higher education is normal, that students should experience low or very low food security, struggle to get by, and eat cheap, energy-dense and nutrient-poor foods during college as a rite of passage (Henry, 2017). This attitude is so engrained that several food insecure students cited belief in this stereotype as a major reason why parents did not contribute financial or food aid to their student children (Henry, 2017).

The prevalence of food insecurity among college students has been found to range from 14% to 59% at institutions of higher education in the United States (Chaparro et al., 2009; Dubick, Mathews, & Cady, 2016; Freudenberg et al., 2011; Gaines, Robb, Knol, & Sickler, 2014; Hagedorn & Olfert, 2018; Patton-Lopez et al., 2014; Silva et al., 2017). The factors contributing to food insecurity among college students are similar to those of the general population, ultimately due to lack of resources to obtain food. Lack of financial aid and/or family support and an event that causes financial strain (Henry, 2017) can result in food insecurity for many college students.

Although the issue of collegiate food insecurity is gaining awareness, stigma still exists. Both food secure and food insecure students have agreed that food insecurity is silent and

faceless, an issue not discussed even with friends (Henry, 2017). The shame of not being able to provide for oneself deters students from going out with food secure friends, accessing resources such as the Supplemental Nutrition Assistance Program (SNAP), and local and community resources (Henry, 2017). When food insecure students do utilize available sources of assistance, they are more likely to use campus resources rather than community food banks as they feel they are not taking away from someone in the community who needs that resource more than they do (Henry, 2017), indicating that guilt reinforces students' food insecurity status.

Coping strategies among food insecure college students include relying on cheap fast food, sharing food with roommates, suppressing hunger with excessive fluid intake, and downsizing meals (Henry, 2017). Other strategies to obtain the financial means necessary to purchase food include donating plasma, getting second jobs, and going so far as to steal (Henry, 2017). A few participants in Henry's study (2017) explained they intentionally did not pay some bills in order to buy food. Similar results from a study conducted by Payne-Sturges, Tjaden, Caldeira, Vincent, and Arria (2018) found that in the previous twelve months, food insecure students reported the inability to eat balanced meals (80%), the need to eat less (69%), and being hungry (69%) because they did not have enough money for food.

Demographic Factors Associated with Food Security

Race

At the University of Hawaii at Manoa, where food insecurity is reported among 45% of students, Hawaiian or Pacific Islander students have experience food insecurity at a rate thirteen times that of their Japanese student peers (Chaparro et al., 2009). In a study conducted at the City University of New York (CUNY), researchers found that almost 40% of students experienced food insecurity in 2010 and that African American and Latino students were 1.5 times more likely to be food insecure than White and Asian students (Freudenberg et al., 2011).

A study conducted by four campus-based organizations–the College and University Food Bank Alliance, the National Student Campaign Against Hunger and Homelessness, the Student

Government Resource Center, and the Student Public Interest Research Groups–collected data from 34 community college and university campuses. They found that 48% of students were food insecure in the previous 30 days, with 22% experiencing hunger (Dubick, Mathews, & Cady, 2016). African American students (57%) reported experiencing food insecurity at a greater rate than non-Hispanic White students (40%) (Dubick, Mathews, & Cady, 2016).

Similarly, African American students from a sample of undergraduates at a mid-Atlantic university were significantly more likely to report food insecurity than White students, with 31% of the overall student body reporting food insecurity (Payne-Sturges et al., 2018).

Living Arrangement

During the fall semester of 2017, The American College Health Association (ACHA, 2018) surveyed over 26,000 students at 52 different institutions and found that the majority of college students were living in on-campus residence halls (47.1%), followed by living in off-campus housing (27.1%) and living with a parent or guardian (12.5%). Table 1.2 displays the living arrangements of college students responding to that survey.

Table 1.2: Living Arrangements of College Students

Type of housing	Percentage
Campus residence hall	47.1%
Fraternity or sorority house	1.8%
Other university housing	7.4%
Parent/guardian home	12.5%
Other off-campus housing	27.1%
Other	4.0%

American College Health Association, 2018

Rates of student food insecurity are associated with living arrangement. Off-campus housing is associated with low food security in college students (Hagedorn & Olfert, 2018; Knol, Robb, McKinley, & Wood, 2017; Morris et al., 2016). Living off-campus is most often defined as not living in university housing or in Greek housing. Specifically, living off-campus without

parents or guardians or with roommates is associated with low and very low food security status but living off-campus and with a parent or guardian is associated with higher food security status (Chaparro et al., 2009). No significant association between food security status and living arrangement was found by Patton et al. (2014). For food insecure students attending University of Hawaii at Manoa, additional years of residency in Hawaii were found to decrease the odds of food insecurity (Chaparro et al., 2009).

Student food insecurity is often accompanied with housing insecurity. Dubick, Mathews, and Cady (2016) found that 64% of food insecure students also reported experiencing some type of housing insecurity, a term the authors define as "difficulty paying the rent, mortgage, or utility bills," and that 15% of students had experienced homelessness in the previous 12 months. Nearly a quarter of students at CUNY reported both food and housing insecurity (Freudenberg et al., 2011).

Students reported that difficulties in their living arrangements contributed to their food insecurity (Henry, 2017). Eleven out of twenty-seven participants in Henry's study (2017) admitted sleeping on someone's couch, however the most frequently reported solution to housing insecurity was to sleep in a vehicle parked on campus.

Silva et al. (2017) conducted a study at the University of Massachusetts-Boston and found that one in four students had experienced food insecurity in the previous year, with 6.4% of students reporting such severe food insecurity that they *often* or *sometimes* did not eat for one or two days because they did not have enough money for food. This same study also concluded that 47.6% of students were *somewhat* to *very* affected by housing insecurity, while 5.4% of the student body had experienced homelessness while attending UMass-Boston, and 4.3% felt unsure if they could continue to sleep in the same place that they had slept in the previous night for the next two weeks (Silva et al., 2017).

Academic Status and Calendar

A student's academic-year status influences food insecurity status. One-third of students attending an Appalachian university were found to be food insecure, with the highest prevalence experienced by sophomore and junior students (Hagedorn & Olfert, 2018).

Bruening, Woerden, Todd, and Laska (2018) conducted a study of college freshmen's nutrition habits while living in the residence halls of a metropolitan university that requires purchase of meal plans for first-year students living in on-campus housing. With data collected at the start and end of fall and spring academic calendars, the researchers found that the prevalence of food insecurity was significantly higher at the end of the first and second semesters compared to the start of the first semester Bruening et al. (2018). These findings suggest that food insecurity is likely to occur at the end of academic semesters for freshmen living on campus when meal plans are spent down.

Employment

Interestingly, increased student food insecurity is found to be associated with working part time jobs. Patton-Lopez et al. (2014) found that employed students were almost twice as likely to report experiences with food insecurity. Similarly, CUNY students who worked more than 20 hours each week had a higher rate of food insecurity than students who did not work (Freudenberg et al., 2011). This finding suggests that students who do not have to work are being financially provided for in other ways.

Likewise, food insecurity is associated with working part time in Dubick, Mathews, and Cady's study (2016). Of the food insecure students, 56% reported having a part time job, with 38% of those students reporting working 20 hours or more per week (Dubick, Mathews, & Cady, 2016). Contrary to employment being associated with student food insecurity, employment has also been noted as an option to increase food access among food insecure students. One student in Henry's study (2017) worked at a fast food restaurant on campus in order to receive one free meal a day, guaranteed.

Food Insecurity Impacts on Health

Physical Health

A strong correlation exists between food insecurity and chronic health conditions, diseases that last a year or more and are typically preventable. While income has been found to be significantly associated with hepatitis, arthritis, and chronic obstructive pulmonary disease (COPD), a report published by Gregory and Coleman-Jensen (2017) found that for the general population, food insecurity is significantly associated with ten chronic diseases: hypertension, coronary heart disease, hepatitis, stroke, cancer, asthma, diabetes, arthritis, COPD, and kidney disease. As food security worsens, the likelihood of having a chronic condition increases. (Gregory and Coleman-Jensen, 2017).

Food insecurity has been found to be related to fair or poorly rated health among self-reporting college students (Freudenberg et al., 2011; Hagedorn & Olfert, 2018; Patton-Lopez et al., 2014; Payne-Sturges et al., 2018), including those living off-campus (Knol, Robb, Mckinley, & Wood, 2017). Adequate nutrition is important to maintain a healthy weight, reduce risk of chronic disease, and promote overall health (www.hhs.gov, 2019). The United States Department of Health and Human Services recommends a diet rich in fruits and vegetables, whole grains, and lean proteins (www.hhs.gov, 2019). Mirabitur, Peterson, Rathz, Matlen et al. (2016) found that among students living in housing without food provision, male students, and students without access to a vehicle were more likely to be food insecure and to consume fewer daily servings of fruits and vegetables compared to their food secure counterparts. Students who rarely consume a regular breakfast or home-cooked meal are significantly more likely to report food insecurity, while eating healthy off-campus is inversely related to food insecurity (Bruening, Brennhofer, Woerden, Todd, & Laska, 2016). These findings align with others, suggesting that food insecurity is associated with students who do not regularly consume an evening meal, who do not regularly consume breakfast, and who have unhealthy eating habits on campus (Bruening et al., 2018).

Mental Health

Not only does food insecurity negatively impact physical health, but mental health can be compromised also (Payne-Sturges et al., 2018). Poor mental health status among college students is not uncommon, with depression and stress being two major factors in mental health of college students. The ACHA (2018) reported that stress negatively impacted academic performance of 33.5% of college students in the fall semester of 2017. Impact on academic performance is defined as "received a lower grade on an exam, or an important project; received a lower grade in the course; received an incomplete or dropped the course; or experienced a significant disruption in thesis, dissertation, research, or practicum work." (ACHA, 2018).

Food insecure students report more frequent depression than food secure students (Payne-Sturges et al., 2018). At CUNY, students who reported feelings of depression were more than two times as likely to be food insecure (Freudenberg et al., 2011). Bruening et al. (2018) found that food insecure freshman students were two times more likely to experience stress and depressed mood, with higher rates of anxiety being reported by food insecure students as well. Stuff, Casey, Szeto, Gossett, Robbins et al. (2004) found more than one-fifth of participants in their study were food insecure and reported poorer physical and mental health status, compared to their food secure counterparts.

Results from a study conducted by Lin et al. (2013) indicated that when compared to their food secure peers, food insecure undergraduate women at historically Black colleges and universities were significantly more likely to report lower self-esteem and higher rates of drug use and conflict with partners within the previous month.

Food Insecurity Impacts on Academics

Academic Performance

Food insecurity negatively impacts academic performance and achievement, and retention. According to Silva et al. (2017), one out of four students at the University of Massachusetts-Boston experience food insecurity, ranging from *sometimes* or *often* worrying about having enough money to buy food and/or skipping meals entirely. Silva et al. (2017) also

found that students who had experienced food insecurity were nearly 15 times more likely to have failed courses, and six times more likely to have withdrawn or failed to register for more courses.

Likewise, Patton-Lopez et al. (2014) found food insecurity to be associated with lower academic performance in a midsize, rural university in Oregon; students who reported experiencing food insecurity were less likely to report a grade point average (GPA) higher than 3.1 compared to students who were food secure. Morris et al. (2016) also determined that students with a 3.0 GPA or higher had the best food security profile. Food insecure students at an Appalachian university were found to have lower GPAs (3.1) compared to food-secure students (3.4) (Hagedorn & Olfert, 2018). Out of 27 food insecure college students in one study, eight participants reported a drop in grades due to hunger as well as difficulty in concentrating on academics (Henry, 2017).

Similarly, Dubick, Mathews, and Cady (2016) found that because of experiences with food and housing insecurity, 55% of students reported not purchasing a required textbook, 53% reported missing a class, and 25% of students reported dropping a class altogether. Fully 81% of food or housing insecure students reported that they had 'Not perform[ed] as well in [their] academics as [they] otherwise could have' (Dubick, Mathews, & Cady, 2016).

These findings suggest that food insecurity is an academic interruption, with consequences ranging from incomplete course preparation (Dubick, Mathews & Cady, 2016) to withdrawing from a course altogether (Silva et al., 2017). Implications of failing or withdrawing from courses could alter the progress towards degree completion, ultimately delaying graduation (Silva et al., 2017).

College Student Financial Wellness

Deciding to attend college as a young adult is a major life transition coupled with a sharp increase in financial responsibility. College students are a unique population as they are relatively financially inexperienced, in the early stages of the financial life cycle, and possess relatively minimal financial knowledge (Chen & Volpe, 1998). Young adult college students typically fail

(Chen & Volpe, 1998; Sallie Mae & Ipsos, 2016) or nearly fail (Robb, 2011; Sages, Britt, Cumbie, 2013) financial knowledge tests. However, even with gaps in their financial knowledge and a lack of experience, most college students are aware of their finances and exhibit financially responsible behaviors (Sallie Mae & Ipsos, 2016).

Student Financial Self-Efficacy

Self-efficacy is defined as being able to handle a situation successfully in order to generate a beneficial, positive outcome on individual well-being (Bandura, 1982). Generally, college students feel content in their money management skills. When asked to self-rate their management skills, 41% of students felt *good*, 29% felt *average*, and 24% felt *excellent*, and only 6% self-rated their skills as *not very good* or *poor* (Sallie Mae & Ipsos, 2016). Among students who have a credit card, 26% rated themselves as *excellent* at money management; comparably, only 20% of students without a credit card rated themselves as *excellent* at managing their money (Sallie Mae & Ipsos, 2016).

Students from middle-income families are more confident than students from low- and high-income families in their money management skills (Sallie Mae & Ipsos, 2016). Over a quarter (27%) of middle-income students rated their skills as *excellent*, compared to 19% students from low-income families and 21% of students from high-income families (Sallie Mae & Ipsos, 2016). Students from low-income families more often ranked their skills as *poor* (4%) compared to students from middle- and high-income families (both at 1%) (Sallie Mae & Ipsos, 2016).

Older students (aged 23-24) rated their skills as *excellent* (31%) more often than did younger students (both age groups 18-20 and 21-22 at 21%), suggesting that time and experience with finances increases one's sense of money managing know-how. This finding aligns with results of previous research conducted by Chen and Volpe (1998) in that students in their first or second year of college and students under the age of 30 tend to be less financially knowledgeable than upperclassmen and students over the age of 40. Age was significantly related to budgeting, with 100% of students aged 36-40 *mostly* following a budget compared to 11.1% of students aged

21-25, and 26.3% of students aged 26-30 (Henry, Weber, & Yarbrough, 2001). Additionally, males (29%) are more likely than females (19%) to feel confident in their financial management skills (Sallie Mae & Ipsos, 2016).

