

University of Mississippi

eGrove

---

Honors Theses

Honors College (Sally McDonnell Barksdale  
Honors College)

---

Spring 4-30-2021

## Relationship Between Anxiety And Dietary Quality In College Students

Katie Darnell

Follow this and additional works at: [https://egrove.olemiss.edu/hon\\_thesis](https://egrove.olemiss.edu/hon_thesis)



Part of the [Dietetics and Clinical Nutrition Commons](#), and the [Food Studies Commons](#)

---

### Recommended Citation

Darnell, Katie, "Relationship Between Anxiety And Dietary Quality In College Students" (2021). *Honors Theses*. 1752.

[https://egrove.olemiss.edu/hon\\_thesis/1752](https://egrove.olemiss.edu/hon_thesis/1752)

This Undergraduate Thesis is brought to you for free and open access by the Honors College (Sally McDonnell Barksdale Honors College) at eGrove. It has been accepted for inclusion in Honors Theses by an authorized administrator of eGrove. For more information, please contact [egrove@olemiss.edu](mailto:egrove@olemiss.edu).

RELATIONSHIP BETWEEN ANXIETY AND DIETARY QUALITY IN COLLEGE  
STUDENTS

By

Katie Darnell

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the  
requirements of the Sally McDonnell Barksdale Honors College.

Oxford  
May 2021

Approved by:

---

Advisor: Georgianna Mann

---

Reader: Melinda Valliant

---

Reader: Nadeeja Wijayatunga

© 2020

Katie Michael Darnell

ALL RIGHTS RESERVED

## **Acknowledgements**

I would like to begin by thanking Dr. Georgianna Mann for serving as my thesis advisor. Thank you for always keeping me on task and responding to all my emails regarding thesis questions and other concerns about classes. Thank you for your constant understanding and patience. Your encouragement and advice have kept me motivated throughout this entire process, and I am beyond grateful for the opportunity to work alongside you. I would like to thank Dr. Melinda Valliant and Dr. Nadeeja Wijayatunga for serving as my second and third readers.

I would also like to thank my family for supporting me and always having my back through all four years of my time here at the University of Mississippi. I would like to thank my friends that I have made at Ole Miss for all of the encouragement and accountability I have received on my good days and stressful days. I will forever be thankful for all of the opportunities, friends, and memories that I have gained from attending the University of Mississippi.

## ABSTRACT

### KATIE DARNELL: RELATIONSHIP BETWEEN ANXIETY AND DIETARY QUALITY IN COLLEGE STUDENTS

(Under the direction of Georgianna Mann)

College students across many universities show high levels of anxiety in the transition from high school to college. These students must learn to adapt to a higher demand of focus and work that a college education requires, and some students find the pressure to be too much to handle. The purpose of this study was to determine whether college students with high anxiety displayed a poorer diet quality. The sample was college students ( $N=44$ ) enrolled in undergraduate studies at the University of Mississippi. Students completed an anonymous 39-item questionnaire about their prevalence of anxiety and consumption rates of certain food groups.

Findings suggest that there is a strong prevalence of anxiety within the population of college students. Most students (63.6%) displayed high levels of anxiety. Findings displaying the consumption of food groups and nutrients suggested that the group showing high levels of anxiety were significantly associated with higher consumption rates of whole fruits, total protein, and sodium. Advertising resources that offer education on proper nutrition could be a successful method to improve diet quality in college students. Alternative coping mechanisms for anxiety such as online interventions and meditation could also be effective in lowering anxiety levels in college students.

## **PREFACE**

My interest in college students struggling with anxiety began with my personal experience with transitioning into the college environment. I am someone that has always struggled with change, and I found it difficult to adapt after moving to Oxford for school. I had seen my older sister make her way through college and successfully making new friends and doing well in school, but I never knew what to expect for myself. It was a great sense of worry and anxiety that I wish I had been more prepared for with available resources. I have also always been a picky eater, and I have been known to limit myself to a select amount of food groups. It quickly came to my attention during my own freshmen year of college that healthy, fresh meals are hard to prepare on campus in a dorm room. Coming from living at home and having fresh meals cooked for me to eating out every meal was difficult and harmful for my physical health.

My goal is to reach those that are struggling with anxiety and offer some comfort or assistance in a way. As someone planning on going into dentistry, anxiety is extremely frequent in patients. Understanding proper nutrition is also important as a dentist because there are many factors that a poor diet can play into your oral health. I strive to provide my future patients with a comforting and successful experience while also providing helpful advice about their nutrition habits. I have a better understanding of the correlation between anxiety and nutrition after this thesis, and I plan to use the knowledge that I have gained in my future career.

## TABLE OF CONTENTS

LIST OF TABLES.....	vii
INTRODUCTION.....	1
CHAPTER I: LITERATURE REVIEW.....	3
CHAPTER II: METHODS.....	11
CHAPTER III: RESULTS .....	13
CHAPTER IV: DISCUSSION .....	16
CONCLUSION.....	20
LIST OF REFERENCES.....	21
APPENDICES.....	26

## LIST OF TABLES AND FIGURES

Table 1	Results of Independent t-tests in Healthy Eating Behaviors across High and Low Anxiety Groups
Figure 1	Graph of sHEI Descriptives in Low Anxiety and High Anxiety Groups



## INTRODUCTION

Stress and anxiety are prevalent among college students and are associated with poor health and negative dietary choices among the population. College students reported stress (32%), sleep difficulties (20%), anxiety (26%), and depression (17%) as factors that most affected their academic performance (Patten and Vaterlaus, 2020). The transition from high school to college introduces numerous changes that can be difficult. These changes include a decrease in parental influence, increased peer pressure, greater alcohol consumption, and a higher academic demand (Choi, 2020). Living situations can also be a major adjustment that can contribute to a shift to negative choices in college students (El Ansari et. al., 2012).

College students develop poor habits that are often used to manage their stress and anxiety, and these habits have been found to lead to a decline in their mental and physical health. Worldwide, it is estimated that 12–50% of college students present at least one diagnostic criterion for one or more mental disorders such as depression and anxiety (Ramón-Arbués et al., 2020). A decline in physical health, especially excessive or sudden weight gain, is also an outcome of increased anxiety in college students (Crombie et. al., 2009). High levels of anxiety can lead to dietary behaviors that include under- and over-eating (Choi, 2020). College students have lifestyles and dietary habits that differ from those of the general population, often relying on quick and easily accessed meals (Choi, 2020). The majority of the meals that college students rely on come from fast food restaurants that can contribute an excessive consumption of nutrients such saturated fats and sodium (Banik et. al., 2020).

College students experience heightened levels of anxiety from stressors introduced throughout a college environment. The goal of this study was to examine anxiety levels of college students and their diet quality to discover how anxiety correlates with eating behaviors.

## CHAPTER 1: LITERATURE REVIEW

### Stress and College Students

Stress is defined as a disturbance to one's physiological homeostasis or psychological well-being (Choi, 2020). It is prevalent in college populations and a growing issue among university students (Beiter et. al, 2015). Relatively high rates of stress and associated disorders have been found in college student populations around the world. Depression and anxiety in a group of college students was measured using the Beck's Depression Inventory and Beck's Anxiety Inventory questionnaires (Shah and Pol, 2020). The results from this study showed depression was found to be prevalent in about 48.30% of the students, whereas anxiety was prevalent in 50% of these students (Shah and Pol, 2020). Another study of first-year college students in Australia showed 53% of students suffered from stress (Papier et al., 2015). A Spanish study found that 44.7% of university students showed emotional distress indicative of anxiety, regardless of their field of study (Carlos et. al., 2020). The outcomes of these studies show that stress and anxiety is an issue that has intensely escalated throughout college students all over the world. The rise of stress levels in college students can be observed during the transition to a more independent lifestyle that comes when those students move from home to a college town and environment. From new friends and new professors, college students deal with numerous adjustments at once. Stressors that they could face may include parental expectations, perceived rejection by peers, parents, and teachers, academic pressure, fear of failure, lack of supportive environment in the university, favoritism, and relationships, which can cause a spike in symptoms of depression (Shah and Pol, 2020). Causes of stress can include academic pressure stemming from factors such as exams and workload, lack of leisure time, competition, concerns about not meeting parents' expectations, establishing new personal relationships and moving to a

strange location, biological factors such as age and gender where females tend to have higher levels of anxiety, and financial burden (Ramón-Arбуés et. al., 2020). The difficulties of college students to adjust to the new environment and associated stressors can lead to negative dietary habits such as excessive alcohol consumption and stress-related under- or over-eating (Choi, 2020). The new college environment brings responsibilities such as autonomy over food choices, but many studies show that college students struggle to balance this with other responsibilities (El Ansari et. al., 2012). The new exposure is associated with great adaptation, including changes in diet and poor eating habits such as skipping meals, inadequate nutrition, and frequent intake of fast food (Carlos et. al., 2020). Elevated levels of stress in college students have been seen to contribute to negative eating habits and weight gain. Crombie et. al. (2009) observed weight gain in first year college students and noted that coping methods to stress such as excessive eating and alcohol consumption contribute to declines in both psychological and physical health (Crombie et. al., 2009). Carlos et al. (2020) found that studies conducted in recent decades have found that stress and negative emotions are often associated with increased food consumption. Anxiety can also lead to greater consumption of foods with a high fat and sugar content as a coping strategy and may alter the cerebral reward system, changing healthy dietary habits in favor of unhealthy foods (Carlos et. al., 2020). As college students try to cope with high levels of stress, anxiety, and depression, it is important for universities to provide resources for students that are struggling to maintain a healthy lifestyle under pressure.

