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Freshman 15: Knowledge and Perceptions of Obesity Among College Students in the Southeastern United States

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**Freshman 15: Knowledge and Perceptions of Obesity Among College Students in
the Southeastern United States**

By

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A Project

Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Nursing
College of Nursing and Health Sciences
Mississippi University for Women
Graduate Committee Approval

COLUMBUS, MISSISSIPPI

July 2022

The Graduate Committee of
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partial fulfillment of the requirements for the Degree of
Master of Science in Nursing

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DEDICATION

We, the members of this research group, would like to recognize the special people who have supported us throughout this program. To our family, friends, classmates, and faculty, thank you for the love, patience, and encouragement you have shown. We could not have made it here without each and every one of you. This research project signifies the conclusion of an important stage in our academic journeys and transition to our new professions. We extend our gratitude and appreciation to all who have played a role in our accomplishments. Looking forward, we hope to make each of you proud through our endeavors by applying knowledge obtained at Mississippi University for Women and utilizing the values instilled in us by family and friends.

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ABSTRACT

The primary purpose of the current research project was to determine the knowledge and perceptions of obesity among college students in the southeastern United States. After receiving exemption from the Institutional Review Board (IRB), the researchers utilized a quantitative, descriptive study design to determine college students' perceptions and knowledge of obesity risk factors and long-term effects of obesity. Convenience sampling was utilized for data collection. Utilizing QR codes via flyers and a weblink through students' email addresses, questionnaires were obtained through SurveyMonkey. The data collected through questionnaires were then statistically analyzed to determine if college students were knowledgeable about prevention and long-term effects of obesity. To be considered knowledgeable, the student must score 80% or higher on the knowledge portion of the College Student Obesity Questionnaire. Out of the 124 students who participated, 103 students (83.1%) were considered knowledgeable on risk factors and long-term effects of obesity.

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Chapter I: Dimensions of the Problem

Considerable research has been conducted examining the occurrence of excessive weight gain in the college population. Skelton and Evans (2019) states that recent data indicate two-thirds of United States adults aged 20 years and older are overweight, and 35.7% are obese. According to Kuhlmann and Tigges (2017), freshman college students gain weight at double the rate of their same-age peers, suggesting that the college environment plays a large part in weight gain during these early adult years.

The prevalence of weight gain in the college student population continues to increase from 23% to 34% by the fourth year of college (Skelton & Evans, 2019). Excess weight and increases in body mass index (BMI) can put college students at risk for chronic diseases that may remain with them into adulthood if left untreated (Skelton & Evans, 2019). Weight gain can lead to multiple comorbidities including but not limited to diabetes, heart disease, stroke, and cancer (Centers for Disease Control and Prevention [CDC], 2021).

For some students, college is the first time they are responsible for making their own decisions, including important decisions related to their health status. The newly acquired autonomy that comes with the transition to college life can have potentially serious consequences for the health of college students. Data acquired from evaluating college students' knowledge and perceptions about weight gain can be used for targeted intervention. Using current recommendations from the Centers for Disease Control and Prevention (CDC) for exercise and diet, the current study sought to increase the

understanding of factors that lead to excessive weight gain among college students by gauging knowledge and perceptions about weight gain in that population.

Problem Statement

College students are at an increased risk for excessive weight gain during their matriculation through college (Skelton & Evans, 2019). Excessive weight gain can lead to obesity with a measured BMI of greater than 30. The CDC defines obesity as a complex health issue resulting from multiple causes and individual factors such as behavior and genetics (CDC, 2021). Obesity is associated with comorbidities such as diabetes, heart disease, stroke, and some types of cancer (CDC, 2021).

The current study focused on the knowledge and perceptions of college students in order to assess that population's perspective and baseline understating of obesity and weight gain. The current study assessed the students' knowledge of the CDC recommendations for obesity prevention, weight and BMI classifications, as well as student perceptions of their weight. Healthcare professionals can use these study findings to guide future patient education through an expanded knowledge of student perception and familiarity of weight recommendations. The prevalence of the college student obesity phenomenon and need for intervention inspired the current study.

Statement of Purpose

The purpose of the current study is to determine if college students are knowledgeable of the long-term effects of obesity, the methods to prevent obesity and maintain a healthy weight, and procedures to identify how college students perceive their weight.

Significance of the Study

The current study contributes data useful for nursing, education, and research. Data obtained by the current research provides baseline knowledge to researchers, clinicians, and educators about the perceptions and level of understanding of weight gain present in the college student population. Findings of the current study can be used in establishing benchmarks for intervention and/or measuring goal outcomes. The significance of these findings to nursing, education, and research are discussed in this section.