College Student Money Management

Spending

Typically, college students aged 18-24 make purchases with a debit card, a payment method that transfers money from a bank account to another account during a payment; 85% of college students own at least one (Sallie Mae & Ipsos, 2016). Debit cards are most often used for purchases including out-of-home entertainment, in-store when the total is more than $20, and online (Sallie Mae & Ipsos, 2016). While 86% of students carry cash, paying with cash most often occurs in students aged 18-20 (Sallie Mae & Ipsos, 2016). Cash is used as often as debit is used when dining out (Sallie Mae & Ipsos, 2016).

Planning spending as a financial management behavior was found to be done most often in married, female, and off-campus students (Hayhoe, Leach, Turner, Bruin, & Lawrence, 2000). Over half of students in Sallie Mae and Ipsos' study (2016) tracked their spending (56%) and never spent more than they had (60%). Only 4% of students reported not practicing any good money management habits or that they did not know how to manage their finances (Sallie Mae & Ipsos, 2016). A study done by Sages et al. (2013) found that two spending behaviors are associated with anxiety in college students: spending beyond earnings and reaching the maximum spending limit on credit cards. These inherently negative financial management behaviors carry consequences like increased debt and interest charges.

Two-thirds of food insecure students reported having jobs to cover basic needs expenses. They also reported that rent, bills, and school expenses were paid first, and then any remaining money was used for food (Henry, 2017). One-third of students in Henry's study (2017) budgeted for food on a weekly or monthly basis.

Credit Cards

There is a perception that college students manage their finances poorly and that poor management enables debt accumulation in this population. College students have been bombarded by credit card companies due to their unique status as consumers. Although they have limited income during college, they have the potential for much higher earnings after graduation (Robb, 2011), and are likely to remain loyal as a credit card holder (Hayhoe et al., 2000). Credit cards provide convenience (Robb, 2011) and, for some, are a means to pay for higher education (Sallie Mae & Ipsos, 2018). Credit cards paid for 1% of college costs for both parents and students for the 2017-18 school year (Sallie Mae & Ipsos, 2018).

Sallie Mae and Ipsos (2016) report the number one reason students obtain a credit card is to begin building their credit history, suggesting that students are aware of the importance of credit in terms of their financial futures. Credit cards are a primary method of payment for college students aged 23-24 (Sallie Mae & Ipsos, 2016). Juniors and seniors use credit cards more often than freshman do, especially for purchases totaling more than $20 (Sallie Mae & Ipsos, 2016). This difference could be due to the increased likelihood of older college students having more financial experiences in general, and needing access to a credit card in order to pay online rent and utility bills compared to younger college students (Sallie Mae & Ipsos, 2016). Students are generally aware of how much money they owe and pay off their credit cards in full each month (Sages, Britt, & Cumbie, 2013).

Gender

There are distinct differences in how male and female college students manage finances. Female students' behaviors regarding credit card usage is inconclusive according to the literature. Women have been found to engage in risky behaviors such as making only the minimum payment and being less likely to pay off a credit card balance (Robb, 2011), however Sallie Mae and Ipsos (2016) found that 89% of women pay more than the minimum or all of their credit card balance each month. Further, being female was not associated with making minimum payments (Hayhoe et al., 2000). Women have been found to be less financially knowledgeable than men

(Chen & Volpe, 1998), however this finding is in direct contrast with another finding that women are more likely to answer credit questions correctly (Sallie Mae & Ipsos, 2016). Compared to men, women are more likely to never spend more than they have, track their spending, never overdraft, and save (Sallie Mae & Ipsos, 2016). Similar results from Henry, Weber, and Yarbrough (2001) indicated that while only 42% of the sample had a written budget, women (35%) were more likely than men to have a budget (10%).

Women are also more likely to exhibit positive than negative financial behaviors, including following written lists when shopping, keeping bills and receipts, planning spending, and saving regularly (Hayhoe et al., 2000). In the study conducted by Hayhoe et al. (2000), being female was associated with being more likely to say they wrote a check while having insufficient funds. In this same study, female students reported experiencing a higher number of financial stressors when utilizing fewer financial practices (i.e. writing a budget, planning spending). Overall, findings related to female money management are mixed and further analysis is needed.

Male students are more likely than female students to have a credit card and to carry a higher balance (Sallie Mae & Ipsos, 2016), which aligns with existing research findings. For example, men have been found to be more likely to reach the credit limit on their credit cards compared to women (Sages, Britt, & Cumbie, 2013). When choosing a credit card, men are more likely than women to consider a card with a high limit (Sallie Mae & Ipsos, 2016). Men have been found to carry a credit card balance almost double a woman's balance, and men (28%) are less likely than women (33%) to correctly answer questions about credit (Sallie Mae & Ipsos, 2016).

Rising Tuition Costs

Average published tuition and fee prices rose by $2,670 between 2008-09 and 2018-19 at public, four-year institutions (College Board, 2018). The average published in-state tuition and fees within the public, four-year sector was $10,230 in 2018-19, up 2.5% before adjusting for inflation from 2017-18 (College Board, 2018). Over the last two decades, the average price of

tuition for public four-year institutions, in inflation-adjusted dollars, has tripled compared to 1988-89 costs. (College Board, 2018). For the 2018-19 academic year, the average out-of-state tuition and fee prices at public four-year institutions in ten state across the nation are more than three times the in-state tuition prices (College Board, 2018).

Paying Tuition and Fees

A study done by Sallie Mae and Ipsos (2018) analyzed how and by whom college costs are being paid. Parents are, more often than not, involved; 39% of parents reported they are making the sole decision on how to pay for their student child's college education, compared to 24% of students making that decision alone, and 37% of parents and students sharing the decision (Sallie Mae & Ipsos, 2018). For the 2017-18 school year, families spent an average of $26,458 on undergraduate education (Sallie Mae & Ipsos, 2018).

Three general categories of funds paid for education in the 2017-2018 academic year: family income, scholarships and grants, and loans. Parents covered 44% of the cost of undergraduate education in the 2017-2018 academic year by contributing both income and savings, compared to student income and savings covering 13% of the cost (Sallie Mae & Ipsos, 2018).

Scholarships and Grants

External resources such as scholarships and grants covered 28% of college costs, compared to borrowing at 24% (Sallie Mae & Ipsos, 2018). Dubick, Mathews, & Cady found that 75% of food insecure students received some form of financial aid, with 52% of those students receiving Pell grants (2016), a grant awarded to undergraduates who have not earned a bachelor's, graduate, or professional degree and display exceptional financial need (studentaid.ed.gov, 2019). Pell grants do not require repayment, except in specific circumstances, including change in enrollment status, withdrawing, or receiving other financial aid that would reduce the need for a Pell grant (studentaid.ed.gov, 2019). Sallie Mae and Ipsos (2018) report that

grant aid paid 11% of costs for the 2017-18 school year. Pell grant recipients are significantly more likely to be food insecure than non-Pell grant recipients (Bruening et al., 2018).

Loans

To cover higher education costs, students borrowed more loans than parents did in 2017-2018, with 14% of the cost of college paid for by student loans and 10% by parent loans, averaging $3,833 (Sallie Mae & Ipsos, 2018). More than half of loan funding came from federal student subsidized and unsubsidized loans such as Direct, Stafford, Perkins, and Parent PLUS (Sallie Mae & Ipsos, 2018). Having a student loan has been found to be negatively associated with actual knowledge regarding how much money a loan recipient will owe upon graduation or leaving school (Sages, Britt, & Cumbie, 2013).

Collegiate Food Insecurity and Money Management

College student spending behavior associated with food insecurity is sparsely reported upon in the literature. Chaparro et al. (2009) found that money spent on housing, cell phone bills, and a one-time large expense did not differ between food secure and insecure students, however the risk of food insecurity increased when spending on entertainment, eating out, and shopping increased. Coping behaviors, all of which can lead to students de-prioritizing food spending, were prevalent among food insecure students at one Appalachian university. Specifically, students reported spending more money on non-food expenses, such as rent, and in utilizing money-saving strategies in order to afford food, such as changing eating habits and cutting back on activities (Hagedorn & Olfert, 2018). Notably, students who reported a higher degree of budgeting behavior, such as tracking their spending, were more likely to indicate being food insecure (Gaines et al., 2014).

Food insecure students report practical spending behaviors when buying food. Students report saving money by buying inexpensive foods in bulk, at grocery stores considered to be low-cost or bargain stores. However, students were concerned about the quality and safety of the food they were buying (Henry, 2017). Students reported purchasing cheap foods that are quick and

easy to prepare, such as rice, beans, pastas, and peanut butter and jelly for sandwiches (Henry, 2017). One student wished to consume healthier foods like fruits and vegetables, however, strained finances as well as the shame connected to accessing local food pantry resources acted as barriers (Henry, 2017).

Students who received financial aid, who were financially independent, and who received some form of food assistance were significantly more likely to be food insecure (Gaines, Robb, Knol, & Sickler, 2014). However, alternative funding such as using credit cards and having familial financial support has been shown to be inversely associated with food insecurity (Gaines, Robb, Knol, & Sickler, 2014). These findings indicate that current financial aid is insufficient in meeting students' basic needs for food and housing, potentially pushing students to utilize extra financial support in order to make ends meet or avoid becoming food insecure.

Chapter 3

Methodology

The Study on Collegiate Financial Wellness (SCFW) is a survey developed by The Ohio State University Center for the Study of Student Life in 2017 and measures student financial wellness. The data set used in this research is obtained from The Ohio State University's SCFW. The purpose of this study is to assess the prevalence of food insecurity among undergraduate students at the University of Idaho and to determine if their food insecurity status is related to their financial management behaviors and self-efficacy. The institution's Institutional Review Board does not consider this research to be human subjects research. During the spring semester of 2017, 2,000 randomly selected undergraduate student email addresses were selected to receive the email invitation for the online survey. Students were offered the participation incentive of being randomly selected to win one of four gift cards to the institution's bookstore when they were invited to take the survey.

Design

Variables of interest in this study include student financial management behaviors, financial self-efficacy, food security status, and demographics. *Financial management behavior* is defined as either positive or negative. *Positive* behavior includes monitoring account balances, tracking spending, and planning purchases. *Negative* behavior includes engaging in potentially risky financial behavior such as making purchases the respondent cannot afford, making late payments, overdrawing bank accounts, and making impulse purchases. *Financial self-efficacy* is defined as the student's belief in their confidence or ability to achieve their financial goals. Definitions of all financial management behavior variables are found in Table 12, the definitions of all financial self-efficacy variables are found in Table 13, and definitions of all demographic variables are found in Table 14 of Appendix A.

Some variables were excluded or formatted to accommodate low responses in order to attain sufficient sample sizes. One such variable is age. Due to low responses, age categories '30-39' (n=10), '40-49' (n=6), '50-59' (n=2), and '60 or older' (n=0) for the variable *age* were excluded, leaving two categories in total: ages '18-23' (n=417), and ages '24-29' (n=46). The majority of the data fall in these two age categories which most strongly reflect the college age population. A full description of all variable formatting is found in Appendix D.

The Food Security on Campus module is an index that determines food security status from a raw score. A score of one indicates affirmative responses *often* or *sometimes* on questions 2 and 3; *yes* on questions 4, 6, and 7; and *almost every month* and *some months but not every month* on question 5. The sum of affirmative responses determines food security status. A raw score of 0-1 is high or marginal food security status. A score of 2-4 is low and a score of 5-6 is very low food security status. Any score between 2 and 6 is considered food insecure. Question 1 of the module was developed by The Ohio State University Center for the Study of Student Life and is not included in scoring.

Statistical Analysis

Initial Chi Square testing was conducted to test all variable associations to *food insecurity*. Significance was set at .05 for all testing. All variables with a significance of less than .05 were considered candidates to be included in a subsequent logistic regression model with *food insecurity*. Next, significant variables were grouped and compared with each other in crosstabulations to determine if they were related, and to avoid redundancy of variables in the logistical regression model. Three groups were formed: demographics, behavior, and self-efficacy variables. Candidate variables were then included in four different models, adjusting for age and gender, to avoid variable collinearity.

Chapter 4

Results

Descriptive Statistics

With a 24.1% response rate, 481 responses were collected at this institution. Of all participants (n=481), 63% were female, 35.6% were male. The majority of participants were White (88.2%), and aged 18-23 years (86.7%) with the mean age being 21.33 years. Three-quarters of students were considered residents and qualified for in-state tuition (75.2%), while 24.8% of students were considered non-residents and qualified for out-of-state tuition. Just over half of participants reported living off-campus (54.5%) and the remainder reported living on-campus (45.5%). The majority reported living with roommates (67.7%), and 15.3% of respondents reported living with a family member, and 9.8% reported living alone.

Participants reported working while attending school, with 77.2% of respondents working 20 hours a week or less, and 22.8% working 21 hours or more. Of participants who have completed the Free Application for Federal Student Aid, 59.4% reported having either been offered or have received a Pell grant. The majority of students reported a GPA 3.00 and above (77.1%), and 22.9% reported a GPA of 2.00 and below. Table 4.1 displays participant demographic variables not related to food insecurity or finances.

Table 4.1: SCFW Participant Demographics (n=481)

Variable	Percentage	n
Age		
18-23	86.7%	417
24-29	9.6%	46
30-39	2.1%	10
40-49	1.2%	6
50-59	0.4%	2
60 or older	0.0%	0
Gender		
Female	63.0%	303
Male	35.6%	171
Genderqueer/Gender Non-conforming	0.8%	4
Intersex	0.0%	0

Transgender Male/Transgender Man	0.0%	0
Transgender Female/Transgender Woman	0.0%	0
Preferred Identity (in addition to or not listed)	0.2%	1
Prefer not to state	0.4%	2
Race		
Asian American/Asian	4.9%	23
Black or African American	1.5%	7
Native Hawaiian or Other Pacific Islander	0.6%	3
Native American/American Indian/Alaskan Native	2.7%	13
Middle Eastern/Arab American	1.5%	7
White	88.2%	417
Other	0.2%	1
Prefer not to answer	1.7%	8
Tuition status		
In-state (resident)	75.2%	331
Out-of-state (nonresident)	23.0%	101
International (nonresident)	1.8%	8
Pell grant		
Yes	59.4%	253
No	36.6%	156
I don’t know	4.0%	17
Federal work study		
Yes	39.0%	166
No	58.0%	247
I don’t know	3.1%	13
Enrollment status		
Full-time	98.9%	448
Part-time	0.4%	2
Non-degree seeking	0.7%	3
Grade point average (GPA)		
0.00-0.99	0.0%	0
1.00-1.99	0.2%	1
2.00-2.99	22.7%	99
3.00-3.99	68.6%	299
4.00	8.5%	37
First generation student		
Yes	38.7%	185
No	60.9%	291
I don’t know	0.4%	2
Hours worked		
1-5	8.0%	21
6-10	25.5%	67

11-15	23.6%	62
16-20	20.2%	53
21-25	11.4%	30
26-30	4.2%	11
31-35	2.3%	6
36-40	3.0%	8
Over 40	1.9%	5
Living location		
On-campus in residence halls or college/university-owned apartment or housing	29.3%	128
On-campus in sorority or fraternity housing (e.g., floor within residence hall, college/university-owned apartment or housing)	16.2%	71
Off-campus in sorority or fraternity house or residence	3.4%	15
Residence within walking distance of campus (e.g., apartment or house not owned by university)	34.6%	151
Residence outside of walking distance of campus (e.g., apartment or house not owned by university)	16.5%	72
Living arrangement		
Alone	9.8%	43
Roommates	67.7%	296
Parent or guardian	3.2%	14
Spouse or partner	10.5%	46
My child or children	0.7%	3
With other family members	0.9%	4
More than one of the above	7.1%	31

Table 4.2 displays descriptive statistics for financial behavior ranging from *never/rarely* to *sometimes/frequently* for each behavior. Generally, students performed the three positive financial management behaviors more *frequently* than they reported *never* or *rarely*. Overall, students reported *never/rarely* engaging in three out of the four negative behaviors. Of the negative financial behaviors, students most often made impulse purchases.