### **Health of College Students**

New dietary patterns of college students tend to include an excess of fat and calories which can lead to chronic disease (Deshpande et. al., 2009). Stress and anxiety have been found to be a motivating factor that drives these negative dietary decisions in college students (Choi,

2020). These stressors along with lifestyle change, have the power to enrage the desire for energy dense food that seems comforting. Studies have shown an increase in the preference for carbohydrate-rich foods during times of distress, as well as an increase in consumption of high-calorie and high-fat snack foods on stressful days (Choi, 2020). Excessive, sudden weight gain can contribute to health complications along with food choice, nutrition, and lifestyle factors that also have an independent effect on mental and physical health including some types of cancer, cardiovascular disease, and diabetes (Deshpande et. al., 2009). It has been found that most students gain weight during the first year of college (Choi, 2020). There is even a phenomenon known as the “freshman 15” that refers to the number of pounds purportedly gained during the first year of attending university (Crombie et. al., 2009). It was also reported that approximately 35% of US college students are overweight or obese based on self-reported height and weight when compared to high school students (Pribis et. al., 2010). These studies showing excessive weight gain and obesity status demonstrate how health may not be the primary concern of college students, and mentions different questionnaires that can be used to measure this status of health. For example, the Healthy Eating Index (HEI) is used to score diet quality by asking questions that assess the amount of food groups and nutrients that are consumed. A low score on the HEI, such as excessive sugar intake or not meeting guidelines for fruit and vegetable consumption, has been associated with an increased risk of obesity and other chronic diseases (Colby et. al., 2020). A study that observed the diet quality of college students using the HEI found that obese students had lower HEI component scores for added sugars and seafood and plant proteins compared to normal weight students (Sunbul et. al., 2019). Carlos et. al. (2020) reported a review of studies carried out between 2002 and 2014 on the habits of university students found that, on the whole, students do not have healthy eating habits, have a poor diet

with a high intake of calories and excessive alcohol consumption, among other substances. Along with a high intake of calories, students also tend to eat fewer fruits and vegetables on a daily basis (Deshpande et. al., 2009). The majority of these studies conclude that college students follow unhealthy eating patterns that consist of increases in fat consumption. It has been found that a diet high in saturated fat, trans fat, and cholesterol is known to raise levels of serum blood cholesterol and can negatively impact cardiovascular health (Yahia et. al., 2016). The lifestyle change and diet shift have negative side effects on the health of college students that last well into post-graduation. What may seem like a short period of life spent consuming an excess amount of calories, alcohol, and fat has the potential to result in health complications that could be irreversible.

### **Causes of Poor Health in College Students**

College students are not solely self-motivated to change their dietary habits. Using a social ecological model, it is evident how social and physical environments, as well as macro-level environments such as food marketing companies can also have a negative influence on dietary habits in college students (Story et. al, 2008). Individual motivating factors can include personal emotions and beliefs (Story et. al, 2008). A study that observed weight gain in college students found that emotion- and stress-related eating may be used as a measure to cope (Brantley et. al., 2020). According to Crombie (2009), emotional eating refers to the tendency to eat as an automatic response to negative emotions and implies the disproportionate intake of food, regardless of the hunger the person may feel. College students can face many emotional strains due to leaving home, finding new friends, or deciding on a major. Alcohol may also be used as a coping mechanism. The concept of “binge-drinking”, the action of consuming a significant amount of alcohol in a small time frame, is prevalent in the college-age group.

Research by Eisenberg and Fitz (2014) described how peer pressure increases these behaviors in order to gain social approval. Another study found that college students generally drink to excess as a way to reduce stress and deal with social anxiety, and it was also noted that 50% of students report consuming alcohol on weekends (Carlos et. al., 2020). The act of binge-drinking and excessive alcohol consumption can have lasting effects on college students' mental and physical health (Carlos et. al., 2020).

Emotional stress can lead to poor health behaviors, but physical environments such as living situations and food facilities on campus can also have a negative impact on the eating behaviors (Story et. al, 2008). There are different choices of where to live in a college town including on-campus or off-campus. On-campus living consists of dining that is provided by the university, which may not always be the healthiest choice for students. The new- found independence of campus life is accompanied by the introduction of "all- you-can-eat" dining facilities and high alcohol consumption (Nelson et. al., 2008). The majority of housing on campus does not contain a kitchen, which limits the option of cooking a fresh, healthy meal. A study found that students living on campus reported significantly less frequent food preparation proving that a lack of facilities available for cooking has contributed to a decline in access to a nutritious meal (El Ansari et. al., 2012). College students are exposed to many personal, social, and physical factors ranging from peer pressures to living situations that encourage negative food choices that can lead to poor health (Story et. al, 2008).

### **Prevalence of Convenience Foods**

Frequent dining out among college students leads to diets higher in fats and calories. Motivated by their college budget, college students contribute to this diet by choosing the most convenient, cheapest option while dining out (Yahia et. al., 2016). Choi (2020) noted that besides

taste, convenience is the most important motivator for food choices in college students. Other research supports this same claim that taste, cost, nutrition, convenience, pleasure, and weight control, respectively are primary driving factors of food choice for adults (Deshpande et. al., 2009). A study of fast food and take-out consumption in Chinese college students found that graduate students tend to have higher academic pressure and less spare time and are more likely to consume take-out food (Pelletier et. al., 2016). Fast food restaurants such as McDonalds, CookOut, Wendy's, and Sonic market towards college students in college towns with cheap meals and late-night snacks. However, college students are getting addicted to fast food and leading themselves at risk of different health problems (Banik et. al, 2020). Nelson (2008) described how fast food consumption has been associated with weight gain over time. Banik (2020) performed a study of the prevalence of fast food in college students, and the team discovered that a greater percentage of obesity was observed among the participants who consumed fast foods frequently. Convenience foods appear to be the better financial and faster dinner option for college students, however the risks associated with excessive exposure to fast food are not preferable.

### **Accessibility to Healthy Foods**

Many studies emphasize the harm that the college student diet can have on one's health; however, many college students do not have any other options. Food insecurity is a prevalent issue of all ages throughout the United States. Food insecurity is described as limited or uncertain availability of nutritionally adequate and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways due to a lack of money or other resources (Payne-Sturges et. al., 2018). A facet of food insecurity can also include a lack of access to healthy food options, including fresh produce (Stebleton et. al., 2020). Wood (2018) noted that

67.0% of college students experience some degree of food insecurity. Many students only have access to the availability of food on campus due to transportation. Nelson (2008) noted in their study that less than half of US college students own automobiles. These students rely heavily on what is offered on-campus or what they can reach using a free transportation system such as a bus line which depends on the school and city where they are located. Eateries on college campuses are often all-you-can-eat meals and may contribute to weight gain (Crombie et. al., 2009). Also, access to affordable food off-campus may be more limited than through campus dining halls (El Zein et. al., 2019). Most universities offer meal plans for college students, and 70% of food-insecure students reported having a meal plan in a study observing food insecurity in first-year college students in the United States (El Zein et. al., 2019). Stebleton et. al. (2020) explained how the romanticized myths of college students surviving off of Ramen and frozen pizzas, evidence suggests that students' concerns about lack of food and financial resources are more dire and austere than in previous years. The participants of this study also reported feeling worried about money and the ability to pay for expenses, including food, and most of the participants blamed their anxiety solely on access to affordable food (Stebleton et. al., 2020). Another study observing students that classified as food insecure found that those students were more likely to report inability to eat balanced meals (80%), eating less (69%), and being hungry (69%) because there wasn't enough money for food during the past year (Payne-Sturges et. al., 2018). The act of skipping meals was also associated with food insecurity in college students as a common way to save money.

Actions such as these contribute to emotional and physical strain on college students, and one of the primary issues that college students face with food insecurity is mentally handling the circumstance. Stebleton et. al (2020) noticed that food insecure students are more likely to



experience mental health issues. Students dealing with food insecurity face mental challenges such as increased rates of depression, anxiety, and suicidal ideation (Stebbleton et. al., 2020). Academic obstacles are resulted from increased rates of anxiety due to issues such as food insecurity, and these obstacles have been seen to ultimately impact students' ability to graduate from college (Stebbleton et. al., 2020). Henry (2017) noted in a study that students struggle focusing on the importance of school when they are hungry and worried about where they will get their next meal. Food insecurity is a widespread problem all over the world, and universities have attempted to supply and support students in many different ways. Universities provide the options of food banks and free grocery stores on campus that students can access in the case of food insecurity. Other assistance programs include those at the federal level such as the Federal Pell Grant and Supplemental Food Assistance Program (SNAP) that order a handful of requirements in order to receive help (El Zein et. al. 2019). However, there are ways for college students to receive aid while struggling with accessibility to healthy foods, but these are difficult circumstances for students at that age to balance along with academic success.

Through the transition into college and throughout their college years, students encounter stressful situations regarding school, peers, and living arrangements. This situations can cause students to experience high anxiety levels that lead to poor diet choices and lifestyle choices. Students often turn to cheap, unhealthy options of food as well as alcohol. These choices have led to an increase in health complications and food insecurity in college students.