Significance to Nursing

Newman (2020) states that it has been estimated that 39.8%, more than one-third, of the United States adult population is considered obese. On a global level, the prevalence of obesity has almost tripled since 1975 (Newman, 2020). Kaufman et al. (2018) state that based on body mass index (BMI), more than one-third of the United States college student population, aged 19-24, is considered overweight or obese. In 2008, the annual medical cost in the United States for obesity was \$147 billion (CDC, 2021). Based on the rising annual healthcare costs and increased rate obesity, there is a significant need for the current study.

Obese individuals have a considerably higher risk of developing high blood pressure, diabetes, stroke, coronary heart disease, sleep apnea, certain cancers, and/or osteoarthritis than individuals with a healthy weight (CDC, 2021). The Centers for Disease Control and Prevention (2021) reports that obesity related conditions, such as cardiovascular disease, stroke, diabetes, and certain cancers are among the leading causes of preventable and premature death, not only in the United States, but worldwide. More

focus on primary prevention of obesity would likely, over time, decrease the percentage of individuals classified as obese. Such a decline in obesity prevalence would result in decreases of comorbid conditions associated with obesity. Increased obesity related education and awareness of the long-term effects of obesity could heighten healthier habits and help prepare individuals for the start of young adulthood.

As one of the primary healthcare disciplines tasked with improving and maintaining population health, nursing can benefit from the findings of the current study. Greater insight into the knowledge and perceptions of the college-aged population allows providers to better care for those individuals at risk, as well as other patients. By filling knowledge gaps and targeting interventions based on findings from the current study, nurses can make a positive and measurable impact on the obesity problem.

Significance to Education

The current study determined if there was a knowledge deficit among college students regarding the topic of obesity; assessing knowledge about long-term effects of obesity, if college students were aware of measures that could be taken to prevent obesity and maintain a healthy weight, and determining how college students perceived their weight. The knowledge deficit identified among the college student population regarding obesity indicates to primary care providers that there is a need to stress obesity education in the college student population. The decisions and health practices that college students choose today will set the stage for the rest of their lives.

The data from the current study can be utilized by registered dietitians, physical fitness coordinators, diabetes educators, and many other members of the collaborative team. With all members of the collaborative team addressing the issue of obesity and

providing more education to this age group, the topic of obesity can be addressed from a multitude of angles. It is likely that individuals would develop a better understanding of obesity with education being provided from multiple members of the collaborative team. In turn, better outcomes are probable, which would promote a better quality of life for these individuals.

Furthermore, data obtained through current research can be utilized in educating professionals in multiple professional settings, not just in the healthcare setting. Professionals such as athletic trainers, dietitians, weight loss experts, nurses, healthcare providers, and other disciplines of health and medicine, could utilize the data from the current study in order to support the need for additional education regarding obesity among college students.

Significance to Research

The current study was useful in identifying how college students perceived their weight. Objective measurements, such as body mass index (BMI), may not correlate with socially constructed perceptions about healthy weight or individual self-image. Furthermore, adjusting to young adulthood can be challenging for some individuals. Insight into subjective experiences of study participants can aid in research of conditions related to individual self-image. Further research could be pursued by looking into eating disorders in the college student population and determining if there is a correlation with weight perception.

The current study provides a baseline snapshot of contemporary college students' knowledge and perceptions of obesity. Information obtained through the current study contributes useful information to the base of knowledge on the subject of knowledge and

perceptions about obesity in the college population. Data obtained from the current research can be useful for measuring and monitoring. Periodically repeating the College Student Obesity Questionnaire (Appendix A) used in the current study would show trends, improvements, and deficiencies in this population at different points in time. Education materials could also be incorporated at the end of the College Student Obesity Questionnaire, and each student's progress could be tracked. Such information would aid researchers in determining if interventions were successful.

Theoretical Framework

The Self-Care Deficit Nursing Theory (SCDNT) by Dorothea Orem is the theoretical framework used for the current study. Orem believed that when a person is unable to maintain his or her health or when he or she must depend on others for care, that person would need nursing care. She studied and gained an understanding about what people must do to maintain their health and well-being (Alligood, 2018). There are three important theories included in Orem's SCDNT, which are the theory of self-care, the theory of self-care deficit, and the theory of nursing systems. Orem's theories, which guided the research of the current study, are discussed below.