Table 4.2: Overall Financial Management Behavior Results

Behavior statement	Never/Rarely		Sometimes/Frequently	
	%	n	%	n
Positive behaviors				
I tracked my spending.	12.6%	60	87.4%	416
I planned ahead for major purchases.	12%	57	88.1%	420
I monitored my account balances.	5.1%	24	95%	452
Behavior statement	Never/Rarely		Sometimes/Frequently	
	%	n	%	n
Negative behaviors				
I overdrew my bank account.	90.6%	432	9.4%	45
I made impulse purchases.	44.3%	211	55.7%	265
I purchased things I could not afford.	89.3%	425	10.7%	51
I made late payments on bills or educational expenses.	88.8%	423	11.1%	53

In the event of a financial emergency during the school year, 65.3% (n=300) of respondents reported it being *very* or *somewhat likely* that they could come up with $400 cash. A minority of respondents reported it being *very* or *somewhat unlikely* (34.7% of respondents; n=177).

Overall, the majority of students *agreed* or *strongly agreed* that they feel confident in their ability to manage their finances, make good financial decisions, feel in control, feel confident in their ability to plan their financial future, get the information they need about finances, and resist the urge to make impulse purchases, as seen in Table 4.3. The majority of students *strongly disagreed* or *disagreed* that they have a hard time finding a solution when faced with a financial challenge.

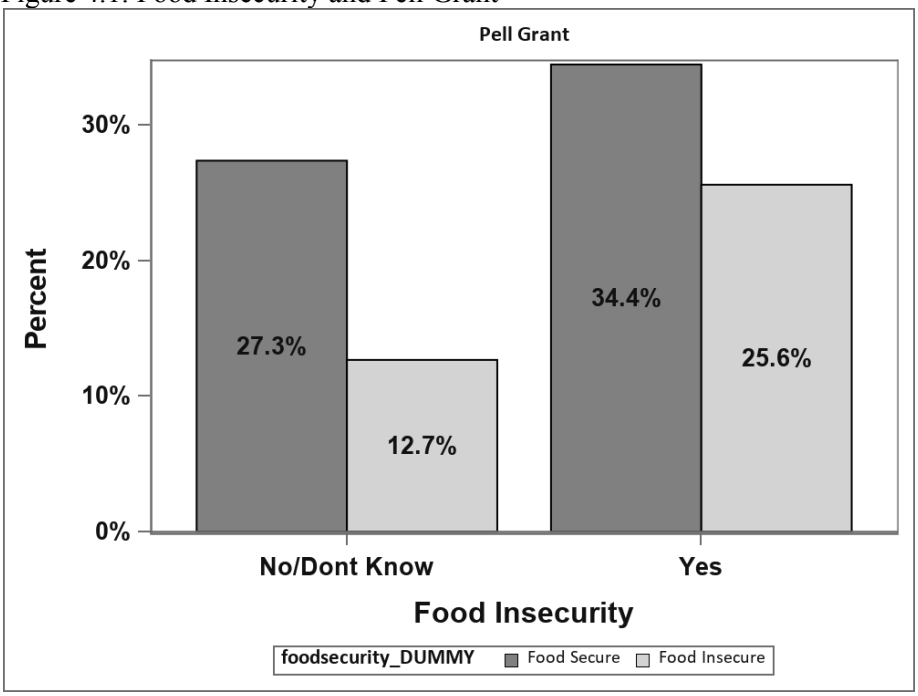
Table 4.3: Overall Financial Self-Efficacy Results

Self-efficacy statement	Strongly Disagree/ Disagree		Agree/Strongly Agree	
	%	n	%	n
I am confident that I can manage my finances.	14.5%	69	85.5%	406
I am able to make good financial decisions.	12.6%	60	87.3%	416
I feel in control of my finances.	28.2%	134	71.8%	342
I am confident in my ability to plan for my financial future.	28.9%	137	71.1%	337
I am able to get the information I need about finances.	25.1%	119	74.9%	355
When faced with a financial challenge, I have a hard time figuring out a solution.	64.8%	308	35.2%	167
I can resist the urge to make impulse purchases.	18.9%	90	81%	385

Over half (62.4%) of participants reported experiencing high or marginal food security. Low food security affected 18.3% of participants, and very low food security affected 19.3% of participants. In total, food insecurity affected 37.6% of undergraduate students at this institution. One-third (33%) of students aged 18-23 years were food insecure, and 3.7% of students aged 24-29 were food insecure. Among males and females, food insecurity was more prevalent among women than compared to men (25.8% vs 11.6%, respectively).

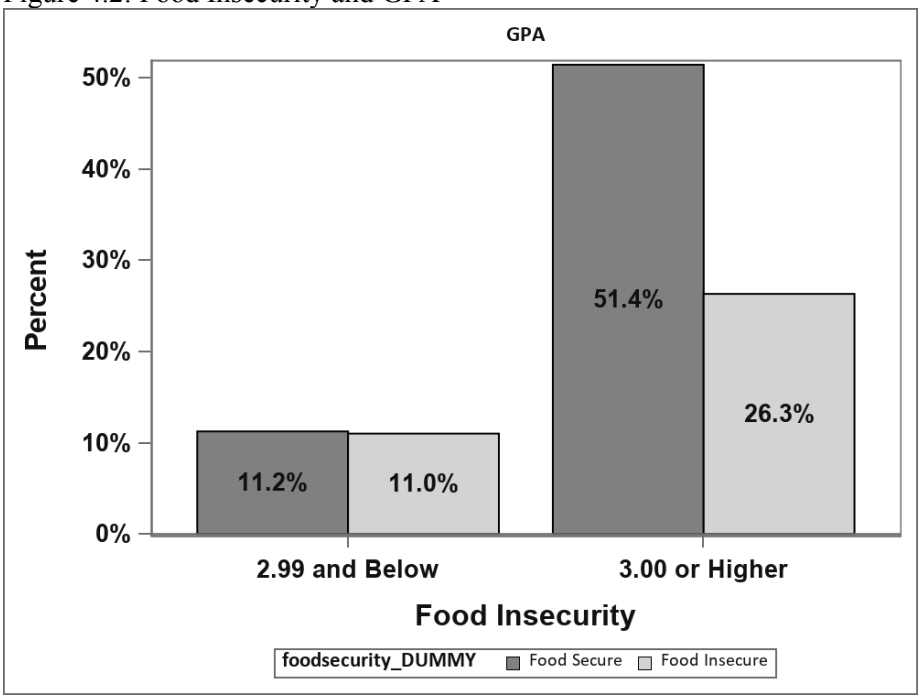
Food security was more prevalent among those who were offered or received a Pell Grant compared to those who did not receive a Pell grant, or did not know if they received a Pell Grant (25.6% vs 12.7%). Food insecurity was proportionately higher for those who responded ‘yes’ (25.6%), than food insecurity for respondents who reported ‘no/don’t know’ (12.7%). Food insecurity rate by Pell grant recipient response is displayed in Figure 4.1.

Figure 4.1: Food Insecurity and Pell Grant



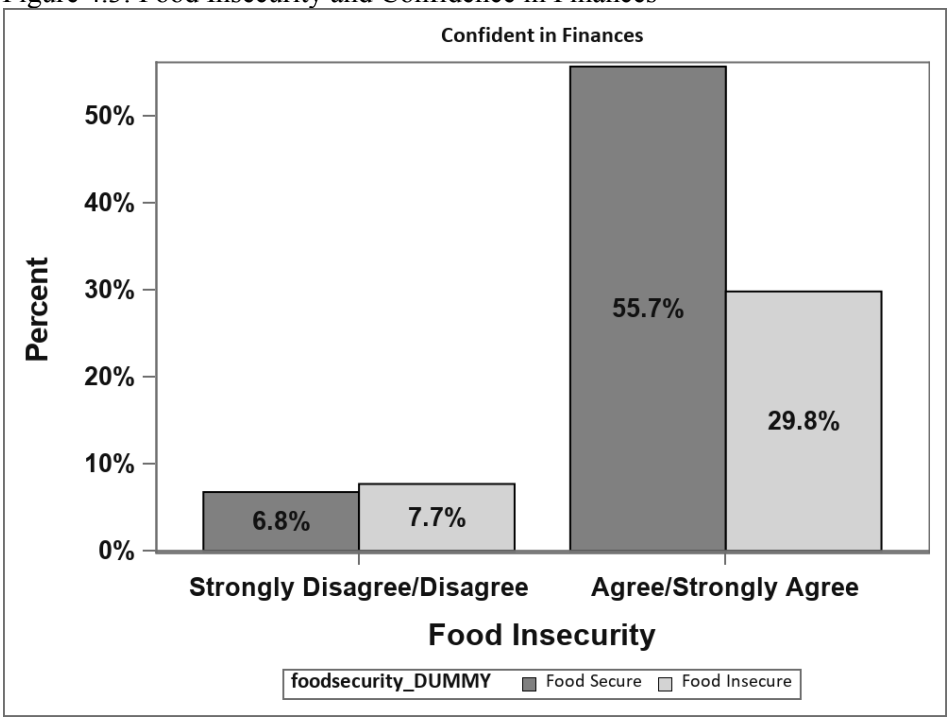
Although the majority of the sample reported having a GPA of 3.00 and above, food insecurity was more prevalent students with a GPA of 2.99 or below, nearly proportionate to the rate of food secure students with the same GPA status (11% and 11.2%, respectively), displayed in Figure 4.2.

Figure 4.2: Food Insecurity and GPA



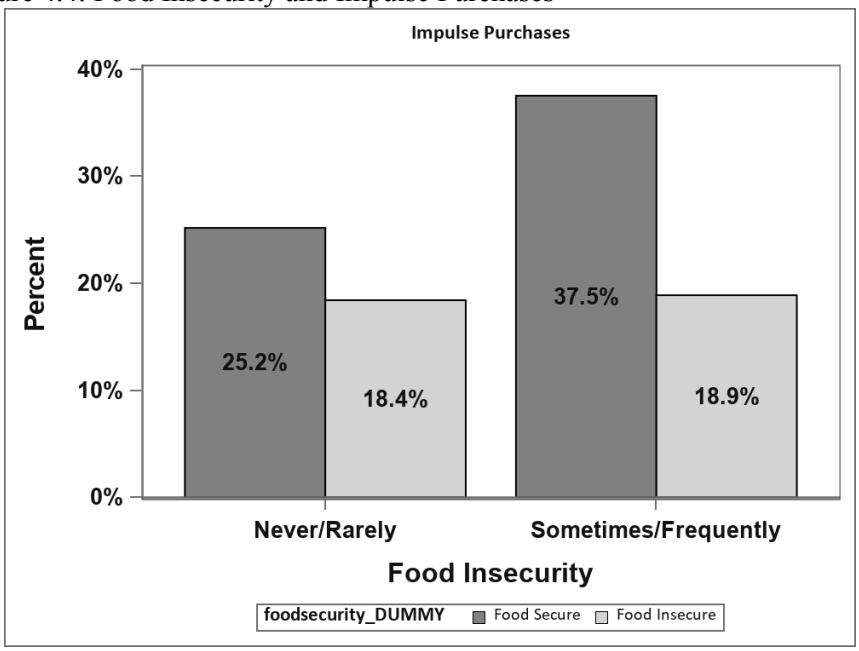
Food insecurity was more prevalent in those respondents who reported being *very* to *somewhat unlikely* to come up with $400 cash in the event of a financial emergency (21.6%) compared to the prevalence of food security (13%). The rate of food security is significantly higher among respondents reporting being *somewhat* to *very likely* to come up with the cash. Among students who reported *agree*/*strongly agree* to feeling confident in their finances, 29.8% were food insecure, as seen in Figure 4.3.

Figure 4.3: Food Insecurity and Confidence in Finances



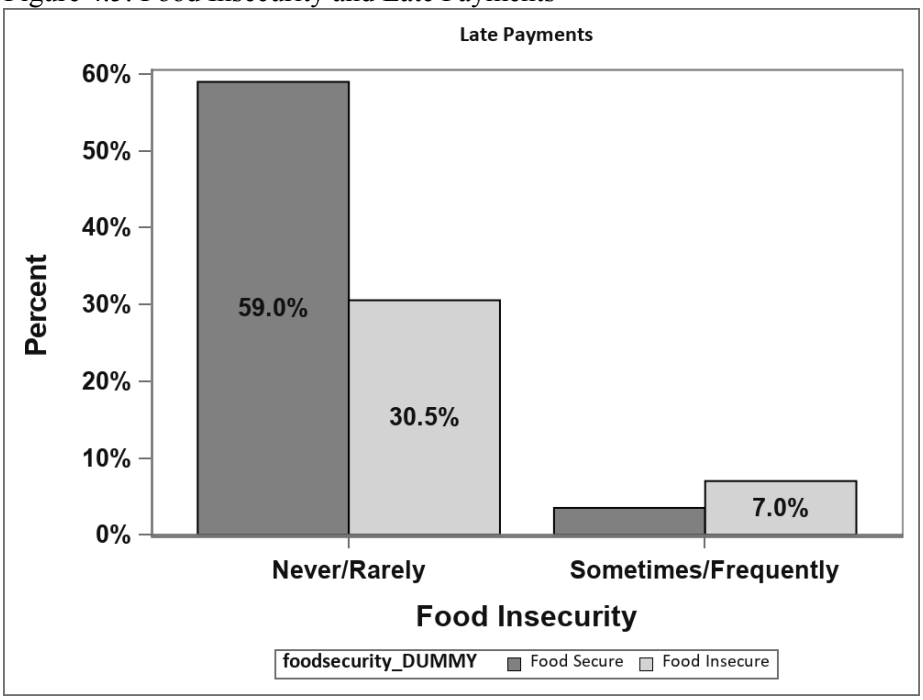
Food insecurity was nearly equal among *impulse purchases* categories *never*/*rarely* and *sometimes*/*frequently* (18.4% *never*/*rarely* compared to 18.9% *sometimes*/*frequently* making impulse purchases), however food security was slightly higher among respondents reporting that they *sometimes* or *frequently* make impulse purchases compared to *never* or *rarely* making them, as seen in Figure 4.4. For those who never/rarely spend impulsively, food insecurity was proportionately higher compared to food insecurity for those who *sometimes*/*frequently* spend impulsively.