## CHAPTER 2: METHODS

### Survey Development

A 39-item questionnaire was used to survey college students on their levels of anxiety and dietary behaviors. This anonymous questionnaire included two short surveys. The questionnaire consisted of the *Generalized Anxiety Disorder (GAD) Screening Tool* and the *short Healthy Eating Index Survey (sHEI)* (Colby et. al., 2020). The GAD included nine questions involving causes, symptoms, and levels of anxiety. Pierson et. al. (2017) found that the GAD-Q-IV screening tool was reliable. The sHEI survey included questions to estimate servings of specific food groups consumed on a regular basis. Using the sHEI survey to assess the diet quality of college students, a study found that the 22-item tool has less respondent and researcher burden than many other dietary quality assessment instruments currently available in dietary research (Colby et. al., 2020). Most of the questions in the GAD Screening tool were based on a scale from 0-8 or from “not at all” to extremely or multiple choice. In the sHEI survey, most of the questions were presented as a scale ranging from “less than 1” to “6 or more” when referring to how often the foods listed were consumed “per day/week/month.” The final question of the survey asked the gender of the participant.

### Participants

All college students were contacted through social media with a recruitment message that contained a Qualtrics software (Qualtrics, Provo, UT) link for access to the questionnaire. The survey was available between November 2, 2020 and November 16, 2020. A raffle for a possibility to win a \$25 Amazon gift card was used as an incentive to encourage participants. The form to enter the raffle was kept separate from and located at the end of the anonymous questionnaire, so the participants could enter their name and email for a chance to win a gift card

after completing the survey. The winners of the gift cards were contacted through email, and the participants who entered the raffle but did not win were informed and thanked through email. The last link of the survey took participants to a separate form where they could fill out their name and email to enter a drawing for the incentive. This study (#21x-066) was approved by the University of Mississippi Internal Review Board (IRB).

### **Data Analysis**

SPSS software (IBM SPSS Statistics for Macintosh, Version 27.0.0.0) was used for a descriptive data presentation and statistical data analyses. Incomplete responses were excluded. Independent T-tests were run across low and high anxiety groups comparing anxiety levels to healthy eating index scores. The statistical significance utilized the alpha level of .05. Cohen's d was used to measure the size of effects using a value of 0.5 that represents a medium effect size.

### CHAPTER 3: RESULTS

The sample ( $N = 44$ ) consisted of 27.2% male and 72.7% female. The ages of the subjects ranged from 18 to 22; all participants were college undergraduate students. Thirty responses were excluded due to incompleteness.

The low anxiety group included GAD scores from 1.33 to 7.33, where the high anxiety group included scores from 7.58 to 12.50. The mean of total GAD scores ( $M = 7.45$ ) was used as the cut-off score that separated the low GAD group and high GAD group. The minimum total GAD score was 1.33 beginning the lower anxiety group, and the maximum total GAD score was 12.50 beginning the higher anxiety group. The higher GAD score group was composed of 28 participants (63.6%), and the lower GAD score group was composed of 16 participants (36.4%).

An independent samples t-test was performed on the healthy eating behaviors across the GAD score groups. The 28 participants in a high GAD score group ( $M = 4.182$ ,  $SD = 2.014$ ) compared to 16 participants in a lower GAD score group ( $M = 9.3214$ ,  $SD = 1.425$ ) demonstrated significantly better whole fruit consumption behavior,  $t(42) = 2.091$   $SD = .38$ ,  $p = .043$ . Total fruit consumption showed no significant difference between high GAD score and low GAD score groups  $t(42) = 1.837$   $SD = .534$ ,  $p = .073$ . There was also not a significant difference in the consumption of total vegetables  $t(42) = 1.694$   $SD = .190$ ,  $p = .098$ , greens and beans  $t(42) = 1.700$   $SD = .735$ ,  $p = .097$ , whole grains  $t(42) = .643$   $SD = .789$ ,  $p = .524$ , dairy  $t(42) = 1.129$   $SD = .407$ ,  $p = .265$ , or refined grains,  $t(42) = .689$   $SD = .783$ ,  $p = .494$ . The higher GAD score group demonstrated significantly more total protein consumption,  $t(42) = 2.045$   $SD = .109$ ,  $p = .047$ . However, the higher GAD score group and lower GAD score saw no significant difference in seafood and plant protein consumption,  $t(42) = .322$   $SD = .439$ ,  $p = .749$ , fatty acid consumption,  $t(42) = .184$   $SD = .372$ ,  $p = .855$ , or added sugar consumption,  $t(42) = .942$   $SD = .04$ ,  $p = .352$ .

The 28 participants in a high GAD score group ( $M = 4.182$ ,  $SD = 2.014$ ) compared to 16 participants in a lower GAD score group ( $M = 9.3214$ ,  $SD = 1.425$ ) demonstrated significantly higher sodium consumption,  $t(42) = 2.117$ ,  $SD = .649$ ,  $p = .040$ .

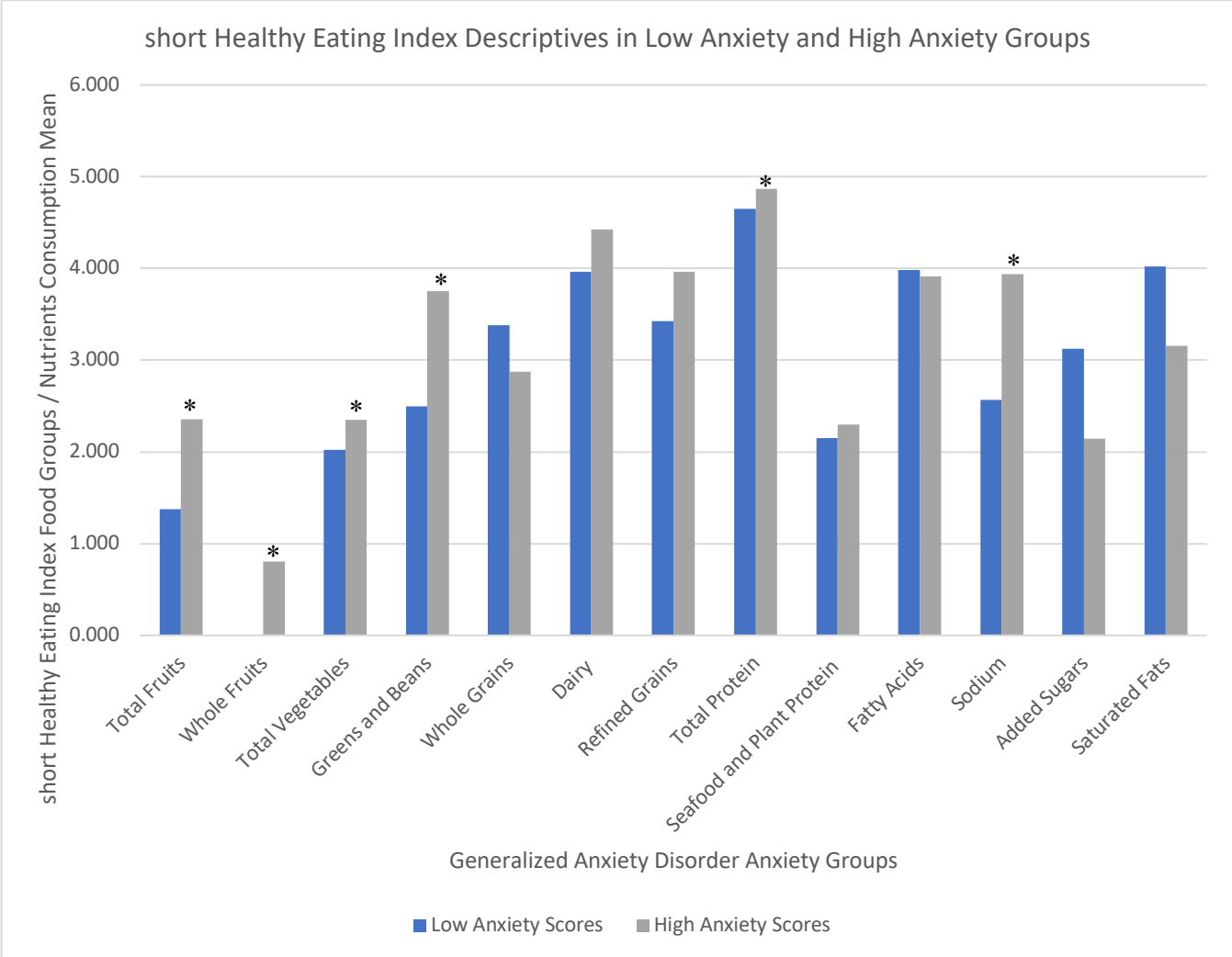
Although our study failed to detect the statistical significance of some food components due to the small sample size ( $n=44$ ), considerable effect sizes were noted. The effect size for total fruits ( $d = -.576$ ) was found to meet Cohen’s convention for a medium effect ( $d = .50$ ) on the higher anxiety group. The effect size for whole fruits ( $d = -.655$ ), total vegetables ( $d = -.531$ ), greens and beans ( $d = -.533$ ), total protein ( $d = -.650$ ), and sodium ( $d = -.664$ ) also met Cohen’s convention of a medium effect on the higher anxiety group.