The theory of self-care includes one taking care of essential functions to promote his or her health and well-being. Universal self-care requisites are goals set forth based on human functioning (Alligood, 2018). Alligood (2018) lists eight universal self-care requisites, which include maintenance of sufficient intake of air, food, and water, balance between activity and rest, balance between solitude and social interaction, and provision of care involving the elimination process. Universal self-care requisites also include prevention of harm to human life, functioning, and well-being, and promotion of human

development and functioning (Alligood, 2018). In caring for oneself, these requisites are basic necessities needed to thrive, physically, emotionally, and mentally. Many times, the way an individual performs self-care is learned through one's culture and/or prior experiences. Healthy dietary choices and obtaining the recommended amount of exercise are two ways in which one performs self-care.

A self-care deficit is when there is an obstacle in which one cannot meet his or her needs or health requirements (Alligood, 2018). The theory of self-care deficit can be utilized to assist individuals in becoming more independent and encouraging each person to take initiative in performing self-care. Nursing is required when there is a self-care deficit, either due to the individual being incapable of performing effective self-care, or the individual being limited in the provision of self-care. In the current study, lack of education in regard to obesity is a primary contributor to self-care deficit. Due to the increasing rate of obesity among college students, there is a self-care deficit among this age group. Once the deficit is identified, the theory of nursing systems can then be utilized.

The theory of nursing systems studies how to apply nursing interventions to meet one's needs (Alligood, 2018). Nursing interventions are developed based on the specific needs of each individual. The SCDNT provides a theoretical framework for nursing intervention to aid the individual in self-care, eliminating the deficit (Alligood, 2018). In relation to the current study, education is an important nursing intervention. Educating individuals on healthy dietary choices, exercise recommendations, obesity prevention methods, weight maintenance, and risks associated with obesity empowers the individual to make better lifestyle choices, enhancing his or her ability to practice proper self-care.

The current study explored if there was a knowledge deficit among college students regarding obesity prevention and maintenance of a healthy weight, and the long-term effects of obesity. The way college students perceived their weight was also explored. The central focus of the SCDNT is identifying the needs of the individual and assisting him or her in meeting these needs. Assisting individuals in meeting basic self-care needs can be achieved by assessing their needs and educating them on obesity prevention, maintenance of a healthy weight, and long-term effects of obesity.

Research Questions

- 1) Are college students knowledgeable regarding the long-term effects of obesity?
- 2) Are college students knowledgeable on how to prevent obesity and maintain a healthy weight?
- 3) What are college students' perceptions of their weight?

Definition of Terms

For the current study, the researchers theoretically and operationally defined the following terms: college students, knowledgeable, long-term effects of obesity, obesity, prevent, maintain a healthy weight, and perceptions.

College Students

Theoretical Definition. A person who studies at an institution offering instruction usually in a professional, vocational, or technical field (Merriam-Webster, 2021).

Operational Definition. A student enrolled in a two or four year college or university in the southeastern United States, that is in the age range of 18 to 25, and completed the College Student Obesity Questionnaire (Appendix A).

Knowledgeable

Theoretical Definition. Having or showing knowledge of intelligence (Merriam-Webster, 2021).

Operational Definition. Scores 80% or above on the knowledge section of the College Student Obesity Questionnaire (Appendix A). Questions 9-18 on the College Student Obesity Questionnaire were graded as knowledge questions.

Long-Term Effects of Obesity

Theoretical Definition. Something that inevitably follows an antecedent (such as a cause or agent) occurring over or involving a relatively long period of time (Merriam-Webster, 2021).

Operational Definition. Obesity related comorbidities include high blood pressure, diabetes, stroke, coronary heart disease, sleep apnea, certain cancers, and osteoarthritis. This definition correlates with questions 12 and 13 on the College Student Obesity Questionnaire (Appendix A).

Obesity

Theoretical Definition. A higher weight than what is considered healthy for a certain height (CDC, 2021).

Operational Definition. Having a body mass index (BMI) of greater than or equal to 30.

Prevent

Theoretical Definition. To keep from happening or existing (Merriam-Webster, 2021).

Operational Definition. To keep from taking place.

Maintain a Healthy Weight

Theoretical Definition. A BMI between 18.5 and 24.9 (CDC, 2021).

Operational Definition. A weight that falls within the BMI class of normal range, 18.5 to 24.9. A BMI less than 18.5 is classified as underweight. A BMI 25 to 29.9 is classified as overweight. A BMI of 30 or greater is classified as obese.

Perceptions

Theoretical Definition. The way one thinks about or understands someone or something (Merriam-Webster, 2021).

Operational Definition. A respondent's subjective view, independent of objective measurement. This definition corresponds with questions 3-8 on the College Student Obesity Questionnaire (Appendix A).