Figure 4.4: Food Insecurity and Impulse Purchases



The majority of respondents never or rarely make late payments (89.5%). Over a quarter of those respondents (30.5%) were food insecure compared to food secure (59%). The rate of food insecurity was higher among respondents who reported *sometimes* or *frequently* making late payments on bills or educational expenses (7%) compared to the rate of food security (3.5%) for those who reported *sometimes* or *frequently* making late payments. Food insecurity was at over half the rate of food security for respondents who *never* or *rarely* make late payments, displayed in Figure 4.5.

Figure 4.5: Food Insecurity and Late Payments



Chi Square Results

The variables *GPA, Pell grant, cash 400, impulse purchases, overdrew bank account, purchased can't afford, late payments, confident finances, in control finances, plan future, info finances,* and *challenge solution* were significantly associated with food insecurity when adjusting for gender and age after initial Chi Square testing. Table 4.4 displays associations for each significant variable as well as the *p* values adjusting for gender and age.

Table 4.4: Initial Chi Square Results–Associations with Food Insecurity

Variable	**Food Insecurity Chi Square**	**Food Insecurity *p* value**	**Gender *p* value**	**Age *p* value**
GPA	7.5382	.0084	0.1158	0.5384
Pell grant	4.8315	0.0185	0.3077	0.2063
cash 400	60.7144	<.0001	0.2685	0.2939
impulse purchases	3.4732	0.0427	0.0691	0.3867
overdrew bank account	5.8047	0.0171	0.1114	0.2941
purchased can't afford	6.0553	0.0153	0.1232	0.3129
late payments	18.2053	<.0001	0.0870	0.4157
confident finances	7.6164	0.0135	0.1234	0.4528
in control finances	24.9878	<.0001	0.1868	0.2954
plan future	29.7361	<.0001	0.3648	0.4181
get info about finances	24.3571	<.0001	0.1698	0.5530
challenge solution	17.7599	<.0001	0.1136	0.4711

Next, significant variables were grouped and compared with each other in crosstabulations to determine if they were related, and to avoid redundancy of variables in the logistical model. Three groups were formed: demographics, which includes *GPA* and *Pell grant*; behaviors, which includes *cash 400, impulse purchases, overdrew bank account, purchased can't afford,* and *late payments*; and self-efficacy, which includes *confident finances, in control finances, plan future, info finances,* and *challenge solution*. Chi Square and crosstabulation testing was conducted between variables within each group. When any two variables in a crosstabulation result in a Chi Square significance of less than alpha of .05, one variable was chosen to be in the model to eliminate redundancy.

Confident finances was associated with all other self-efficacy variables in the group and therefore chosen as a candidate to be included in the regression model as the most inclusive, definitive self-efficacy variable. The behavior variable *cash 400* was not associated with *impulse*

purchases but associated with all other behavior variables. *Impulse purchases* was not associated with *cash 400*, *overdrew bank account*, and *late payments*, but associated to *in control finances* and *purchased can't afford*. *Late payments* was not associated with *impulse purchases* but associated with all other financial behavior variables.

The variables *confident finances, cash 400, impulse purchases, late payments, GPA,* and *Pell grant* were chosen to be candidates for the logistical regression model. *Overdrew bank account* is not considered a candidate variable in regression because of its relatedness to having cash, the variable *cash 400*, and feeling *confident in finances*, the two dominant financial variables. Further Chi Square testing was conducted to ensure regression models avoided collinearity. Chi Square crosstabulation results are found in tables 4.5-4.7. Upon running preliminary regression models, the variable *cash 400* was found to make other significant variables included in the model with it less significant, and it was determined that *cash 400* be included in a regression model separate from the other significant variables, adjusting for age and gender.

Confident finances was associated with *late payments* and *Pell grant* and no other candidate variables, and therefore will not be in the same model as *late payments* and *Pell grant*. *Late payments* was also related to *GPA*, and will not be included in a model with *GPA*. *GPA* was also related to *Pell grant*. *Impulse purchases* was not related to any other candidate variables.

Table 4.5: Confident Finances by Candidate Variables; Impulse Purchases by Candidate Variables

Confident finances by	**Chi Square**	***p* value**		**Impulse purchases by**	**Chi Square**	***p* value**
Impulse purchases	2.0241	0.1548		Confident finances	2.0241	0.1548
Late payments	20.5341	<.0001		Late payments	0.2973	0.5856
GPA	0.5148	0.4731		GPA	1.4185	0.2337
Pell grant	3.9137	0.0479		Pell grant	0.0220	0.8822

Table 4.6: Late Payments by Candidate Variables

Late payments by	**Chi Square**	***p* value**
Confident finances	20.5341	<.0001
Impulse purchases	0.2973	0.5856
GPA	23.2899	<.0001
Pell grant	0.9092	0.3403

Pell grant was associated with *confident finances* and *GPA,* but not associated with *impulse purchases*, and *late payments*. *GPA* was associated with *late payments* and *Pell grant,* and not associated with *confident finances,* and *impulse purchases.*

Table 4.7: GPA by Candidate Variables; Pell Grant by Candidate Variables

GPA by	**Chi Square**	***p* value**		**Pell Grant by**	**Chi Square**	***p* value**
Confident finances	0.5148	0.4731		Confident finances	3.9137	0.0479
Impulse purchases	1.4185	0.2337		Impulse purchases	0.0220	0.8822
Late payments	23.2899	0.0753		Late payments	0.9092	0.3403
Pell grant	14.1701	0.0002		GPA	14.1701	0.0002

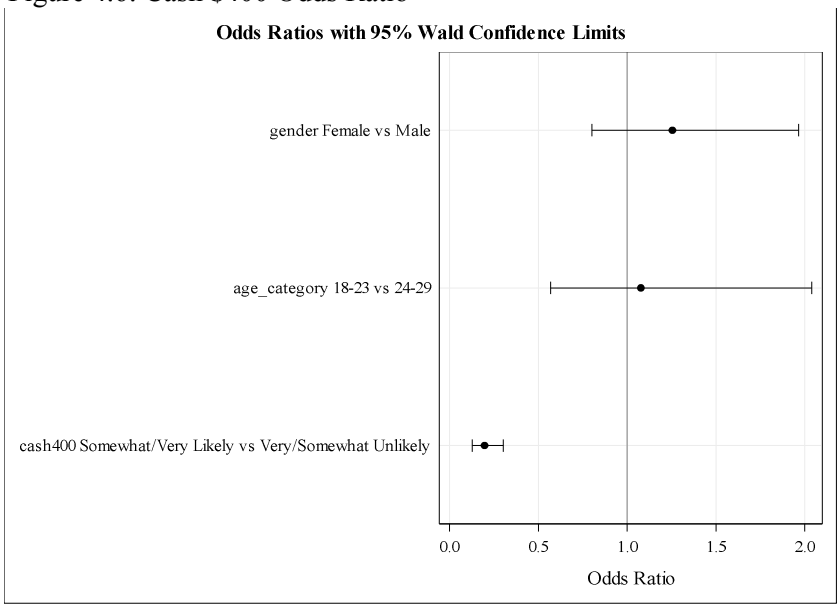
Final regression models included *cash 400*; *confident finances, impulse purchases,* and *GPA*; *impulse purchases* and *late payments;* and *impulse purchases, late payments,* and *Pell grant.* All models were adjusted for age and gender.

Regression Results

The first regression includes the variable *cash 400* only and is displayed in Figure 4.6. Those who reported it being *somewhat* to *very likely* they could come up with $400 in cash were significantly less likely to be food insecure compared to those who reported it being *very* to *somewhat unlikely* they could come up with $400 in cash (odds ratio=0.196, CI lower=0.128,

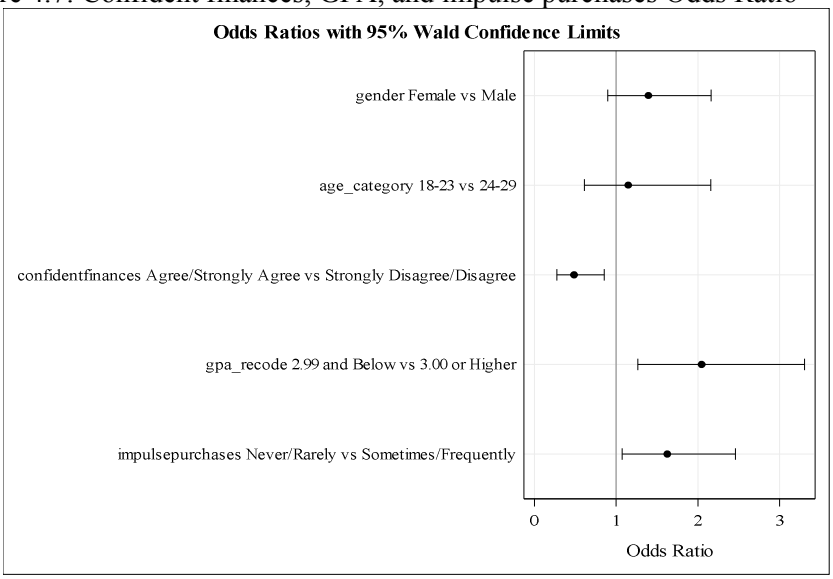
upper=0.302, *p*=<.0001). The odds of being food insecure are low if a respondent is *somewhat/very* likely to come up with $400 cash in the event of a financial emergency.

Figure 4.6: Cash $400 Odds Ratio



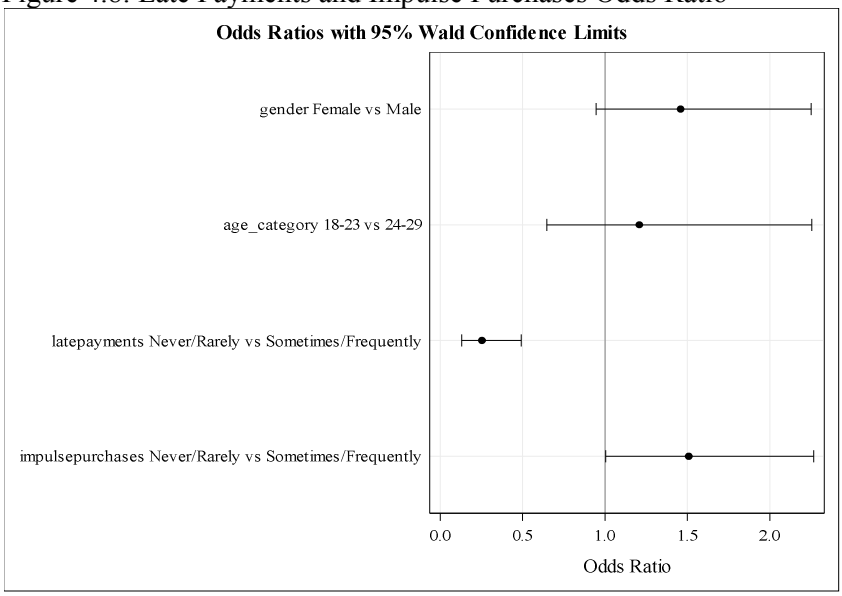
The second model included *confident finances*, *GPA*, and *impulse purchases* and is displayed in Figure 4.7. Those with a GPA of 2.99 or lower were significantly more likely to be food insecure compared to those with a GPA of 3.0 or above (odds ratio=2.046, CI lower=1.266, upper=3.305, p=0.0035). Those who reported *never* or *rarely* making impulse purchases were significantly more likely to be food insecure than those who reported *sometimes* or *frequently* making impulse purchases (odds ratio=1.624, CI lower=1.072, upper=2.461, p=0.0220). Those who *agreed* or *strongly agreed* to being confident that one can manage their finances were significantly less likely to be food insecure than those who *disagreed* or *strongly disagreed* (odds ratio=0.485; CI lower=0.275, upper=0.855, p=0.0123). A similar effect could be possible for the financial self-efficacy variables *in control finances, plan future, info finances,* and *challenge solution* if they were included in the regression in place of *confident finances,* as *confident finances* was significantly associated with these variables after Chi Square analysis.

Figure 4.7: Confident finances, GPA, and impulse purchases Odds Ratio



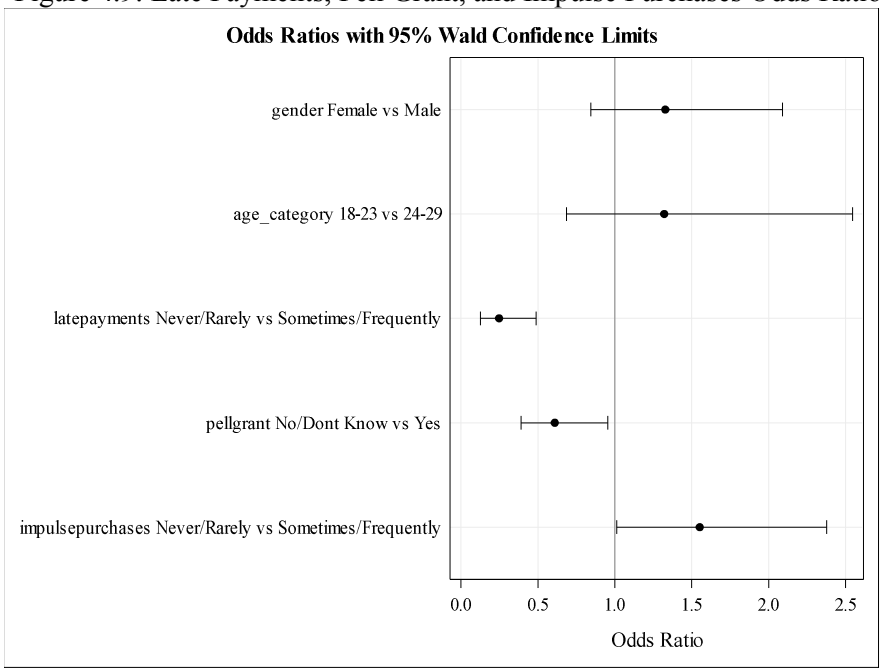
Looking at *impulse purchases* in a separate model with *late payments* excluding *GPA* and *confident finances* decreases the odds of being food insecure for those who reported *never* or *rarely* making impulse purchases compared to those who reported *sometimes* or *frequently* making impulse purchases (odds ratio=1.509 versus 1.624 when including *GPA* and *confident finances*; CI lower=1.004, upper=2.267, *p*=0.0478). *Never* or *rarely* making impulse purchases is predictive of higher odds of food insecurity versus *sometimes* or *frequently* making impulse purchases. Those who reported *never* or *rarely* making late payments on bills or educational expenses were significantly less likely to be food insecure compared to those who reported *sometimes* or *frequently* making late payments (odds ratio=0.254, CI lower=0.131, upper=0.491, *p*=<.0001), or, students are more likely to be food secure when *never* or *rarely* making late payments versus making late payments *sometimes* or *frequently*. A similar result could be obtained when substituting *impulse purchases* or *late payments* for *purchased can't afford*, as the two variables are both significantly related to *purchased can't afford* in initial Chi Square analysis. These results are displayed in Figure 4.8.