Table 1. Results of Independent t-tests in Healthy Eating Behaviors using the sHEI across High and Low Anxiety Groups

<u>Healthy Eating Behaviors</u>	<i>t</i>	<i>SD</i>	<i>p</i>	<u>Cohen’s d</u>
Total Fruits	42	.534	.073	-.576
Whole Fruits	42	.380	.043	-.655
Total Vegetables	42	.190	.098	-.531
Greens and Beans	42	.735	.097	-.533
Whole Grains	42	.789	.524	.201
Dairy	42	.407	.265	-.354
Refined Grains	42	.783	.494	-.216
Total Protein	42	.109	.047	-.650

Seafood and Plant Protein	42	.439	.749	-.101
Fatty Acids	42	.372	.855	.058
Sodium	42	.649	.040	-.664
Added Sugars	42	1.04	.352	.295
Saturated Fats	42	.495	.088	.548

Figure 1: Graph of sHEI Descriptive Mean Scores in Low Anxiety and High Anxiety Groups



\*i.e. sHEI descriptives that were significant through Cohen’s d convention of .5

## CHAPTER 4: DISCUSSION

The purpose of this study was to explore the relationship between anxiety and diet quality in college students. The main findings were that college students with higher levels of anxiety consumed more whole fruits, protein, and sodium.

It was noted that anxiety and depression are exceptionally prevalent among college students (Patten and Vaterlaus, 2020). Most of the participating undergraduate students reported feelings of anxiety (63.6%). Patten and Vaterlaus (2020) reported similar rates of anxiety (60.4%) in their sample of undergraduate students (n=611, 91.8% female). Compared with the sample from this study, it was interesting to find that there was a similar prevalence of anxiety showing that it is a general issue among the population of college students at other universities. Similarly, Choi (2020) reported that out of the participants in their study (n=393), 47% said they eat when they are stressed. Results from this study also indicated that anxiety led to a decline in healthy eating behaviors. Some of these eating behaviors included an increase in sugar-based snacks and fast-food consumption (Choi, 2020). Based on this data, it is very likely that most college students experience symptoms of anxiety that lead to poor diet choices. These choices can be coping methods to reduce the feelings of anxiety such as excessive eating and binge drinking.

The findings from this study showed that students in the high anxiety group consumed significantly more whole fruits, protein, and sodium. The current dietary guidelines for Americans recommend limiting sodium consumption to less than 2300 mg per day (Frank and Chegg, 2016). The guidelines also recommend limiting sugar consumption to less than 10% of calorie intake per day (DeSalvo et. al., 2016). College freshmen were found to consume more sugar-sweetened beverages and added sugars which exceeded the recommended daily

consumption (Vilaro et. al., 2018). Choi's (2020) study reported that in all groups, over 40% of the participants who still lived with their parents consumed more than two pieces of fresh fruits per week. This was lower in students that lived on their own. This was a surprising result from both studies because high levels of anxiety were predicted to lead poor eating behaviors, and larger consumption of fruit was not included in this initial prediction of the outcome of this study. Fresh fruit consumption was more profound in females that still lived with their parents, and females were also more likely to diet or participate in under eating due to higher anxiety levels (Choi, 2020). It is possible that college students living with a parent are more likely to consume home-cooked meals whereas students living on campus or in a college town have less access to fresh fruit. An increase in sodium and saturated fats, however, was expected as those nutrients are high in foods with low nutrient density. In this study, sodium intake was strongly significant and displayed an increase of consumption in the high anxiety group. Foods including high levels of sodium include most fast food restaurants, which was found to be a popular choice of food for students that displayed high levels of anxiety in a similar study in first-year undergraduate students (Mikolajczyk et al., 2009). However, other nutrients such as fatty acids, saturated fats, and added sugars did not show any significant differences in consumption patterns between low and high anxiety groups in the present study.

There are ways that universities can work towards improving dietary behaviors in college students. Choi (2020) suggested that a way to reinforce healthy dietary behaviors in college students could be implementing recommended educational interventions regarding nutritional information by using leaflets or posters. Dietary interventions were found to be successful through the use of online lessons when offered to university students that focus on improving attitudes, self-efficacy, and behaviors to facilitate achievement of weight management goals



(Deliens et. al., 2016). By providing resources for first-year undergraduate students to help assist meal-planning tips and techniques, college students could adjust faster and easier. Advertising easy meals to cook could be an encouraging resource that students could use to choose better food options by decreasing their reliance on eating out, fast food, and ready-prepared meals (Choi, 2020). College students are often drawn to the more accessible meals which include the cheapest and quickest options. It is important that students are shown how healthy meals can be inexpensive and prepared quickly to make a difference in their habits.

Universities have also developed resources to help decrease anxiety rates in college students. A past study on undergraduate psychology students found success in online counseling resources and stress management exercises (Nguyen-Feng, 2017). This study also encouraged students struggling with anxiety to use meditation techniques. There are other resources on campuses such as health services and disability services that allow students extra time for tests and learning support that attempt to lower anxiety levels in students (Bourdon, 2020). Further research is needed to see which anxiety management resources are most helpful to the students in this study who expressed high levels of anxiety.

### ***Limitations***

This study presented limitations that need to be acknowledged. The demographic profile of this study was strictly undergraduate students at the University of Mississippi, and there was a larger representation of female participants in this study than male participants. The sample size in this study was small, and the findings cannot be generalized. There was a need for further inquiry along with the sHEI questionnaire such as using a 24-hour recall that would have shown in more detail what food groups and nutrients that the participants were consuming. It would have also been beneficial to include other demographic information in the questionnaire such as

the participants' specific age, year of college, residence type, and family income. It is possible that specific differences might exist between stress levels in freshmen and seniors. While freshmen face the transition into a college environment, seniors face the transition into their careers or graduate/professional studies, and could show intriguing similarities or differences. Future research exploring a change in eating behaviors due to high levels of anxiety is needed. Levels of food insecurity should also be measured and taken into consideration in future research.

## **CONCLUSION**

The purpose of this thesis was to determine a trend concerning the consumption of food groups and nutrients in low anxiety and high anxiety groups of college students. It observed the diet quality of students at a southern university with the majority of students being female.

Through the use of the Generalized Anxiety Disorder Questionnaire and the short Healthy Eating Index Survey, a total healthy eating index score was acquired and compared to low anxiety groups and high anxiety groups. Overall, the findings suggest that total fruits, whole fruits, total vegetables, greens and beans, total protein, and sodium are consumed more in college students displaying higher levels of anxiety, while other food groups have no difference in consumption rates between the two groups. Further research is needed using a larger sample size and more demographic information to obtain more significant data of the relationship between anxiety levels and diet quality.

## REFERENCES

- Banik, R., Naher, S., Pervez, S., & Hossain, M. M. (2020). Fast food consumption and obesity among urban college going adolescents in Bangladesh: a cross-sectional study. *Obesity Medicine, 17*, 100161.
- Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of affective disorders, 173*, 90-96.
- Bourdon, J. L., Moore, A. A., Long, E. C., Kendler, K. S., & Dick, D. M. (2020). The relationship between on-campus service utilization and common mental health concerns in undergraduate college students. *Psychological services, 17*(1), 118.
- Brantley, C., Adewumi, O., & Knol, L. (2020). P19 Emotion-and Stress-Related Eating is Related to Weight Status Among College Students. *Journal of Nutrition Education and Behavior, 52*(7), S24.
- Carlos, M., Elena, B., & Teresa, I. M. (2020). Are Adherence to the Mediterranean Diet, Emotional Eating, Alcohol Intake, and Anxiety Related in University Students in Spain?. *Nutrients, 12*(8), 2224.
- Choi, J. (2020). Impact of stress levels on eating behaviors among college students. *Nutrients, 12*(5), 1241.
- Colby, S., Zhou, W., Allison, C., Mathews, A. E., Olfert, M. D., Morrell, J. S., ... & Shelnut, K. (2020). Development and Validation of the Short Healthy Eating Index Survey with a College Population to Assess Dietary Quality and Intake. *Nutrients, 12*(9), 2611.
- Crombie, A. P., Ilich, J. Z., Dutton, G. R., Panton, L. B., & Abood, D. A. (2009). The

- freshman weight gain phenomenon revisited. *Nutrition reviews*, 67(2), 83-94.
- Deliens, T., Van Crombruggen, R., Verbruggen, S., De Bourdeaudhuij, I., Deforche, B., & Clarys, P. (2016). Dietary interventions among university students: A systematic review. *Appetite*, 105, 14-26.
- DeSalvo, K. B., Olson, R., & Casavale, K. O. (2016). Dietary guidelines for Americans. *Jama*, 315(5), 457-458.
- Deshpande, S., Basil, M. D., & Basil, D. Z. (2009). Factors influencing healthy eating habits among college students: An application of the health belief model. *Health marketing quarterly*, 26(2), 145-164.
- Eisenberg, M. H., & Fitz, C. C. (2014). “Drunkorexia”: Exploring the who and why of a disturbing trend in college students’ eating and drinking behaviors. *Journal of American college health*, 62(8), 570-577.
- El Ansari, W., Stock, C., & Mikolajczyk, R. T. (2012). Relationships between food consumption and living arrangements among university students in four European countries—a cross-sectional study. *Nutrition journal*, 11(1), 1-7.
- El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., ... & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among US college students: a multi-institutional study. *BMC public health*, 19(1), 1-12.
- Frank, A. P., & Clegg, D. J. (2016). Dietary Guidelines for Americans—Eat Less Salt. *Jama*, 316(7), 782-782.
- Henry, L. (2017). Understanding food insecurity among college students: Experience, motivation, and local solutions. *Annals of Anthropological Practice*, 41(1), 6-19.
- Meule, A., & Platte, P. (2018). An Examination of the “Freshman-15” in Germany.