Assumptions

For the purpose of this study, the assumptions were as follows:

- 1) The researchers assume the participants are between the ages of 18 and 25.
- 2) The researchers assume the college students will answer the College Student Obesity Questionnaire (Appendix A) honestly.
- 3) All responders to the College Student Obesity Questionnaire are willing participants and understand that he or she can withdraw from the research study at any time before submission.
- 4) The participants will have the intellectual ability to be able to read the College Student Obesity Questionnaire and respond appropriately.

Summary

More than one-third of the United States college student population, aged 19-24, is considered overweight or obese (Kaufman et al., 2018). Due to this overwhelming percentage, there is a significant need for research to be performed on the topic of obesity in this population. Obesity, with comorbid conditions such as cardiovascular disease or diabetes, is among one of the leading causes of preventable and premature death in the world (CDC, 2021). The data collected from the current study assisted in identifying if college students were knowledgeable regarding obesity prevention, maintaining a healthy weight, and long-term effects of obesity. The way college students perceive their weight was also determined.

Chapter II: Literature Review

Obesity is a leading health problem in the United States. Over the past few decades, the prevalence of obesity has almost tripled (Pantalone et al., 2017). More than 60 million adults in the United States are overweight or obese. Obesity is associated with numerous health conditions, such as hypertension, type 2 diabetes, stroke, heart disease, cancer, sleep apnea, and depression. Direct costs associated with obesity have been estimated at \$190 billion, and indirect costs, such as lost productivity, have been estimated at \$1.24 trillion (Orjuela-Grimm, 2021).

According to the American College Health Association, 34.3% of American college students were reported as being overweight or obese in 2012 (Fackler et al., 2021). College freshmen gain weight at double the rate of same-age peers (Kuhlmann & Tigges, 2017). The significance and prevalence of obesity in the college-aged population warrant this and future research to study and effectively address this problem.

Presented in this chapter are articles regarding obesity, obesity in the college-aged population, possible causes for that obesity, and attempts at solutions. The research articles presented here support the following claims: obesity is a serious problem in the United States; obesity is a serious problem in the college-aged population; current strategies for dealing with the obesity problem are insufficient; and more research is needed related to obesity.

Theoretical Framework: Orem's Self-Care Deficit Theory

The theoretical framework for this research is Dorothea Orem's self-care deficit theory of nursing, which posits that people should take care of themselves, but when they need support or cannot take care of themselves, nursing is there to intervene. Orem's

theoretical framework is highly applicable to nursing research. Using Orem's theories, deficits in populations are identified so that evidence-based intervention can be implemented.

An effective example of Orem's theory aptly utilized in research is Lester et al.'s study in 2013 which focused on obesity in the pediatric population. Lester et al. (2013) recognized that children are dependent on healthcare providers for prevention and management of obesity. Using Orem's theories as framework Lester et al. focused on provider intervention for health promotion and education to benefit growth and development. In assessing obesity guideline adherence by healthcare providers, Lester et al. uncovered deficits as they existed in practice.

Because the problem of childhood obesity was on the rise, Lester et al. (2013) studied compliance with existing childhood obesity guidelines. Researchers conducted chart reviews of 300 patients, ages two to eighteen, with obesity diagnoses or BMI's greater than the 85th percentile. Provider utilization of guidelines was found to be very low in the sample population, which resulted in low obesity identification, education, and treatment.

Every individual in the Lester et al. population qualified for a diagnosis of overweight or obese, but just 35% were given one of these diagnoses. Treatment was initiated for only 30.33% of those studied, and education was provided to only 36.67%. Unsurprisingly, most of the individuals provided with treatment and education were those diagnosed by providers as obese or overweight. The issue of obesity went unaddressed for the majority of individuals undiagnosed by providers.

Pediatric obesity guidelines were established as an attempt to improve the problem of obesity in the pediatric population. These guidelines are recommendations and parameters provided to healthcare providers that, when utilized, can help to identify and address obesity. Failure to adequately address the obesity problem in children can have lifelong consequences.

Lester et al.'s utilization of Orem's Self-Care theory was appropriate and useful in guiding research to identify self-care deficits early in life. Similarly, Orem's self-care deficit theory is applied to the research being presented here. The postulation that obesity inadequately addressed in the college-aged population should be addressed by healthcare providers arises from Orem's ideas that nursing care is necessary in situations where people are at risk for self-care deficit.

The fact that obesity is a problem in the college-aged population means that there is a self-care deficit in that population; there is an imbalance between ability to engage in self-care and need for self-care. By studying the deficiency of obesity management in the college-aged population, the current state of this problem can be better understood. The knowledge gained through current research can aid in identifying areas in need of concentration.