Figure 4.8: Late Payments and Impulse Purchases Odds Ratio



Lastly, the fourth regression included *impulse purchases*, *late payments*, and *Pell grant* and is displayed in Figure 4.9. The odds of being food insecure increased slightly for those who reported *never* or *rarely* making impulse purchases (odds ratio=1.551; CI lower=1.013, upper=2.376, *p*=0.0434) when including *Pell grant* in the model. The odds of being food insecure decreased for those who reported *never* or *rarely* making late payments (odds ratio=0.248 versus .254; CI lower=0.125, upper=0.489, *p*=<.0001) when including *Pell grant*. Those who reported having not received or being unsure about having received (no/don't know responses) a Pell grant were significantly less likely to be food insecure (odds ratio=0.609; CI lower=0.390, upper=0.953, p=0.0300) than those reported having received a Pell grant. A similar effect could occur for the variable *GPA*, as *Pell grant* and *GPA* are associated.

Figure 4.9: Late Payments, Pell Grant, and Impulse Purchases Odds Ratio



Chapter 5

Discussion

Food Insecurity is Prevalent at an Alarming Rate

Food insecurity is impacting the lives of nearly half of the undergraduate students at this institution. It was anticipated that struggles with food security would be prevalent among students and would be particularly associated with certain demographic variables and financial management behaviors. These assumptions were confirmed; many college students in this sample (38%) experience the harsh realities of low or very low food security. Unfortunately, these students are not unique—similar rates of food insecurity have been documented within student populations at both rural and urban institutions of higher education across the U.S. (Chaparro et al., 2009; Gaines et al., 2014; Hagedorn & Olfert, 2018; Knol et al., 2017; Payne-Sturges et al., 2018). Although the current study does not directly measure perceived stigma and shame that food insecure student experience, it is reasonable to assume students struggling to secure food at this institution are aware of such stigma and feel the stinging effects.

Similar to other studies, being female (Bruening et al., 2016; Hagedorn & Olfert, 2018) and having a low GPA (2.99 or below) (Hagedorn & Olfert, 2018; Morris et al., 2016; Patton-Lopez et al., 2014) is found to increase the likelihood of being food insecure. This finding may be attributed to the breakdown of females-to-males in this specific sample (n=303 and n=171, respectively), however it is also likely that females are more aware than males of food insecurity and are therefore more likely to report it (Hernandez et al., 2017). Additionally, perhaps females are, generally, more comfortable reporting struggles with food compared to their male peers; that is, conformity bias and social acceptance may be playing into this gender discrepancy in reporting food insecurity.

GPA is the only indicator measuring academic performance in the present study; however, it is an indicator of overall academic achievement and is negatively associated with food insecurity. This suggests that food insecurity is a college health issue that institutions of

higher education should be aware of as an interference to students' efforts to achieve their highest academic performance. GPA is not the only academic performance indicator impacted by food insecurity that institutions need to be aware of; maintaining expected credit load and graduation date (Silva et al., 2017), and student self-efficacy in academic work (Dubick, Mathews & Cady, 2016) are other academic components negatively impacted by food insecurity. Further, although food insecurity is not significantly associated with employment in the present study, the majority of all students in the sample reported working at least 20 hours a week, which could contribute to low GPA reported by food insecure students placing academics as second in priority to maintaining employment.

Fully 42% of Pell grant recipients and 32% of respondents who did not receive or were unsure of receiving a Pell grant were food insecure in the present study. Having received a Pell grant put students at greater odds of being food insecure, a finding consistent with existing research (Bruening et al., 2018). It is possible that students receiving Pell grants come from food insecure homes and receive little to no parental financial support, reinforcing their food insecurity status (Henry, 2017).

Students are Financially Responsible and Confident

Overall, students are engaging in positive financial management behaviors and feel confident in their ability to manage their finances regardless of their food security status. It is no surprise that the low likelihood of being able to come up with $400 cash in the event of a financial emergency is associated with increased odds of being food insecure; inadequate income or insufficient financial resources are the principal factors in being food insecure. In the present study, nearly 35% of students reported it is *very* to *somewhat unlikely* that they could come up with $400 cash in the event of an emergency. To contextualize this amount of money for this geographical location and for this student population, $400 can be perceived as a typical amount owed for one month's cost of housing in the area–which is especially concerning for food insecure students living month-to-month. A single financial misstep–a late paycheck, a medical

bill–could easily cause severe stress for these students already struggling to make ends meet. Being unable to come up with next month's rent could certainly push a student into food insecurity; they may be forced to choose keeping a roof over their head over food in their stomachs.

In general, student financial self-efficacy is positive. Being confident in one's ability to manage finances is associated with decreased odds of being food insecure in the present study. However, it is important to note that the rate of food insecurity is higher for those who *strongly disagreed* or *disagreed* that they are confident in their ability to manage their finance compared to food secure students. Having inadequate income or insufficient financial resources could impact one's confidence in their ability to manage their limited personal finances. These limited finances, managed well or not, could in turn, impact one's ability to purchase adequate food.

The present study found that *never* or *rarely* making impulse purchases is strongly associated with being food insecure. This result contradicts the age-old stereotype that college students lack food because they lack budgeting skills or because they haphazardly overspend. On the contrary, food insecure students simply cannot make impulse purchases without the money to do so, and lacking money increases one's odds of being food insecure. On the other hand, food secure students may have the extra cash to make impulse purchases possible with fewer detrimental consequences.

It is noteworthy that the rates of food insecurity are nearly equal for those who reported *never* or *rarely* making impulse purchase compared to those who reported *sometimes* or *frequently* making impulse purchases. A possible explanation for this result is that food insecure students are experiencing hunger-induced, in-the-moment purchases of food; although they had previously deprioritized spending on food due to a lack of funds, they end up making an "impulse buy" because the hunger becomes frustratingly unbearable. Additionally, it is also possible that food insecure students who reported *sometimes* or *frequently* making impulse purchases simply lack budgeting skills that could otherwise help them negotiate less impulsive food purchases.

Another possible explanation regarding the connection between food security status and financial management behaviors: food insecure students are so financially responsible that they are prioritizing expenses before spending money on food. This financial behavior of food insecure college students has been documented in previous research (Henry, 2017). For example, food insecure students may have to budget strictly and avoid spending impulsively in order to make ends meet, whereas food secure students may not have to worry about budgeting to the extent that food insecure students do–an occurrence found in the literature (Gaines et al., 2014). Buying impulsively is also subjectively defined; respondents were not given a definition of an "impulse purchase" in the current study, and therefore, a purchase considered an "impulse buy" to one student may not be considered impulsive to another.

Finally, it is possible that the pressures of social conformity creep in on food insecure students. In an attempt to try to hide their food insecurity, they might sometimes or often make impulse purchases and/or participate in social, food-related entertainment with their friends. Previous research has indicated that, for college students, food insecurity is a stigmatized issue rarely discussed among friends (Henry, 2017).

Not surprisingly, the present study also finds that students are more likely to report being food insecure in addition to reporting that they *sometimes* or *frequently* make late payments or purchase things they cannot afford. While previous research suggests that students deprioritize spending on food in order to pay other bills (Hagedorn & Olfert, 2018; Henry, 2017), it could be possible that food insecure students in this sample do not completely deprioritize spending on food, rather they choose to make late payments on other expenses like rent and utilities in order to have the money to purchase food to avoid feeling hungry. This finding aligns with results found by Chaparro et al. (2009), that money spent on expenses like bills did not differ between food secure and insecure students, however the chance of insecurity increased when spending on entertainment, eating out, and shopping increased.

Strategies to Reduce Campus Food Insecurity

There are many ways to address campus food insecurity. Utilizing a comprehensive tool, such as an annual or bi-annual survey, to consistently assess campus food insecurity is a solid first step. For example, this can be done by participating in the ACHA's American College Health Assessment, under the direction of a passionate faculty member, the Dean of Students, student health services, or an existing resource focused on increasing equity, access, and inclusion among students (i.e. a campus food pantry).

Similar to food insecure students at other institutions (Hagedorn & Olfert, 2018), students in the present study may be accessing campus or community food aid or resources as a result of prioritizing spending on living expenses and deprioritizing spending on food. It can be intimidating, challenging, and exhausting for students to constantly seek out financial and/or food resources while attending classes and, for some, while also maintaining a job. To increase accessibility to resources, it would be beneficial for institutional health and wellness administrators to collaborate in establishing a centralized hub for students' basic needs. For example, the University of California-Berkeley established a physical and virtual basic needs security hub that streamlines food, housing, and financial security resources as well as crisis resolution, mental and emotional wellness, safety, and accessibility resources, enabling students to access resources more efficiently (http://basicneeds.berkeley.edu, 2019). Combining various types of campus resources related to the non-academic aspects of students' lives into one main location may increase general ease of navigation for students, communication among campus entities, and decrease stigma by increasing resource exposure and promote student utilization of such resources into the fabric of campus culture. Ultimately, streamlining both academic and non-academic resources into one common and highly visible access point can contribute to overall student enrollment, retention, degree completion, and overall success.

It is also an institution's best interest to offer money management and budgeting resources. Traditional college students are typically financially inexperienced and possess relatively minimal financial knowledge (Chen & Volpe, 1998). Although the majority of students

reported feeling confident in their ability to manage their finances and generally display positive financial behaviors, buying impulsively is an inherently negative behavior reported by over half of respondents. Specifically, money management guides should include strategies on how to budget for food expenses and provide tips to help students avoid deprioritizing spending on food during periods of economic insecurity.

Nearly 20% of students reported experiencing very low food security in the previous 12 months. It is possible that a higher percentage of students are actually experiencing this level of food insecurity than indicated, but the stigma associated with being food insecure may have prevented some respondents from admitting their experience when taking the survey. This stigma also prevents students from accessing resources or asking for help (Henry, 2017). One possibility to help combat the influence of this stigma would be a system to screen incoming and current students for food insecurity indicators. This type of screening would be is useful in order to consistently assess campus food security without forcing food insecure students to make themselves known. With the understanding that Pell grants are only offered to low resource students (studentaid.ed.gov, 2019), flagging Pell grant recipients as potentially food insecure in the institution's system can allow for timely intervention.

Institutional emergency financial assistance in the form of grocery store gift cards, hot meal vouchers at campus dining locations, or food scholarships could prevent food insecure students from experiencing prolonged hunger by increasing access to food. Eastern Washington University among other Pacific Northwest institutions is part of Swipe Out Hunger (https://www.swipehunger.org, 2019), a program designed to place donated or unused student meal plan dollars into a fund that allows food insecure students to access a free, hot meal on campus when they otherwise would not have the means to eat.

Lastly, institutions should consider continuous, sustainable efforts to reduce incidence and prevalence of food insecurity on campus. Providing training to faculty, staff, and advisors on the signs of student food insecurity, as well as ensuring university and college officials are aware

of related community, state, and federal resources available to help alleviate food insecurity, would enable higher education professionals and administrations to take appropriate action when needed.

Faculty are typically considered to be trusted authority figures and leaders on campus, positioning them and other frontline higher education professionals in a unique position to refer food insecure students to resources. Encouraging or requiring faculty and instructors with teaching responsibilities to include campus resources related to food insecurity (e.g. food pantry locations) on their syllabi is one example that not only raises awareness about the issue, but exposes all students regardless of their food security status to available resources. Providing advisors with a set of simple, nonintrusive questions to ask during advising sessions would help advisors to initiate conversation and quickly assess food insecurity when meeting with students. Opening advising sessions with generic questions such as, "How have you been doing? Sleeping well? Getting enough to eat?" might make it easier for a food insecure student to open up and potentially be connected to resources they may not have otherwise accessed. Other strategies campus staff might consider include being vigilant for signs that a student might be struggling with food security. For example, taking note of which students consistently attend campus events that offer free food, especially if students are bringing family members or roommates and if they ask to take any leftover food. Additionally, including campus dietitians or other staff who work with students on a regular basis in food security efforts or to sit on committees related to student well-being and needs assessments are just a few suggestions for how staff can be involved. In general, keeping higher education professionals aware of the issue, educating about the signs of student food insecurity, the stigma surrounding it, and how to refer to existing resources is key to reducing the prevalence on campus. Working in conjunction, student affairs staff, faculty, administrators and students could collaborate to reduce and ultimately eliminate food insecurity issues on college campuses.

Limitations

It is important to note the limitations of this study and analysis. The sample was from one rural, public institution in the Pacific Northwest, therefore results may not be applicable to other college student populations at other institutions in the United States. The sample was also not representative of the racial, ethnic and gender demographics of college students across the country–the majority of respondents were White and female. The study design was also cross-sectional in nature; causal relationships among the variables cannot be determined. The study was also limited to undergraduate student respondents, therefore conclusions about food insecurity among graduate students cannot be made. The survey was designed as self-reporting and relied on the willingness of participants to honestly provide information about their financial behaviors, financial self-efficacy, and food security experience. Also, the survey did not provide explicit definitions to respondents of financial terms such as *impulse purchase* which could result in varied interpretations of the survey items by participants.

An additional limitation to note: due in part to the issue of collegiate food insecurity having steadily gained awareness in the last ten years, the definition of food insecurity has differed across studies. It should be warranted that differences in measurement and reporting of campus food insecurity rates could be due to inconsistencies in how the construct of food insecurity has been operationalized. Small sample sizes in some existing campus food insecurity studies cited in this paper could also be attributed to the recent attention to this issue, as well as the stigma associated with food insecurity acting as a barrier to participation.