*European Journal of Health Psychology.*

- Mikolajczyk, R. T., El Ansari, W., & Maxwell, A. E. (2009). Food consumption frequency and perceived stress and depressive symptoms among students in three European countries. *Nutrition journal*, 8(1), 1-8.
- Nelson, M. C., Story, M., Larson, N. I., Neumark-Sztainer, D., & Lytle, L. A. (2008). Emerging adulthood and college-aged youth: an overlooked age for weight-related behavior change. *Obesity*, 16(10), 2205.
- Nguyen-Feng, V. N., Greer, C. S., & Frazier, P. (2017). Using online interventions to deliver college student mental health resources: Evidence from randomized clinical trials. *Psychological services*, 14(4), 481.
- Papier, K., Ahmed, F., Lee, P., & Wiseman, J. (2015). Stress and dietary behaviour among first-year university students in Australia: sex differences. *Nutrition*, 31(2), 324-330.
- Patten, E. V., & Vaterlaus, J. M. (2020). Prevalence of Depression, Anxiety, and Stress in Undergraduate Dietetics Students. *Journal of Nutrition Education and Behavior*.
- Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, 32(2), 349-354.
- Pelletier, J. E., Lytle, L. A., & Laska, M. N. (2016). Stress, health risk behaviors, and weight status among community college students. *Health Education & Behavior*, 43(2), 139-144.
- Pierson, M. E., Prenoveau, J. M., Craske, M. G., Netsi, E., & Stein, A. (2017).

- Psychometric properties of the Generalized Anxiety Disorder Questionnaire-IV (GAD-Q-IV) in postpartum mothers. *Psychological assessment*, 29(11), 1391.
- Pribis, P., Burtnack, C. A., McKenzie, S. O., & Thayer, J. (2010). Trends in body fat, body mass index and physical fitness among male and female college students. *Nutrients*, 2(10), 1075-1085.
- Ramón-Arбуés, E., Gea-Caballero, V., Granada-López, J. M., Juárez-Vela, R., Pellicer-García, B., & Antón-Solanas, I. (2020). The prevalence of depression, anxiety and stress and their associated factors in college students. *International Journal of Environmental Research and Public Health*, 17(19), 7001.
- Shah, T. D., & Pol, T. (2020). Prevalence of depression and anxiety in college students. *Journal of Mental Health and Human Behaviour*, 25(1), 10.
- Stebbleton, M. J., Lee, C. K., & Diamond, K. K. (2020). Understanding the food insecurity experiences of college students: A qualitative inquiry. *The Review of Higher Education*, 43(3), 727-752.
- Story, M., Kaphingst, K. M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annu. Rev. Public Health*, 29, 253-272.
- Sunbul, M., Tapanee, P., Reeder, N., Sockwell, S., Cowles, A., & Mosby, T. (2019). P10 Evaluating diet quality of college students using the Healthy Eating Index. *Journal of Nutrition Education and Behavior*, 51(7), S37.
- Vilaro, M. J., Colby, S. E., Riggsbee, K., Zhou, W., Byrd-Bredbenner, C., Olfert, M. D., ... & Mathews, A. E. (2018). Food choice priorities change over time and predict

dietary intake at the end of the first year of college among students in the US. *Nutrients*, *10*(9), 1296.

Wood, J. L., & Harris III, F. (2018). Experiences with “acute” food insecurity among college students. *Educational Researcher*, *47*(2), 142-145.

Yahia, N., Brown, C. A., Rapley, M., & Chung, M. (2016). Level of nutrition knowledge and its association with fat consumption among college students. *BMC public health*, *16*(1), 1-10.

Yan, Z., & Harrington, A. (2020). Factors that predict weight gain among first-year college students. *Health Education Journal*, *79*(1), 94-103.



## APPENDICES

### APPENDIX A: Consent Agreement

## INFORMATION SHEET

**Title:** Relationship between anxiety and nutritional habits in college students.

**Investigator**

Katie M. Darnell  
Department of Dietetics and Nutrition –  
Health Emphasis  
The University of Mississippi  
(662) 871-9497

**Advisor**

Georgianna Mann, Ph.D.  
Department of Nutrition and Hospitality  
Management  
220 Lenoir Hall  
The University of Mississippi  
(662)-915-2621

*INCLUDE THE FOLLOWING ONLY IF YOU ARE COLLECTING DATA EXCLUSIVELY FROM ADULTS*

*By checking this box I certify that I am 18 years of age or older.*

**Description**

The purpose of this research project is to determine how stress can effect nutritional choices among college students. We would like to ask you a few questions about anxiety and basic nutrition. You will not be asked for your name or any other identifying information.

**Cost and Payments**

It will take you approximately twelve minutes to complete this survey. You will have the opportunity after you complete the survey to enter a raffle for a chance to win a \$25 Amazon Gift Card.

**Risks and Benefits**

You may feel uncomfortable with some of the questions regarding levels of anxiety. We do not think that there are any other risks. A lot of people enjoy taking surveys.

**Confidentiality**

No identifiable information will be recorded, therefore we do not think you can be identified from this study. Your information will only be taken if you choose to enter the raffle at the end of the survey. The raffle entry is completely separate from the survey responses.

**Right to Withdraw**

You do not have to take part in this study and you may stop participation at any time. If you start the study and decide that you do not want to finish, you may opt out of the survey by closing the internet browser.

**IRB Approval**

This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482 or [irb@olemiss.edu](mailto:irb@olemiss.edu).

**Statement of Consent**

I have read and understand the above information. By completing the survey, I consent to participate in the study.

## APPENDIX B: Recruitment Email

Hello all,

I am interested in learning more about how stress can affect nutritional habits in college students. I am inviting you to voluntarily participate in this survey that should take no longer than fifteen minutes to complete. After completing the survey, you can enter a raffle to have the chance to win a **\$25 Amazon gift card**. Your identity from the survey will remain anonymous and kept completely separate from the raffle entry. If you have any questions, you can email me at Katie Darnell - [kmdarne1@go.olemiss.edu](mailto:kmdarne1@go.olemiss.edu).

Thank you for your participation,

Katie Darnell

## APPENDIX C: IRB Approval

IRB Exempt Determination of 21x-066 Inbox x



**irb@olemiss.edu** <irb@olemiss.edu>  
to me, Georgianna ▾

Oct 27, 2020, 10:31 AM ☆ ↶ ⋮

PI:

This is to inform you that your application to conduct research with human participants, "Relationship between anxiety and nutritional habits in college students." (Protocol #21x-066), has been determined as Exempt under 45 CFR 46.101(b)(#2).

Please remember that all of The University of Mississippi's human participant research activities, regardless of whether the research is subject to federal regulations, must be guided by the ethical principles in The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research.

It is especially important for you to keep these points in mind:

- You must protect the rights and welfare of human research participants.
- Any changes to your approved protocol must be reviewed and approved before initiating those changes.
- You must report promptly to the IRB any injuries or other unanticipated problems involving risks to participants or others.
- If research is to be conducted during class, the PI must email the instructor and ask if they wish to see the protocol materials (surveys, interview questions, etc) prior to research beginning.

If you have any questions, please feel free to contact the IRB at [irb@olemiss.edu](mailto:irb@olemiss.edu).

*COVID-19 Update: The UM IRB/ACUC is continuing operations while working remotely. The fastest way to reach our staff is via email at [irb@olemiss.edu](mailto:irb@olemiss.edu) / [iacuc@olemiss.edu](mailto:iacuc@olemiss.edu).*

**IRB Administrative Office**  
**Research Integrity and Compliance**  
Office of Research and Sponsored Programs  
The University of Mississippi  
100 Barr Hall  
University, MS 38677-1848  
[irb@olemiss.edu](mailto:irb@olemiss.edu) | [www.olemiss.edu](http://www.olemiss.edu)

For timely updates related to research activities during the COVID-19 pandemic, please visit: [keepdiscovering.olemiss.edu](http://keepdiscovering.olemiss.edu)

This message is the property of The University of Mississippi and is intended only for the use of Addressee(s) and may contain information that is PRIVILEGED, CONFIDENTIAL and/or EXEMPT FROM DISCLOSURE under University policy or applicable law. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of the information contained herein is STRICTLY PROHIBITED. If you receive this communication in error, please destroy all copies of the message, whether in electronic or hardcopy format, as well as attachments and immediately contact the sender by replying to this e-mail.

**REMINDER: YOU CANNOT HAVE CONTACT WITH RESEARCH SUBJECTS UNTIL YOU RECEIVE THE FORMAL IRB PROTOCOL APPROVAL LETTER OR EMAIL**

## APPENDIX D: Addition to IRB



The University of Mississippi  
Office of Research and Sponsored Programs  
Division of Research Integrity and Compliance - Institutional Review Board  
100 Barr Hall - University, MS 38677  
[irb@olemiss.edu](mailto:irb@olemiss.edu) 662-915-7482

### Screening / Abbreviated IRB Application

Purpose: Many studies qualify for an abbreviated review, according to the federal regulations and university policy.

- **Part I of this form screens for a brief review.**
- **Part II of this form completes the abbreviated IRB application.**
- **Part III of this form gives instructions for obtaining the required assurances.**
- **The IRB makes the final determination on whether you must fill out a full application.**

**Always** download the most recent version of this form: <http://www.research.olemiss.edu/irb/protocol/forms>.

Prepare and send application form as a **Word** document. **E-mail the completed form and attachments (and forwarded email assurance if PI is a student) to [irb@olemiss.edu](mailto:irb@olemiss.edu).**

**Note:** Some class project studies may qualify for a classroom waiver of IRB Application. Instructors: see form [here](#).