Conclusion and Next Steps

There are significant findings that warrant further investigation, particularly regarding the inconsistent relationships between the experience of food insecurity and some negative financial management behaviors, but not others. Overall, food insecure students displayed positive financial behaviors including tracking spending, planning ahead for major purchases, and monitoring account balances. Many, if not most food insecure students reported *never* or *rarely* engaging in some negative financial behaviors including overdrawing their bank account and

purchasing things they cannot afford. However, *sometimes* or *frequently* buying impulsively was reported by food insecure students just as often as they report *never* or *rarely* buying impulsively. Future research should be conducted regarding the factors associated with impulsive spending behavior in order to better understand changes in financial management strategies during periods of food insecurity.

Food insecurity negatively affects academic performance. More extensive research into how food insecurity affects college student GPA, retention, and degree completion is necessary. Such research would contribute to a better understanding of how higher education institutions can improve supports to better meet students' non-academic needs in order to ensure their academic success and general well-being while completing their degrees. Future researchers should ask the unanswered question, "How does food insecurity affect students' day-to-day academic and non-academic lives?" It is important to know which specific academic performance indicators are affected by food insecurity–low test scores, failing courses, taking fewer credits than recommended–so that institutions can better understand how deeply food insecurity affects student success.

Ultimately, future research must examine more deeply the societal perception that college students must struggle with food insecurity in order to obtain the classic college experience. Why does this perception exist, and why does it persist? Inquiry into how this perception affects the mental health of college students regardless of their food security status should be conducted in order to bridge the gap between unfounded perception and the resulting stigma and harsh reality that food insecure students report experiencing during their academic careers.

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Appendix A: IRB Letter

University of Idaho
Office of Research Assurances

Institutional Review Board
875 Perimeter Drive, MS 3010
Moscow, ID 83844-3010
Phone: 208-885-6162
Fax: 208-885-6014
Email: irb@uidaho.edu

To: Erin Chapman, Madeline Brown

From: Jennifer Walker
IRB Coordinator, Office of Research Assurances

Date: January 16, 2019

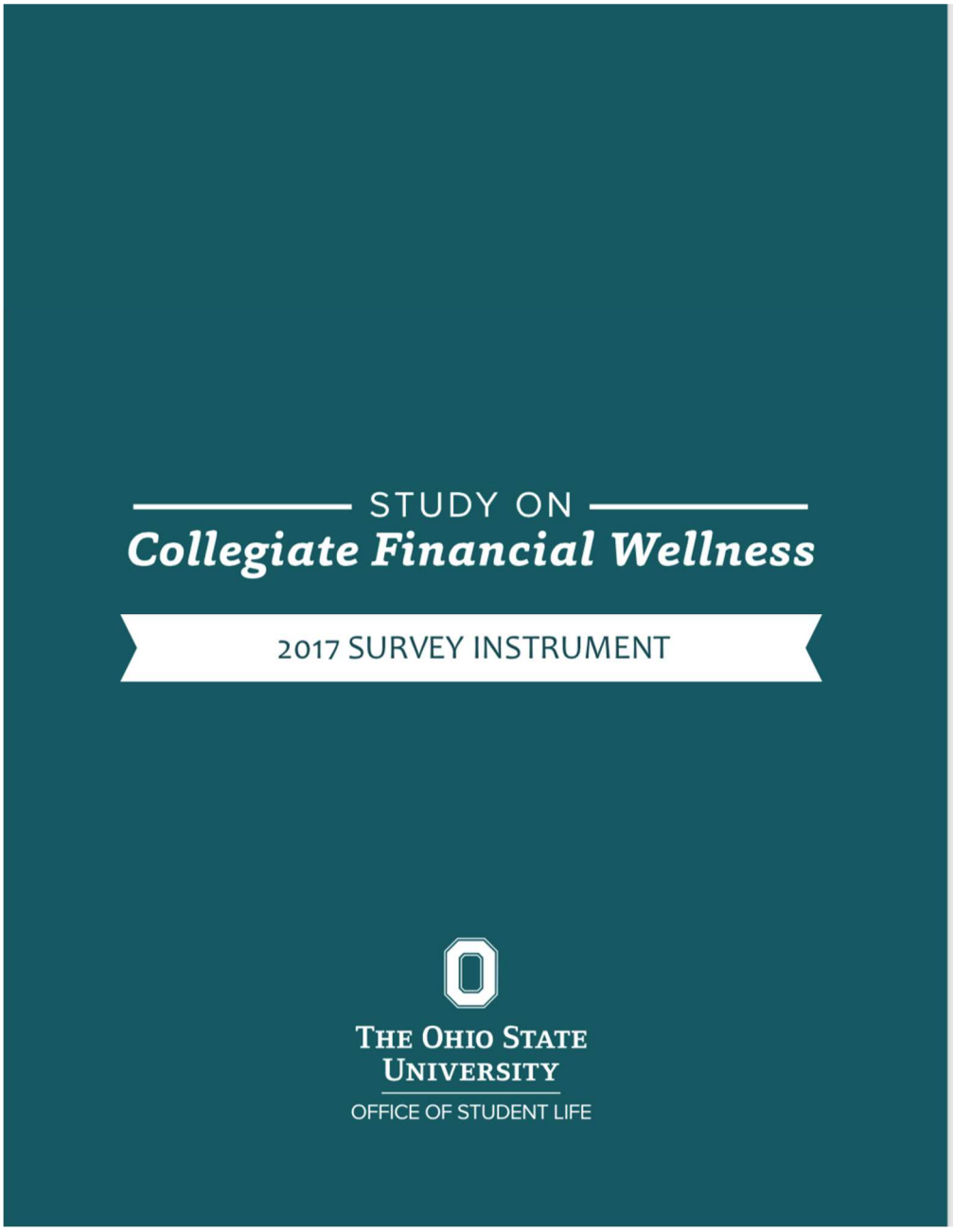
Title: Study on Collegiate Financial Wellness

Project: 19-012
Determination: Not Human Subjects Research

The Office of Research Assurances on behalf of the University of Idaho IRB has reviewed your information and has determined that the activities you will be conducting do not meet the definition of Human Subjects Research and do not require IRB oversight.

Should there be significant changes in the project, it will be necessary for you to resubmit the protocol for review by the Committee.

Appendix B: Copy of Study on Collegiate Financial Wellness Survey



2017 SCFW INSTRUMENT

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2017 SCFW INSTRUMENT

INITIAL DEMOGRAPHICS

Q1 What is your age? Please enter using numbers only, in years.

Q2 What is your gender?
- ❍ Female
- ❍ Male
- ❍ Genderqueer/Gender Non-conforming
- ❍ Intersex
- ❍ Transgender Male/Transgender Man
- ❍ Transgender Female/Transgender Woman
- ❍ Preferred Identity (in addition to or not listed above) _____
- ❍ Prefer not to state

Q3 Are you Hispanic or Latino(a)?
- ❍ Yes
- ❍ No

Q4 Which of the following represents your race/ethnicity? Select all that apply.
- ❑ Asian American/Asian (East, South, Southeast)
- ❑ Black or African American
- ❑ Native Hawaiian or other Pacific Islander
- ❑ Native American/American Indian/Alaskan Native
- ❑ Middle Eastern/Arab American
- ❑ White
- ❑ Other _____
- ❑ Prefer not to answer

Q5 What is the highest level of education your mother or guardian has obtained?
- ❍ Less than high school
- ❍ High school diploma or the equivalent (e.g., GED)
- ❍ Attended college but did not earn a degree
- ❍ Associate's degree (including occupational or academic degrees)
- ❍ Bachelor's degree
- ❍ Master's degree
- ❍ Professional degree (e.g., MD, DDS, JD)
- ❍ Doctorate (e.g., PhD, EdD)
- ❍ Don't know

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Q6 What is the highest level of education your father or guardian has obtained?
- ❍ Less than high school
- ❍ High school diploma or the equivalent (e.g., GED)
- ❍ Attended college but did not earn a degree
- ❍ Associate's degree (including occupational or academic degrees)
- ❍ Bachelor's degree
- ❍ Master's degree
- ❍ Professional degree (e.g., MD, DDS, JD)
- ❍ Doctorate (e.g., PhD, EdD)
- ❍ Don't know

Q7 Are you an international student?
- ❍ Yes
- ❍ No

Q8 I have met with the following about my finances (please select all that apply):

	Never	Before entering college	Since entering college
Financial aid counselor	❑	❑	❑
Peer financial counselor	❑	❑	❑
Financial services advisor (e.g., financial planner, investment advisor, tax advisor)	❑	❑	❑

Q9 **Before enrolling in college**, did you ever have any of the following types of financial education? (Please select all that apply)

	No	Yes, through my high school	Yes, outside of high school
A reoccurring personal finance course/workshop	❑	❑	❑
A one-time personal finance session/workshop	❑	❑	❑

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Q10 **Since enrolling in college,** did you ever have any of the following types of financial education? (Please select all that apply)

	No	Yes, through my college/university	Yes, outside of my college/university
A reoccurring personal finance course/workshop	❑	❑	❑
A one-time personal finance session/workshop	❑	❑	❑

FINANCIAL MANAGEMENT BEHAVIORS

Q11 How likely is it that you could come up with $400 in cash in the event of a financial emergency during the school year?

- ❍ Very unlikely
- ❍ Somewhat unlikely
- ❍ Somewhat likely
- ❍ Very likely

Q12 Please indicate how often you have done the following in the past 12 months:

	Never	Rarely	Sometimes	Frequently
I made impulse purchases	❍	❍	❍	❍
I tracked my spending	❍	❍	❍	❍
I planned ahead for major purchases	❍	❍	❍	❍
I monitored my account balances	❍	❍	❍	❍
I overdrew my bank account	❍	❍	❍	❍
I purchased things I could not afford	❍	❍	❍	❍
I made late payments on bills or educational expenses	❍	❍	❍	❍

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FINANCIAL SELF-EFFICACY

Q13 Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
I am confident that I can manage my finances	❍	❍	❍	❍
I am able to make good financial decisions	❍	❍	❍	❍
I feel in control of my finances	❍	❍	❍	❍
I am confident in my ability to plan for my financial future	❍	❍	❍	❍
I am able to get the information I need about finances	❍	❍	❍	❍
When faced with a financial challenge, I have a hard time figuring out a solution	❍	❍	❍	❍
I can resist the urge to make impulse purchases	❍	❍	❍	❍

FINANCIAL SOCIALIZATION

Q14 I rely on family members for financial advice.

❍ Strongly Disagree
❍ Disagree
❍ Agree
❍ Strongly Agree

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Q15 Please indicate the extent to which you agree or disagree with the statements below about your experience prior to college:

	Strongly Disagree	Disagree	Agree	Strongly Agree
My parents or guardians were comfortable talking about money with me	❍	❍	❍	❍
My parents or guardians told me what I needed to know about money management	❍	❍	❍	❍
My parents or guardians were role models of sound financial management	❍	❍	❍	❍

Q16 Prior to college, did your parents or guardians...

	No	Yes
Encourage you to save money?	❍	❍
Encourage you to open a bank account?	❍	❍
Encourage you to invest your money?	❍	❍

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FINANCIAL STRAIN & OPTIMISM

Q17 Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
I have enough money to participate in most of the same activities as my peers	❍	❍	❍	❍
I have enough money to participate in most activities that I enjoy	❍	❍	❍	❍
I feel stressed about my personal finances in general	❍	❍	❍	❍
I worry about being able to pay my current monthly expenses	❍	❍	❍	❍
I worry about having enough money to pay for school	❍	❍	❍	❍

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Q18 Please indicate the extent to which you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Agree	Strongly Agree
When I think about my financial situation, I am optimistic about the future	❍	❍	❍	❍
After graduation, I will be able to support myself financially	❍	❍	❍	❍
I think that the cost of college is a good investment for my financial future	❍	❍	❍	❍

Q19 Assuming you are paying or had to pay for college on your own, how much debt would you be willing to personally accumulate in order to complete your current degree?

- ❍ $0, I would not be willing to take on debt
- ❍ $1-$9,999
- ❍ $10,000-$19,999
- ❍ $20,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$49,999
- ❍ $50,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000+
- ❍ Don't know

EMPLOYMENT

Q20 What is your current employment status?

- ❍ Employed full-time
- ❍ Employed part-time
- ❍ Not employed

Answer If What is your employment status? Employed full-time Is Selected Or What is your employment status? Employed part-time Is Selected

Q21 How many hours a week do you typically work, on average, during the academic year?

- ❍ 1-5
- ❍ 6-10
- ❍ 11-15
- ❍ 16-20
- ❍ 21-25
- ❍ 26-30
- ❍ 31-35
- ❍ 36-40
- ❍ Over 40

Answer If What is your employment status? Employed full-time Is Selected Or What is your employment status? Employed part-time Is Selected

Q22 Where do you work?

- ❍ On-campus
- ❍ Off-campus
- ❍ Both on-campus and off-campus

FINANCIAL DEPENDENCE

Q23 Have you completed a Free Application for Federal Student Aid (FAFSA) while pursuing your current degree?

- ❍ Yes
- ❍ No
- ❍ Don't know

Answer If Are you an international student? Yes Is Not Selected And Have you completed a Free Application for Federal Student Aid (FAFSA) while pursuing your current degree? No Is Not Selected

Q24 Are you considered a dependent student of your parent(s) for federal student aid (e.g., FAFSA) purposes?

- ❍ Yes
- ❍ No
- ❍ Don't know

Q25 Do you rely on financial assistance from your parent(s)/guardian(s) or spouse to help pay for your college expenses?

- ❍ Yes
- ❍ No

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Q26 Are you financially responsible for...

	No	Yes
A child or children?	❍	❍
A spouse/partner?	❍	❍
A family member(s) other than a spouse/partner or child?	❍	❍

PAYING FOR COLLEGE

Answer If Are you an international student?; Yes Is Not Selected

Q27 Have you been offered or received the following while pursuing your current degree?

	No	Yes	I don't know
A federal Pell Grant?	❍	❍	❍
Federal work study?	❍	❍	❍

Q28 Please indicate how much of your total college expenses are paid for by the following sources:

	None	A little bit	Some	Most	All
Federal student loans	❍	❍	❍	❍	❍
Private student loans	❍	❍	❍	❍	❍
Money from parent(s) or other family members	❍	❍	❍	❍	❍
Loans that my parent(s) or other family members have taken out to assist me (e.g., Parent PLUS loan)	❍	❍	❍	❍	❍

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Q28 CONTINUED Please indicate how much of your total college expenses are paid for by the following sources:

	None	A little bit	Some	Most	All
Scholarships or grants that don't need to be repaid (e.g., Pell grant, need-based aid, merit scholarship)	❍	❍	❍	❍	❍
Money from my current job	❍	❍	❍	❍	❍
Money from my savings	❍	❍	❍	❍	❍
Money borrowed from family or friends	❍	❍	❍	❍	❍
Credit cards	❍	❍	❍	❍	❍
Employer-provided education benefit	❍	❍	❍	❍	❍
Military/veteran education benefit	❍	❍	❍	❍	❍

Q29 Are there any sources of money other than those presented in the choices above that you use to pay for college expenses?