### PART I — Screening

#### 1. Do any of the following apply to your study?

##### Research Methods:

Clinical Treatment study	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Exercise	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
X-rays	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Collection of blood, urine, other bodily fluids, or tissues	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Use of blood, urine, other bodily fluids, or tissues with identifiers	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Use of drugs, biological products, or medical devices	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Use of drugs, biological products, or medical devices	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Use of data collected in the European Economic Area (EEA)*	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

##### Targeted Subjects:

Prisoners	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
-----------	------------------------------	----------------------------------------

##### Elements of Deception:

The study uses surreptitious videotaping	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
The study gives subjects deceptive feedback, whether positive or negative	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
The study uses a research confederate (i.e., an actor playing the part of subject)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

**If you checked Yes to any of the above, STOP HERE and fill out the [FULL IRB APPLICATION FORM](#).**

**\*Anonymous or Confidential?** Anonymous means (1) the recorded data cannot associate a subject with his/her data, and (2) the data cannot identify a subject. *Examples:* surveys with no names but with demographic data that can identify a subject (e.g., the only African-American in a class) are not anonymous.

**\*Sensitive Information?** Sensitive information includes but is not limited to (1) information that risks damage to a subject's reputation; (2) information that involves criminal or civil liability; (3) information that can affect a subject's employability; and (4) information involving a person's financial standing. *Examples:* Surveys that ask about porn use, illegal drug or alcohol use, religion, use of alcohol while driving, AIDS, cancer, etc. contain sensitive information.

**\*European Economic Area** - Collection of data in the European Economic Area (the 28 states of the European Union and Iceland, Liechtenstein, Norway, and Switzerland). Special considerations apply -if data are not 100% anonymous. See [GDPR Guidance](#) for more information

**If using Qualtrics for anonymous surveys, [see guidance here.](#)**

2. **The ONLY involvement of human subjects will be in the following categories** (check all that apply)

**PLEASE READ CAREFULLY: MUCH CHANGED WITH NEW REGULATIONS, JANUARY 2019**

1) **Educational Research:** Research conducted in established or commonly accepted educational settings, involving normal educational practices. Research is not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

2) **Surveys, Interviews, Educational Tests (cognitive, diagnostic, aptitude, achievement), Observation of Public Behavior (including video or auditory recording).** AT LEAST ONE OF THE FOLLOWING MUST BE MET

- (i) Information recorded by the investigator cannot readily identify the subject (either directly or indirectly)
- (ii) Disclosure of subjects' responses outside the research could **NOT** reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, educational advancement, employability, or reputation
- (iii) Information recorded by the investigator includes identifiers and the investigator specifies strong security measures to protect the data (e.g., encryption for electronic data; multiple locks for paper data). Minors are **NOT** permitted under this sub-category

3) **Benign Behavioral Interventions (BBI):** Research involving interventions in conjunction with collection of information from an adult subject through verbal or written responses (including data entry) or audiovisual recording, if the subject prospectively agrees to the intervention and information collection.

- BBI is limited to communication or interpersonal contact; cognitive, intellectual, educational, or behavioral tasks; manipulation of the physical, sensory, social or emotional environment
- Intervention Requirements:
  - o brief duration (maximum intervention = 3 hours within one day; data collection may extend more hours & over days)
  - o painless/harmless (transient performance task-related stress, anxiety, or boredom are acceptable)
  - o not physically invasive (no activity tracker, blood pressure, pulse, etc.)
  - o unlikely to have a significant adverse lasting impact on subjects
  - o unlikely that subjects will find interventions offensive or embarrassing
  - o no deception / omission of information, such as study purpose, unless subject prospectively agrees

AT LEAST ONE OF THE FOLLOWING MUST BE CHECKED

- (A) Recorded information cannot readily identify the subject (either directly or indirectly)
- (B) Any disclosure of subjects' responses outside the research could **NOT** reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation
- (C) Information is recorded with identifiers and the investigator specifies strong security measures to protect the data (e.g., encryption for electronic data; multiple locks for paper data)

4) **Biospecimen Secondary Research:** Secondary Research for which consent is not required: use of identifiable information or identifiable biospecimens that have been or will be collected for some other 'primary' or 'initial' activity, if **ONE** of the following is met: (i) biospecimens or information is publicly available; (ii) information recorded by the investigator cannot readily, directly or indirectly identify the subject, and the investigator does not contact the subject or re-identify the subject; (iii) collection and analysis involving investigator's use of identifiable health information when use is regulated by HIPAA; or (iv) research information collected by or on behalf of the federal government using government-generated or -collected information obtained for non-research activities.

5) **Research and Demonstration Projects on Federal Programs:** The study is conducted pursuant to specific federal statutory authority and examines certain federal programs that deliver a public benefit [call IRB for details if you think your study may fit].

6) **Food Tasting/Evaluation:** Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Request for Determination of Exemption from IRB Review (rev. 01/2019) – page 2

**PART II — Abbreviated Application**

**3. Project Title:** Relationship between anxiety and nutritional habits in college students.

**4. Principal Investigator:**  Dr.  Ms.  Mr. **Katie Darnell**

Department: [redacted] Department Chair's email (for cc of approval): **valliant@olemiss.edu**

Work Phone: [redacted] Home or Cell Phone: **662-871-9497**

E-Mail Address: **kmdarne1@go.olemiss.edu**

**If Principal Investigator is a student:**

**Graduate student:**

- Dissertation  Master's thesis  
 Other graduate project

**Undergraduate student:**

- Senior thesis:  SMBHC  
 Croft Institute  
 Other  
 Other undergraduate project

**Research Advisor:** **Georgianna Mann**

(required for student researchers)

Department: **Department of Nutrition and Hospitality Management**

Work Phone: **662-915-2621**

E-Mail Address: **grmann@olemiss.edu**

Home or Cell Phone: [redacted]

**5. List ALL personnel involved with this research who will have contact with human subjects or with their identifiable data. All personnel listed here must complete [CITI training OR the Alternative to CITI \(ATC\) training](#) before this application will be processed\*.**

NAME	FACULTY OR STAFF	GRADUATE STUDENT	UNDER-GRAD STUDENT	ROLE ON PROJECT	Training completed:	
					CITI	or ATC
PI: <b>Katie Darnell</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b>Principal Investigator</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Advisor: <b>Georgianna Mann</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Supervisor</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
[redacted]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[redacted]	<input type="checkbox"/>	<input type="checkbox"/>
[redacted]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[redacted]	<input type="checkbox"/>	<input type="checkbox"/>

**If space is needed to list additional project personnel, submit [Appendix A](#).**

**\*See [Exempt Human Research Policy](#) for training exceptions**

**6. Funding Source:**

Is there funding for this project?  Yes  No

If Yes, is the funding:

Internal:  Source: SMBHC

External:  Pending/Agency: [redacted]

Awarded/Agency: [redacted]

PI on external funding: [redacted]

**Research Methodology/Procedures**

**7. Check all procedures below that apply to your study:**

<input type="checkbox"/> Pre-existing data or biological samples ⇨ ⇨ ⇨  <input type="checkbox"/> Observation <input type="checkbox"/> Oral history <input type="checkbox"/> Interview ⇨ ⇨ ⇨ <input type="checkbox"/> Focus group ⇨ ⇨ ⇨ <input checked="" type="checkbox"/> Questionnaire or survey ⇨ ⇨ ⇨  <input type="checkbox"/> Audio recording or videotaping ⇨ ⇨ ⇨  <input type="checkbox"/> The study has misleading or deceptive: ⇨ ⇨ ⇨ (1) study descriptions; (2) procedure explanations; and/or (3) survey instructions/rationales.	Source of data: █████ Do data/samples have identifiers? <input type="checkbox"/> Yes* <input type="checkbox"/> No Must explain how data will be secured (e.g., encryption for electronic data; multiple locks for paper data). Minors are <b>NOT</b> permitted under this sub-category  Attach interview questions. Attach topic and questions. Attach questionnaire or survey. If online, state program to use (e.g., Qualtrics): <b>Qualtrics</b>  Use and attach a <a href="#">release form</a> if you plan to disseminate <b>quoted</b> comments or taped content. (This covers you and UM legally – Not for IRB purposes)  In the abstract, provide complete details and a rationale for employing misleading/deception information. Include <a href="#">Appendix D</a> in your attachments.
8. <b>Consent Procedures:</b> <input type="checkbox"/> Oral ⇨ ⇨ ⇨ <input checked="" type="checkbox"/> Information Sheet/Cover Letter ⇨ ⇨ ⇨ <input type="checkbox"/> Not applicable, Explain: █████	Attach script. Attach. ( <b>No subject signatures required</b> , see <a href="#">example here</a> : Go to Examples and Templates, then ‘Sample Information Sheet’)