❍ Yes (If so, please specify) _____

❍ No

Answer If Please indicate how much of your total college expenses are paid for by the following sources: Credit cards - None Is Not Selected

Q30 Have you ever used a credit card in your name to pay for your college tuition?

❍ Yes

❍ No

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Answer If Have you ever used a credit card in your name to pay for your college tuition? Yes Is Selected

Q31 What is the primary reason you used credit cards to pay for your college tuition?

- ❍ My financial aid package didn't cover all my tuition
- ❍ I missed a deadline to apply for financial aid/student loans
- ❍ I had to use my tuition money for an emergency
- ❍ I didn't want to take on any more student loans
- ❍ Paying with a credit card is easier than other methods
- ❍ I always pay some of my tuition with my credit card(s)
- ❍ Other (please specify) _____

Q32 Do you think it is a good idea or a bad idea for college students to use credit cards to pay for educational expenses?

- ❍ Good idea
- ❍ Good in some ways, bad in others
- ❍ Bad idea

SUBJECTIVE PERCEPTIONS OF NEED

Q33 Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Agree	Strongly Agree
I have experienced financial difficulties while enrolled at my current institution	❍	❍	❍	❍
I am satisfied with the financial resources available to me at my current institution	❍	❍	❍	❍

STUDENT LOANS

Q34 Do you now have or have you ever had a student loan to pay for your college? Please include any federal or private student loans you have taken, but do not include loans taken by your parent(s)/guardian(s).

- ❍ Yes
- ❍ No
- ❍ Don't Know

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Answer If Do you now have or have you ever had a student loan to pay for your college? Please include any federal or private student loans you have taken, but do not include loans taken by your parent(s)/gua... Yes Is Selected

Q35 Which best describes your student loans?

- ❍ Federal (e.g. Direct Loan, Perkins, Stafford)
- ❍ Private (e.g. from a bank, from a credit union)
- ❍ Both federal and private
- ❍ Don't know

Answer If Do you now have or have you ever had a student loan to pay for your college? Please include any federal or private student loans you have taken, but do not include loans taken by your parent(s)/gua... Yes Is Selected

Q36 How much student loan money have you borrowed up to this point in time?

- ❍ $1-$9,999
- ❍ $10,000-$19,999
- ❍ $20,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$49,999
- ❍ $50,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000+
- ❍ Don't know

Q37 How much student loan debt do you EXPECT to have when you complete your current degree?

- ❍ None
- ❍ $1-$9,999
- ❍ $10,000-$19,999
- ❍ $20,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$49,999
- ❍ $50,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000+
- ❍ Don't know

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Answer If Do you now have or have you ever had a student loan to pay for your college? Please include any fe... Yes Is Selected

Q38 How much stress does the student loan debt you are accruing cause you?

- ❍ None
- ❍ Small amount
- ❍ Medium amount
- ❍ Large amount
- ❍ Extreme amount

Answer If Do you now have or have you ever had a student loan to pay for your college? Please include any fe... Yes Is Selected

Q39 Do you know what your student loan monthly payment will be when you graduate?

- ❍ Yes, I have a good idea
- ❍ I have an approximate idea
- ❍ No, I do not have a good idea

Answer If Do you now have or have you ever had a student loan to pay for your college?Please include any fe... Yes Is Selected

Q40 After graduation, I will be able to pay off any debt acquired while I was a student.

- ❍ Strongly disagree
- ❍ Disagree
- ❍ Agree
- ❍ Strongly agree

Q41 When deciding how much money I will need to borrow for the school year, I: (Please select all that apply)

- ❑ Borrow the maximum amount available in my aid package, regardless of the amount
- ❑ Use a budget and borrow only what I think I will need
- ❑ Try to borrow as little as possible
- ❑ Consider the total amount of debt I will graduate with
- ❑ Consider the amounts I have borrowed in the past
- ❑ Decide on my own how much I will need to borrow
- ❑ Consult with a parent, guardian, or family member to determine how much I will need to borrow
- ❑ Consult with a financial aid counselor to determine how much I will need to borrow
- ❑ Use information obtained from the Internet to determine how much I will need to borrow
- ❑ Other

Answer If When deciding how much money I will need to borrow for the school year, I: (Please select all tha... Other Is Selected

Q42 If you selected other, please specify

Q43 You indicated that you have not taken out any student loans. Have you ever been offered a student loan?

- ❍ Yes
- ❍ No
- ❍ I don't know

Answer If You indicated that you have not taken out any student loans. Have you ever been offered a student... Yes Is Selected

Q44 Did any of the following reasons influence your decision not to take student loans that you were offered? Please select all that apply.

- ❑ I don't need student loan(s) to pay for college
- ❑ I am uncomfortable with taking out student loans
- ❑ My parent(s)/guardian(s) or family have encouraged me not to take student loans
- ❑ Other _____

CREDIT CARDS & CONSUMER DEBT

Q45 How many credit cards do you currently have?

- ❍ 0
- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6 or more

If 0 Is Selected, Then Skip To Do you currently have debt from ANY SOURCE…

Q46 When you get a credit card bill, do you usually:

- ❍ Pay less than the monthly minimum payment
- ❍ Make the monthly minimum payment
- ❍ Pay more than the monthly minimum payment, but not the full balance
- ❍ Pay the full balance
- ❍ Someone else pays my credit card bills

Q47 What is the typical balance left on your credit cards after making monthly payments?

- ❍ $0
- ❍ $1-$499
- ❍ $500-$999
- ❍ $1,000-$1,499
- ❍ $1,500-$1,999
- ❍ $2,000-$2,499
- ❍ $2,500-$2,999
- ❍ $3,000+
- ❍ Don't know

Q48 How much credit card debt do you expect to have at the time you graduate?
- ❍ $0
- ❍ $1-$499
- ❍ $500-$999
- ❍ $1,000-$1,499
- ❍ $1,500-$1,999
- ❍ $2,000-$2,499
- ❍ $2,500-$2,999
- ❍ $3,000+
- ❍ Don't know

Q49 How much stress does the credit card debt you are accruing cause you?
- ❍ None
- ❍ Small amount
- ❍ Medium amount
- ❍ Large amount
- ❍ Extreme amount

Q50 Do you currently have debt from ANY SOURCE, including student loans, credit cards, car loans, personal loans from financial institutions or from family/friends, pay day loans, or any other type of credit or loans?
- ❍ Yes
- ❍ No
- ❍ I don't know

Answer If Do you currently have debt from ANY SOURCE, including student loans, credit cards, car loans, per... Yes Is Selected Or Do you now have or have you ever had a student loan to pay for your college? Please include any fe... Yes Is Selected

Q51 How much stress does the total amount of money you owe cause you?
- ❍ None
- ❍ Small amount
- ❍ Medium amount
- ❍ Large amount
- ❍ Extreme amount

ACADEMICS

Q52 Which of the following best represents your enrollment status?
- ❍ Full-time
- ❍ Part-time
- ❍ Non-degree seeking (e.g., taking classes but not currently pursuing a degree)

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Answer If Which of the following best represents your enrollment status? Non-degree seeking (e.g., taking classes but not currently pursuing a degree) Is Not Selected

Q53 What type of degree are you currently pursuing?

- ❍ 2-year (associate's degree)
- ❍ 4-year (bachelor's degree)
- ❍ Certificate or licensure program
- ❍ Other (please specify) _____

Answer If Which of the following best represents your enrollment status? Non-degree seeking (e.g., taking classes but not currently pursuing a degree) Is Not Selected

Q54 From start to finish, how long do you expect to take to complete your current degree or program?

- ❍ 1 year
- ❍ 2 years
- ❍ 3 years
- ❍ 4 years
- ❍ 5 years
- ❍ More than 5 years

Answer If From start to finish, how long do you expect to take to complete your current degree or program? N/A, non-degree seeking Is Not Selected

Q55 Compared to the amount of time expected to complete your type of degree or program (e.g., 4-year for a Bachelor's degree), do you expect to complete your degree:

- ❍ In a shorter amount of time
- ❍ In the expected amount of time
- ❍ In a longer amount of time

Answer If Compared to the amount of time expected to complete your type of degree (e.g., 4-year for a Bache... In a longer amount of time Is Selected

Q56 When considering your reasons for taking longer than expected to complete your degree, which of the following reasons apply? Select all that apply.

- ❑ Changed my major
- ❑ Changed institutions
- ❑ Wanted to earn multiple majors, a minor, or a certificate
- ❑ My program requires more than the average completion time
- ❑ Had to take fewer classes in order to work more
- ❑ Could not afford to pay tuition
- ❑ Was delayed getting accepted to my college/major
- ❑ Had to drop or re-take courses because of academic trouble
- ❑ Participated in an internship, co-op, or other work experience
- ❑ Wanted to take advantage of co-curricular opportunities (e.g., study abroad, student organization participation, service-learning) (
- ❑ Illness
- ❑ Other (please specify) _____

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Q57 Please indicate how frequently financial concerns have caused you to do the following while pursuing your current degree:

	Never	Rarely	Sometimes	Often
Have financial concerns ever caused you to neglect your academic work?	❍	❍	❍	❍
Have financial concerns ever caused you to reduce your class load?	❍	❍	❍	❍
Have financial concerns ever caused you to consider taking a break from college/university?	❍	❍	❍	❍
Have financial concerns ever caused you to consider dropping out of college/university?	❍	❍	❍	❍

Q58 Have financial concerns affected your education in other ways? Please describe.

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Q59 Consider your goals for college. Please rate how important each of the following are to you during the completion of your current degree.

	Not at all important	Slightly important	Important	Very important
To graduate with as little debt as possible	❍	❍	❍	❍
To graduate as soon as possible	❍	❍	❍	❍
To develop the skills and competencies needed for your career	❍	❍	❍	❍
To be actively involved in co-curricular activities (e.g., internship, study abroad, student organizations)	❍	❍	❍	❍
To maximize your future earning potential	❍	❍	❍	❍
To master the material being taught in your classes	❍	❍	❍	❍
To increase your awareness of community and world problems	❍	❍	❍	❍

Q60 Do you plan to attend graduate or professional school?

❍ Yes, I plan to begin immediately after completing my undergraduate degree
❍ Yes, I plan to begin a few years after completing my undergraduate degree
❍ No
❍ Have not decided/Don't know

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Q61 What is the highest degree you plan to obtain?
- ❍ Associate's degree
- ❍ Bachelor's degree
- ❍ Master's degree
- ❍ Professional degree (e.g., MD, DDS, JD)
- ❍ Doctoral degree (e.g., PhD, EdD, DMA)
- ❍ Other (e.g. non-degree seeking coursework) _____

Answer If Do you plan to attend graduate or professional school? Yes, I plan to begin immediately after completing my undergraduate degree Is Selected Or Do you plan to attend graduate or professional school? Yes, I plan to begin a few years after completing my undergraduate degree Is Selected

Q62 How much student loan debt do you EXPECT to have when you complete your education (including additional degrees, graduate or professional school)?
- ❍ None
- ❍ $1-$9,999
- ❍ $10,000-$19,999
- ❍ $20,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$49,999
- ❍ $50,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000+
- ❍ Don't know

Q63 How many years have you been enrolled in post-secondary or higher education (not counting any post-secondary work completed in high school)?
- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5 or more

Q64 What is your major(s) or field of study?
Primary major _____
If applicable, second major: _____

Q65 What broad category does your major(s) fall under? Please select all that apply.
- ❑ Arts or Humanities
- ❑ Business
- ❑ Education
- ❑ Health or Medicine
- ❑ Social Sciences
- ❑ STEM (Science, Engineering, Technology or Math)
- ❑ Vocational
- ❑ Other

Q66 What is your cumulative grade point average (GPA)? Please enter using numbers only and to two decimal places (e.g. 2.73). _____

FINANCIAL KNOWLEDGE

Q67 Imagine that the interest rate on your savings account is 1% per year and inflation is 2% per year. After 1 year, would you be able to buy more than today, exactly the same as today, or less than today with the money in this account?
- ❍ More than today
- ❍ Exactly the same as today
- ❍ Less than today
- ❍ Don't know

Q68 Suppose you have $100 in a savings account and the interest rate was 2% per year. After 5 years, how much would you have in the account if you left the money to grow?
- ❍ More than $102
- ❍ Exactly $102
- ❍ Less than $102
- ❍ Don't know

Q69 Suppose you borrowed $5,000 to help cover college expenses for the coming year. You can choose to repay this loan over 10 years, 20 years, or 30 years. Which of these repayment options will cost you the least amount of money over the length of the repayment period?
- ❍ 10-year repayment option
- ❍ 20-year repayment option
- ❍ 30-year repayment option
- ❍ Don't know

Q70 All paycheck stubs show your gross pay (the total amount you earned before any taxes were taken out for the pay period) and your net pay (the amount of your check after all taxes). The taxes that are commonly taken out include federal, state and local income tax, Social Security tax, and Medicare tax. On average, what percentage of your income would you expect to receive as take-home pay?

- ❍ 100%
- ❍ 90-99%
- ❍ 80-89%
- ❍ 70-79%
- ❍ Don't know

Q71 Over a long period of time, which of the following types of investments will give you the highest rate of return on average?

- ❍ Savings account
- ❍ Stocks
- ❍ Bonds
- ❍ Don't know

Q72 True/False: Maxing out your credit card will negatively impact your credit score, even if you make the minimum monthly payments.

- ❍ True
- ❍ False
- ❍ Don't know

ADDITIONAL DEMOGRAPHICS

Routed to students at public institutions only

Q73 Do you currently qualify for:

- ❍ In-state tuition
- ❍ Out-of-state tuition
- ❍ International student tuition

Q74 What is your current annual income?