<h3>9. Project Summary</h3> <p><b>Briefly summarize your project using non-technical, jargon-free language that can be understood by non-scientists.</b>  See <a href="http://www.research.olemiss.edu/irb-forms">http://www.research.olemiss.edu/irb-forms</a> for abstract examples.</p>
<p>Give a brief statement of the research question supporting <b>the reasons for, and importance of</b>, the research: The purpose of this study is to see how stress in college students affects their nutritional habits. The importance of the research could help determine ways that college students can maintain a healthy lifestyle by making better nutritional choices when handling their stress.</p>
<p>Describe the <b>ages and characteristics</b> of your proposed subjects and <b>how you will recruit them</b> (attach recruitment script or materials to the application): The proposed subjects will be undergraduate, college students that attend the University of Mississippi. The subjects will be recruited using social media, GroupMe, UM Today announcements, and by word of mouth. There will also be a raffle that the subjects can enter in to win a \$25 Amazon Gift Card.</p>

<p>For studies using only adult subjects, state how you will ensure they are 18+:</p>	<input checked="" type="checkbox"/> <b>First question on survey/interview</b> <input type="checkbox"/> <b>Other:</b> <input type="checkbox"/> <b>Not applicable</b>
<p><i>Briefly</i> describe the research design AND carefully explain how your study will meet each of the requirements of the category criteria you checked on Page 2: The research design is strictly relying on responses from a survey. The subjects will be recruited through multiple sources including email, social media, GroupMe, and word of mouth. The use of a raffle with the chance to win a gift card will be used to attract the subjects. The subjects will respond to the survey anonymously. The subjects are not required to enter the raffle to have the chance to win an Amazon gift card unless he or she chooses to. The raffle entry will be separate from the survey; therefore, the responses to the survey will remain anonymous.</p>	
<p>Give a <i>detailed</i> description of the procedure(s) subjects will undergo (from their perspective): The subjects will receive a link to the survey from a source whether it is an email from the PI, a GroupMe, UM today, or social media. Once the subject opens the link, they will be asked to give his or her consent. If they consent, they will complete the anonymous survey and submit. Once the subject submits the survey, he or she will be given the option to enter a raffle to win a \$25 Amazon Gift card. This will be entered by entering a name and phone number to be contacted if the subject wins the raffle.</p>	

**10. Appendix Checklist:**

**A. Additional Personnel not listed on first page of application?**  
 No                       Yes – complete [Appendix A](#)

**B. Will the research be conducted in schools or child care facilities?**  
 No                       Yes – complete [Appendix B](#)

**C. Does your research involve deception or omission of elements of consent?**  
 No                       Yes – complete [Appendix D](#)

**D. Will your research be conducted outside of the United States?**  
 No                       Yes – complete [Appendix E](#)

**E. Will your research involve protected health information (PHI)?**  
 No                       Yes – complete [Appendix F](#) if applicable

**11. Attachments Checklist:**

**Did you submit:**

a. **survey or questionnaires?**  
 Yes       Not Applicable

b. **interview questions?**  
 Yes       Not Applicable

c. **focus group topics?**  
 Yes       Not Applicable

d. **recruitment email, announcement, or script?**  
 Yes       Not Applicable: No subject contact

e. **informed consent information letter or script?**  
 Yes       Not Applicable: No subject contact



f. **permissions for locations outside the University?\***  
 Yes       Not Applicable

\*if giving a survey, whether on or off campus, please ensure the person giving permission (e.g., the teacher of a class) has an explicit opportunity to see the survey before they give their permission for its distribution

12. **If using class points as incentives, are there alternative assignments available for earning points that involve comparable time and effort?**  
 Yes       Not Applicable

13. **If using an anonymous survey through Qualtrics and giving incentives in a separate survey, have you read and conducted the testing of the surveys according to the [procedures here?](#)**  
 Yes       Not Applicable

**PART III: ASSURANCES**  
**Conflict Of Interest And Fiscal Responsibility**

**Do you or any person responsible for the design, conduct, or reporting of this study have an economic interest in, or act as an officer or a director of any outside entity whose financial interests may reasonably appear to be affected by this research?**

YES      ⇨      ⇨      If Yes, please explain any potential conflict of interest.  
 NO

**Do you or any person responsible for this study have existing financial holdings or relationships with the sponsor of this study?**

YES      ⇨      ⇨      If Yes, please explain any potential conflict of interest.  
 NO  
 N/A

**Principal Investigator Assurance**

**PRINCIPAL INVESTIGATOR’S ASSURANCE**

I certify that the information provided in the application is complete and correct. As Principal Investigator, I have the ultimate responsibility for the protection of the rights and welfare of the human participants, conduct of the research, and the ethical performance of the project. I will comply with all UM policies and procedures, as well as with all applicable federal, state, and local laws regarding the protection of participants in human research, including, but not limited to the following:

- Informed consent will be obtained from the participants, if applicable and appropriate;
- Any proposed modifications to the research protocol that may affect its designation as an exempt (brief) protocol application will be reported to the IRB for approval prior to being implemented.
- Adverse events and/or unanticipated problems will be reported to the IRB as required.

I certify that I, and all key personnel, have completed the required initial and/or refresher CITI or CITI Alternative courses in the ethical principles and regulatory requirements for the protection of human research participants.

**Katie Darnell**      **9/9/2020**  
 Typed signature/name of Principal Investigator      Date

**RESEARCH ADVISOR'S\* ASSURANCE (REQUIRED FOR STUDENT PROJECTS)**

Email your Advisor with the following:

1. Email subject line: "IRB Advisor Approval Request from (your name)"
2. Your IRB submission materials as attachments
3. Copy and paste the statements below into the body of the email
4. Forward the reply email from your Advisor to irb@olemiss.edu along with your IRB submission materials attached.

**\*The research advisor must be a UM faculty member. The faculty member is considered the responsible party for the ethical performance and regulatory compliance of the research project.**

Please review my attached protocol submission. Your reply email to me will constitute your acknowledgement of the assurances below.

Thank you,  
Katie Darnell

As the Research Advisor, I certify that the student investigator is knowledgeable about the regulations and policies governing research with human participants and has sufficient training and experience to conduct this particular research in accordance with the approved protocol.

I agree to meet with the investigator on a regular basis to monitor research progress.

Should problems arise during the course of research, I agree to be available, personally, to supervise the investigator in solving them.

I will ensure that the investigator will promptly report incidents (including adverse events and unanticipated problems) to the IRB.

If I will be unavailable, for example, on sabbatical leave or vacation, I will arrange for an alternate faculty member to assume responsibility during my absence, and I will advise the IRB by email of such arrangements.

I have completed the required CITI course(s) in the ethical principles and regulatory requirements for the protection of human research participants.

# Thesis

## Start of Block: Screener

Q1

### **INFORMATION SHEET**

**Title:** Relationship between anxiety and nutritional habits in college students.

#### **Description:**

The purpose of this research project is to determine how stress can effect nutritional choices among college students. We would like to ask you a few questions about anxiety and basic nutrition. You will not be asked for your name or any other identifying information.

#### **Cost and Payments:**

It will take you approximately twelve minutes to complete this survey. You will have the opportunity after you complete the survey to enter a raffle for a chance to win a \$25 Amazon Gift Card.

#### **Risks and Benefits:**

You may feel uncomfortable with some of the questions regarding levels of anxiety. We do not think that there are any other risks. A lot of people enjoy taking surveys.

#### **Confidentiality:**

No identifiable information will be recorded, therefore we do not think you can be identified from this study. Your information will only be taken if you choose to enter the raffle at the end of the survey. The raffle entry is completely separate from the survey responses.

#### **Right to Withdraw:**

You do not have to take part in this study and you may stop participation at any time. If you start the study and decide that you do not want to finish, you may opt out of the survey by closing the internet browser.

#### **IRB Approval:**

This study has been reviewed by The University of Mississippi's Institutional Review Board (IRB). If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482 or [irb@olemiss.edu](mailto:irb@olemiss.edu).

**Statement of Consent:**

I have read and understand the above information. By completing the survey, I consent to participate in the study.

**Investigator:**

Katie M. Darnell  
Department of Dietetics and Nutrition – Health Emphasis The University of Mississippi  
(662) 871-9497

**Advisor:**

Georgianna Mann, Ph.D.  
Department of Nutrition and Hospitality Management 220 Lenoir Hall  
The University of Mississippi  
(662)-915-2621

Q2 Are you 18 years old or older?

- Yes (1)
  
- No- you are not eligible to participate in this survey. (2)

End of Block: Screener  
Start of Block: Default Question Block



Q1 Do you experience excessive worry?

- Yes (1)
  
- No (2)

Q2 Is your worry excessive in intensity, frequency, or amount of distress it causes?

- Yes (1)
  
- No (2)

Q3 Do you find it difficult to control the worry (or stop worrying) once it starts?

Yes (1)

No (2)

Q4 Do you worry excessively or uncontrollably about minor things such as being late for an appointment, minor repairs, homework, etc.?

Yes (1)

No (2)

Q5 List most frequent topics about which you worry excessively or uncontrollably here.

---

Q6 During the last six months, have you been bothered by excessive worries more days than not?

Yes (1)

No (2)

Q7 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

a. restlessness or feeling keyed up or on edge

Not at all (1)

A little (2)

Moderately (3)

Quite a bit (4)

Extremely (5)

Q8 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

b. irritability

Not at all (1)

A little (2)

Moderately (3)

Quite a bit (4)

Extremely (5)

Q9 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

c. difficulty falling/staying asleep or restless/unsatisfying sleep

Not at all (1)

A little (2)

Moderately (3)

Quite a bit (4)

Extremely (5)

Q10 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

d. being easily fatigued

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a bit (4)
- Extremely (5)

Q11 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

e. difficulty concentrating or mind going blank

- Not at all (1)
- A little (2)
- Moderately (3)
- Quite a bit (4)
- Extremely (5)

Q12 During the past six months, have you often been bothered by any of the following symptoms? Check one square next to each symptom that you have had more days than not:

f. muscle tension

- Not at all (1)
- A little (2)

Moderately (3)

Quite a bit (4)

Extremely (5)

Q13 How much do worry and physical symptoms interfere with your life, work, social activities, family, etc.?