- ❍ $0
- ❍ $1-$2,499
- ❍ $2,500-$4,999
- ❍ $5,000-$7,499
- ❍ $7,500-$9,999
- ❍ $10,000-$14,999
- ❍ $15,000-$19,999
- ❍ $20,000-$24,999
- ❍ $25,000-$29,999
- ❍ $30,000 or higher
- ❍ Don't know
- ❍ Prefer not to answer

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Q75 What is your parent(s)/ guardian(s) current annual income?
- ❍ Less than $15,000
- ❍ $15,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000-$149,999
- ❍ $150,000-$199,999
- ❍ $200,000 or higher
- ❍ Don't know
- ❍ Prefer not to answer

Q76 What do you expect your starting annual salary to be when you enter the workforce after completing your current degree?
- ❍ N/A, I plan to pursue additional education immediately following completion of my current degree
- ❍ N/A, not planning on entering the workforce
- ❍ Less than $15,000
- ❍ $15,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000-$149,999
- ❍ $150,000-$199,999
- ❍ $200,000 or higher

Q77 What do you expect your annual salary to be 10 years after entering the workforce?
- ❍ N/A, not planning on entering the workforce
- ❍ Less than $15,000
- ❍ $15,000-$29,999
- ❍ $30,000-$39,999
- ❍ $40,000-$59,999
- ❍ $60,000-$79,999
- ❍ $80,000-$99,999
- ❍ $100,000-$149,999
- ❍ $150,000-$199,999
- ❍ $200,000 or higher

2017 SCFW INSTRUMENT

Q78 Where do you currently live?
- ❍ On-campus in residence halls or college/university owned apartment or housing
- ❍ On-campus in sorority or fraternity housing (e.g., floor within residence hall, college/ university-owned apartment or housing)
- ❍ Off-campus in sorority or fraternity house or residence
- ❍ Residence within walking distance of campus (e.g., apartment or house not owned by university)
- ❍ Residence outside of walking distance of campus (e.g., apartment or house not owned by university)

Q79 Who do you currently live with? Please check all that apply.
- ❑ Alone
- ❑ My roommates
- ❑ My parent(s) or guardian(s)
- ❑ My spouse or partner
- ❑ My child or children
- ❑ With other family members

Q80 What is your current marital status?
- ❍ Single, never married
- ❍ Married
- ❍ Separated
- ❍ Divorced
- ❍ Widowed

Q81 Are you:

	No	Yes
A varsity-level athlete?	❍	❍
A member of a sorority or fraternity?	❍	❍
A current or former member of the United States military?	❍	❍
A member of the Reserve Officers' Training Corps (ROTC)?	❍	❍
A DACA student? (i.e., a student who has received Deferred Action for Childhood Arrivals)	❍	❍

Q82 Is English your native language (the first language you learned to speak as a child?)
- ❍ Yes
- ❍ No
- ❍ I learned both English and another language at the same time

2017 SCFW INSTRUMENT

FOOD SECURITY ON CAMPUS (OPTIONAL MODULE)

Q83-Q87 From the Six-Item Food Security Scale, developed by the National Center for Health Statistics.

Q83 For these statements, please indicate the extent to which the statement was often true, sometimes true or never true for you or your household in the last 12 months.

	Never True	Sometimes True	Often True	Don't Know/Prefer not to Answer
I worried whether my food would run out before I got money to buy more.	❍	❍	❍	❍
The food that I bought just didn't last, and I didn't have money to get more.	❍	❍	❍	❍
I couldn't afford to eat balanced meals.	❍	❍	❍	❍

Q84 In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

- ○ Yes
- ○ No (Skip to Q86)
- ○ Don't Know/Prefer not to Answer (Skip to Q86)

If YES to Q84:

Q85 How often did this happen?

- ○ Almost every month
- ○ Some months but not every month
- ○ Only 1 or 2 months
- ○ Don't know

Q86 In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- ○ Yes
- ○ No
- ○ Don't Know/Prefer not to Answer

Q87 In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

- ○ Yes
- ○ No
- ○ Don't Know/Prefer not to Answer

Appendix C: Study on Collegiate Financial Wellness Information

The Study on Collegiate Financial Wellness (SCFW) is a survey developed by The Ohio State University Center for the Study of Student Life in 2017 and was first administered in 2014 under the name of National Student Financial Wellness Study. A summary of the SCFW issued by The Ohio State University (cssl.osu.edu/study-on-collegiate-financial-wellness, 2019) explains:

> The Study on Collegiate Financial Wellness (SCFW) was designed to develop a more thorough and accurate picture of the financial wellness of college students throughout the United States. The objectives of the study are to assess students' financial attitudes, knowledge, stress and behavior while examining the relationship between these aspects of financial wellness and students' academic success during college.

The SCFW measures six financial wellness elements: financial socialization, financial self-efficacy, financial strain, positive financial behaviors, negative financial behaviors and financial knowledge. The study reached 65 institutions across 90 campuses, including four-year public (n =38, 58.4% of participating institutions), four-year private (n =6, 9.2% of participating institutions) and two-year public (n =21, 32.3% of participating institutions). The SCFW received 57,078 responses in total from all participating institutions, as shown in Table 5.

Table C.1: SCFW Response Rates

	Invited Students	Student Responses	Response Rate
All Institutions	271,191	28,539	10.5%
2 Year Institutions	90,141	6,234	6.9%
4 Year Public Institutions	166,215	19,312	11.6%
4 Year Private Institutions	14,835	2,993	20.2%
Total	542,382	57,078	49.2%

The Ohio State University, 2017

Forty-seven institutions chose to participate in the optional food security module of the SCFW. This module measures food security using the USDA Household Food Security six-item short form, with one additional question developed by The Ohio State University Center for the

Study of Student Life. Students were grouped into three levels of food security: high or marginal, low, and very low food security depending on their raw score of the six items not including the questions developed by the Ohio State University. The response rate for the food security module follows in Table 6, however it should be noted the data is not nationally representative.

Table C.2: SCFW Food Security Module Response Rates

Institution Type	Number of Institutions Participating in Module	% of Total Food Security Sample
4-Year Public	25	53.2%
4-Year Private	3	6.4%
2-Year	19	40.4%
Total	47	100%

The Ohio State University, 2017

Appendix D: Variable Definitions and Formatting

Variable Definitions

Table D.1: Definitions of Financial Management Behavior Variables

Variable	Definition
cash400	The likelihood of coming up with $400 in cash in the event of a financial emergency during the school year?
impulsepurchases	I made impulse purchases.
trackspending	I tracked my spending.
plannedmajorpurchases	I planned ahead for major purchases.
monitoraccountbalances	I monitored my account balances.
overdrewbankaccount	I overdrew my bank account.
purchasedcantafford	I purchased things I could not afford.
latepayments	I made late payments on bills or educational expenses.

Table D.2: Definitions of Financial Self-Efficacy Variables

Variable	Definition
confidentfinances	I am confident that I can manage my finances.
goodfinancialdecisions	I am able to make good financial decisions.
incontrolfinances	I feel in control of my finances.
planfuture	I am confident in my ability to plan for my financial future.
infofinances	I am able to get the information I need about finances.
challengesolution	When faced with a financial challenge, I have a hard time figuring out a solution.
resistimpulsepurchases	I can resist the urge to make impulse purchases.

Table D.3: Definitions of Demographic Variables

Variable	**Question/Statement**
age	What is your age?
gender	What is your gender?
race/ethnicity	Which of the following represents your race/ethnicity?
tuitionstatus	Do you currently qualify for: in-state tuition, out-of-state tuition, international student tuition?
enrollmentstatus	Which of the following best represents your enrollment status? Full-time, part-time, non-degree seeking (e.g., taking classes but not currently pursuing a degree)
GPA	What is your cumulative grade point average (GPA)?
currentlylive	Where do you currently live?
livewith	Who do you currently live with? Check all that apply.
pellgrant	Have you been offered or received the Pell grant while pursuing your current degree?
federalworkstudy	Have you been offered or received a federal work study grant while pursuing your current degree?
hourswork	How many hours a week do you typically work, on average, during the academic year?
firstgen	At least one parent had a BA degree or higher.

Variable Formatting

Three demographic variables were filtered to accommodate low responses in order to attain sufficient sample sizes for statistical analyses. Due to low responses, age categories '30-39' (n=10), '40-49' (n=6), '50-59' (n=2), and '60 or older' (n=0) for the variable *age* were excluded, leaving two categories in total: ages '18-23' (n=417), and ages '24-29' (n=46). The majority of the data fall in these two age categories which most strongly reflect the college age population. The categories for the variable *gender* 'Genderqueer/Gender Non-conforming' (n=4), 'Intersex' (n=0), 'Transgender Male/Transgender Man' (n=0), 'Transgender Female/Transgender Woman' (n=0), 'Preferred Identity (in addition to or not listed)' (n=1), and 'Prefer not to state' (n=2) were excluded due to very low responses, leaving two categories: 'male' (n=171) and 'female' (n=303) of which the majority of the data fall into. The categories for the variable *race/ethnicity* 'Asian American/Asian' (n=23), 'Black or African American' (n=7), 'Native Hawaiian or Other Pacific

Islander' (n=3), 'Native American/American Indian/Alaskan Native' (n=13), 'Middle Eastern/Arab American' (n=7), 'Other' (n=1), and 'Prefer not to answer' (n=8) were excluded due to very low response rates. The majority of the data falls into the category 'White' (n=417), which is representative of the racial/ethnic demographic make-up of the majority of the population within the geographical location of this institution.

Variables were also collapsed in order to attain sufficient sample sizes for statistical analyses. For both the variables *Pell grant* and *federal work study*, the categories 'I don't know' contain insufficient data, and were combined with the category 'no', leaving two categories for each variable: 'yes' and 'no/I don't know.' The categories 'part-time' and 'non-degree' are combined to form two categories for the variable *enrollment status*: 'full-time' and 'part-time/non-degree.' Categories for the variable *GPA* '0.00-0.99,' '1.00-1.99,' and '2.00-2.99' were collapsed due to low counts to form the category '2.99 and below'; and categories '3.00-3.99' and '4.00' were combined to form the category '3.0 and above.' To collapse *tuition status* categories, 'out-of-state' and 'international' were combined to form two categories: 'in-state' and 'out-of-state' tuition. International students are charged out-of-state tuition at this institution. The categories in variable *hours worked* '1-5,' '6-10,' '11-15,' and '16-20' were collapsed into one category: '20 hours or less'; and categories '21-25,' '26-30,' '31-35,' '36-40,' and 'over 40' were combined into the category '21 hours or more.' The rationale for collapsing *hours worked* into these two categories is related to the institutional requirement of the maximum hours a student can work in a week (i.e., 20 hours) when awarded a federal work study.

The two living arrangement variables *currently live* and *live with* were also collapsed to achieve sufficient sample size. *Currently live* categories 'on-campus in residence halls or college/university-owned apartment or housing' and 'on-campus in sorority or fraternity housing (e.g., floor within residence hall, college/university-owned apartment or housing)' were combined to form the category 'on-campus'; and categories 'off-campus in sorority or fraternity house or residence,' 'residence within walking distance of campus (e.g., apartment or house not owned by

university),' and 'residence outside of walking distance of campus (e.g., apartment or house not owned by university)' were combined to form the category 'off-campus' for two categories total. Categories in the variable *live with* 'my parent(s) or guardian(s),' 'my spouse or partner,' 'my child or children,' and 'with other family members' were combined to form the category 'with family.' The category 'more than one of the above' was filtered due to the low number of responses (n=31). In total, three categories remain for the variable *live with*: 'alone,' 'roommates,' and 'family.'

Financial variables were also formatted due to low responses in some categories. The four response categories for the variable *cash 400* were collapsed into two: 'very/somewhat unlikely' and 'somewhat/very likely.' The four categories 'never,' 'rarely,' 'sometimes,' and 'frequently' for the variables '*impulse purchases,' 'track spending,' 'planned major purchases,' 'monitor account balances,' 'overdrew bank account,' 'purchased can't afford,'* and *'late payments*' were combined to form two categories: 'never/rarely' and 'sometimes/frequently.' The four categories 'strongly disagree,' 'disagree,' 'agree,' and 'strongly agree' for the variables '*confident finances,' 'good financial decisions,' 'in control finances,' 'plan future,' 'info finances,' 'challenge solution,'* and *'resist impulse purchases'* were combined to form two categories: 'strongly disagree/disagree' and 'agree/strongly agree.'

Appendix E: Additional Figures

Figure E.1: Food Insecurity and Age

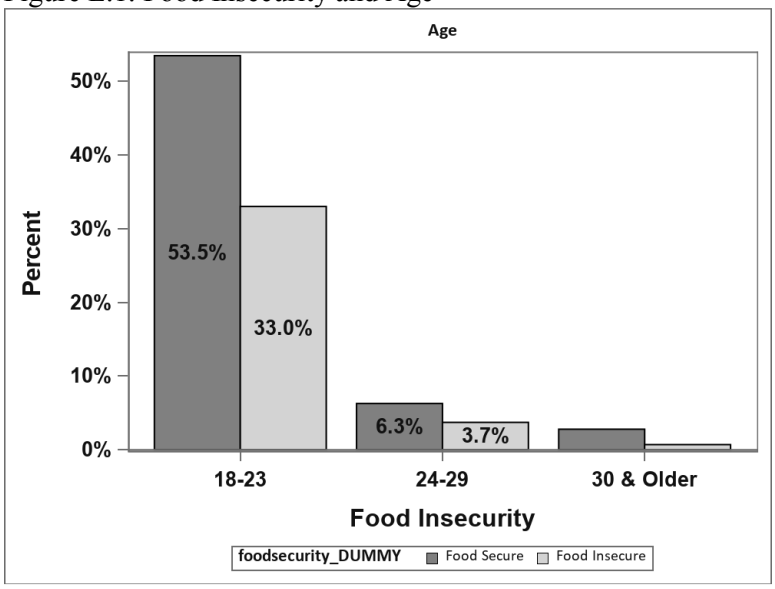

Figure E.2: Food Insecurity and Gender

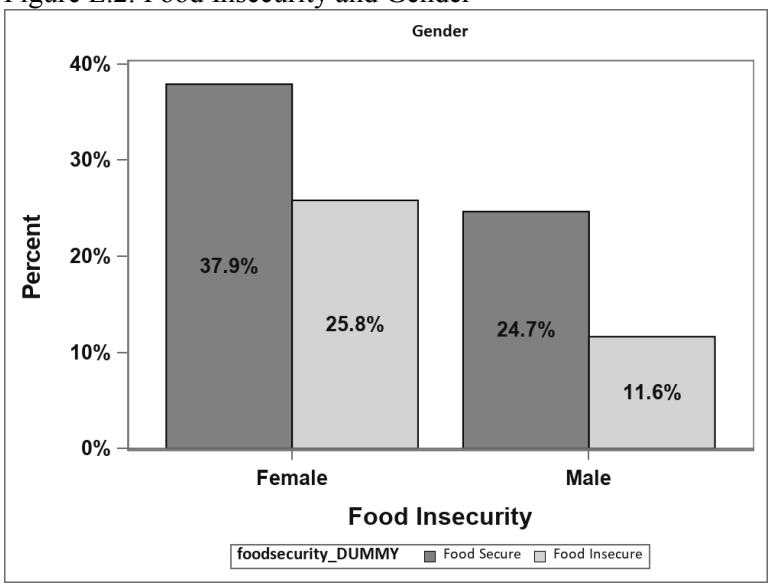

Figure E.3: Food Insecurity and Cash $400