0-None (1)

1 (2)

2-Mild (3)

3 (4)

4-Moderate (5)

5 (6)

6-Severe (7)

7 (8)

8-Very Severe (9)

Q14 How much are you bothered by worry and physical symptoms (how much distress does it cause you)?

0-None (1)

1 (2)



- 2-Mild (3)
- 3 (4)
- 4-Moderate (5)
- 5 (6)
- 6-Severe (7)
- 7 (8)
- 8-Very Severe (9)

Q15

On average, how many servings of **fruit** (not including juice) do eat **per day**?

*Example: 1 serving fruit = 1/2 cup cut-up fruit, 1/2 a banana, or one small piece of whole fruit (apple, orange, pear etc.) One small piece of whole fruit is the size of a baseball. 1/2 cup cut-up fruit is the size of a computer mouse.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q16 On average, how many servings of **100% fruit juice** do you drink **per day**? Note: **Do not include** fruit flavored drinks such as Hi-C, Tang, Sunny-D, etc.

*Example: 1 serving juice = 1/2 cup 100% fruit juice (apple, grape, orange, etc.), 1 cup of juice = juice box*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q17 Now, think about all the vegetables you eat in a day. On average, how many servings of **vegetables** do you eat **per day**? Note: Any vegetable or 100% vegetable juice counts as a member of the vegetable group.

*Example: 1 serving = 1 cup of raw vegetables, 1 cup of salad, 1/2 cup cooked vegetables, or 1/2 cup 100% vegetable juice. One cup of raw vegetables is the size of a baseball. 1/2 cup cooked vegetables is the size of a computer mouse.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)

- 6 or more (7)
- Choose not to answer (8)

Q18 Now, think about just the green vegetables you eat in a day like spinach, green beans, kale, broccoli, zucchini, or other mostly green vegetables. On average, how many servings of **green vegetables** do you eat **per day**? NOTE: **Do not include** starchy vegetables like green peas.

*Example: 1 serving=1 cup raw vegetables or 1/2 cup cooked vegetables. 1 cup raw vegetables is the size of a baseball. 1/2 cup cooked vegetables is the size of a computer mouse.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q19 Now, think about just the starchy vegetables you eat in a day like corn, green peas, or potatoes. On average, how many servings of **starchy vegetables** do you eat **per day**? *Examples: 1 serving= 1 cup raw vegetable or 1/2 cup cook vegetables. 1 cup raw vegetables is the size of a computer mouse.*

- Less than 1 (1)

- 1 (2)
- 2 (3)
- 3 (4)
  
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q20 Q6. On average, how many servings of **grains** do you eat **per day**?

*Examples: 1 serving= 1 slice of bread; 1/2 cup grits, 1 cup of ready-to-eat cereal, 1/2 cup oatmeal, 1 small tortilla, 1/2 cup cooked rice, or 1/2 cup pasta. 1 cup ready-to-eat cereal is the size of a baseball.*

- Less than 1 (1)
  
- 1 (2)
- 2 (3)
- 3 (4)
  
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q21 **Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you eat **grains**?

*Examples: 1 serving = 1 slice of bread; 1/2 cup grits, 1 cup of ready-to-eat cereal, 1/2 cup oatmeal, 1 small tortilla, 1/2 cup cooked rice, or 1/2 cup pasta.*

- A couple times per week (1)
- A couple times per month (2)
- A couple times per year (3)
- Almost never (4)
- Never (5)
- Choose not to answer (6)

Q22 Q8. Now, just think about whole grains you eat like whole wheat bread, whole grain crackers, brown rice, or oatmeal. On average, how many servings of **whole grains** do you eat **per day**?

*Examples: 1 serving = 1 slice whole wheat bread, 5-6 whole grain crackers, 3 cups popcorn, 1/2 cup cooked brown rice, or 1/2 cup oatmeal.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

**Q23 Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you eat whole grains?

*Examples: 1 serving = 1 slice whole wheat bread, 5-6 whole grain crackers, 3 cups popcorn, 1/2 cup cooked brown rice, or 1/2 cup oatmeal.*

- A couple times per week (1)
- A couple times per month (2)
- A couple times per year (3)
- Almost never (4)
- Never (5)
- Choose not to answer (6)

**Q24** On average, how many servings of **milk** do you eat or drink **per day**?

*Examples: 1 serving = 1 cup of milk, 1 cup of yogurt, 1.5 ounces of natural cheese, or 2 ounces of processed cheese. 1 cup of milk is the size of a carton of milk. 1 serving of cheese is the size of your index finger*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

**Q25 Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you drink or eat **milk** products?

*Examples: 1 serving = 1 cup of milk, 1 cup of yogurt, 1.5 ounces of natural cheese, or 2 ounces of processed cheese.*

A couple times per week (1)

A couple times per month (2)

A couple times per year (3)

Almost never (4)

Never (5)

Choose not to answer (6)

**Q26 Now, just think about the milk products you eat per day. On average, how many servings of low-fat milk products do you eat per day?**

*Examples: 1 serving = 1 cup of skim milk, 1 cup of low-fat yogurt, or 1.5 ounces of low-fat cheese. 1 cup of milk is the size of a milk carton. 1 serving of cheese is the size of your index finger.*

Less than 1 (1)

1 (2)

2 (3)

3 (4)

4 (5)

5 (6)

- 6 or more (7)
- Choose not to answer (8)

**Q27 Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you drink or eat **low-fat milk** products?

*Examples: 1 serving = 1 cup of skim milk, 1 cup of low-fat yogurt, or 1.5 ounces of low-fat cheese.*

- A couple times per week (1)
- A couple times per month (2)
- A couple times per year (3)
- Almost never (4)
- Never (5)
- Choose not to answer (6)

**Q28** On average, how many servings of **beans (legumes)** do you eat **per day**? Note: All foods made from dry beans, canned beans, peas, and lentils are considered part of this group.

*Examples: 1 serving = 1/2 cup cooked beans. 1/2 cup cooked beans is the size of a computer mouse.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)



- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q29 On average, how many servings of **nuts or seeds** do you eat **per day**?  
*Examples: 1 serving = 1 tablespoon of peanut butter; 1/2 ounces of nuts or seeds. 1 tablespoons of peanut butter is the size of the tip of your thumb.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

Q30 On average, how many servings of **seafood** do you eat **per day**? Note: All foods made of fish, shrimp, crab, and shellfish are considered part of this group.  
*Examples: 1 serving = 3 ounces of fish. 3 ounces of fish is the size of a deck of cards.*

- Less than 1 (1)
- 1 (2)
- 2 (3)
- 3 (4)

- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

**Q31 Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you eat **seafood**? Note: All foods made of fish, shrimp, crab, and shellfish are considered part of this group.

*Examples: 1 serving= 3 ounce of fish.*

- A couple times per week (1)
- A couple times per month (2)
- A couple times per year (3)
- Almost never (4)
- Never (5)
- Choose not to answer (6)

**Q32 On average, how many **sugar-sweetened beverages** do you drink **per day**?**

*Examples: 12 ounces of soft drinks/soda, fruit flavored drinks, sweetened coffee, and sweet tea. Do not include milk or 100% fruit juice. 12 ounces of soda is the size of one can.*

- Less than 1 (1)

- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5 (6)
- 6 or more (7)
- Choose not to answer (8)

**Q33 Please answer the next question ONLY if you selected “Less than 1” to the previous question.**

On average, how often do you drink **sugar-sweetened beverages**?

*Examples: 12 ounces of soft drinks/soda, fruit flavored drinks, sweetened coffee, and sweet tea. Do not include milk or 100% fruit juice.*

- A couple times per week (1)
- A couple times per month (2)
- A couple times per year (3)
- Almost never (4)
- Never (5)
- Choose not to answer (6)

**Q34** On average, how much **added sugars** do you consume **per day**? Note: Added sugars are often in foods such as breads, cakes, candy, sweet tea, jam, ice cream, or sugar added to food at the table. **Do not include** naturally occurring sugars such as lactose in milk or fructose in fruits.

*Examples: white sugar, brown sugar, raw sugar, corn syrup, corn-syrup solids, high-fructose corn syrup, malt syrup, maple syrup, pancake syrup, fructose sweetener, liquid fructose, honey, molasses, and dextrose.*

- None/almost none (1)
- Some (2)
- A lot (3)
- Choose not to answer (4)

Q35 How many servings of **saturated fat** do you consume on average **per day**? Note: Saturated fats for these purposes should be considered to be solid fats. Solid fats are fats that are solid at room temperature.

*Examples: butter, cakes, cookies, Crisco, coconut oil, beef fat (tallow, suet), chicken fat (lard), stick margarine, and shortening.*

- None/almost none (1)
- Some (2)
- A lot (3)
- Choose not to answer (4)

Q36 On average, how much **water** do you drink **per day**?

- None/almost none (1)
- Some (2)
- A lot (3)
- Choose not to answer (4)

Q37 What is your gender?

Female (1)

Male (2)

Choose not to answer (3)

**End of Block: Default Question Block**