Pantalone et al. (2017) set out to determine the prevalence of obesity and related comorbidities in the United States by reviewing records of actively managed patients from the Cleveland Clinic's electronic health record. For this study, patients over the age of 20 who met criteria were separated by BMI categories. Exclusion criteria included: height under 4'6" or above 7'6", weight greater than 750 lbs., pregnant, amputee patient, diagnosis of HIV, hypothyroidism, heart failure, receiving radiation, or currently having

metastatic cancer. Relationships were made between BMI categories and patient characteristics, such as patient's income (5-year estimates), smoking status, demographic, laboratory, and vital sign data.

Out of the 324,199 patients included in the study 255,775 were considered overweight or obese. Subjects fell into the following BMI classifications: 121,287 diagnosed as overweight, 75,199 diagnosed as obesity class one, 34,152 diagnosed as obesity class two, and 25,137 diagnosed as obesity class three. The median age for the study was 52 years of age. Participants in the study were predominantly Caucasian, at 54% and majority female, at 54%. Pantalone et al. (2017) found that fewer than 30% of patients with obesity were diagnosed by their primary care providers, finding only 48% of those with a BMI greater than 30 diagnosed with obesity. Data showed that weight counseling at primary care visits has been declining over the past decades.

Pantalone et al. (2017) found an increase in the prevalence of comorbidities with increased BMI. Although only 12.9% of African American patients were included in the study, this racial class had a higher risk of being diagnosed as obese. Prevalence of the female gender was found to be greatest in the higher classes of obesity, with 65% of class three obesity being female. Data also showed an inverse relationship between household income and BMI, finding increased BMI with decreased income.

Pantalone et al. (2017) utilized a large sample size to show relationships between obesity and related comorbidities. Results of the Panoalone et al. (2017) study quantitatively support the claim that obesity is a significant problem in the adult population. Panoalone et al. also found obesity to be underdiagnosed. Data presented by Pantalone et al. (2017) aid in defining the enormous scope and range of the obesity

problem. Results of the Panoalone et al (2017) study support the claim that the obesity problem needs more research and lend justification to the current research.

Commonly used categorical divisions of Body Mass Index (BMI) for research purposes are potentially insufficient for describing associated medical costs, so Ward et al. (2021) conducted a study showing BMI related health care cost in a continuous way rather than categorically. Ward et al. (2021) sought to provide a more comprehensive and continuous picture of relationships between BMI and healthcare costs, filling data gaps left by other researchers.

The underlying theory in the Ward et al. (2021) study is that categorization can lead to missed information. In other words, pigeonholing populations into rigidly defined groups can prevent researchers from recognizing trends and important details in data. According to Ward et al. (2021), BMI related costs can be more accurately estimated using a flexible, continuous approach rather than relying on the constraints of specific categories.

Of the 175,726 individuals used in the Ward et al. (2021) study, 139,143 were adults (aged 20-86), and 36,583 were children (aged 6-19). Population data came from the Medical Expenditure Panel Survey (MEPS) 2011-2016. Pregnant women were excluded from the population, and children under age six were not included due to lack of available BMI data for children of that age group. Expenditures were standardized and averaged to find a cost measurement that controls for other factors, such as location, race, ethnicity, and insurance. using Personal Consumption Expenditures (Health) index. Cost measurements are reported in 2019 US dollars.

Ward et al. (2021) found that predicted medical costs were lowest for adults with a BMI 20-24; costs rose as BMI increased, with the highest costs among the severely obese. Age was also a factor, showing healthcare costs as relatively flat for children, except for those with a BMI above the 99th percentile. Interestingly, the study found that differences in healthcare costs between BMI ranges were narrower in the older age range, starting around 65 years old. Ward et al. (2021) concluded that this convergence was possibly due to increased healthcare costs associated with aging for those with a normal BMI as well as selection bias, which resulted from higher mortality of severely obese individuals.

In consideration of gender, results found in this study were similar to results from other studies, with female adults having higher costs than males. On the other hand, the study found that costs were slightly higher for boys than for girls. The study found a J-shaped curve of medical costs by BMI with lowest costs in the 20-24 BMI range.

Results showed the incredible financial impact associated with overweight and obesity in adults, costing over \$200 billion per year in the United States. Health care costs were estimated in excess of \$1,800 per year for obese adults and over \$600 per year for overweight adults. Childhood obesity, the study found, cost more than one billion dollars nationally (over \$100 per child). While the financial burden of childhood obesity appeared to be significantly less severe, the study pointed out that childhood obesity often graduates to adult obesity.

The deleterious effects of obesity are not only to personal health; obesity has a high toll from a financial perspective as well. Ward et al. (2021) offered a new, more accurate tool with which healthcare costs could be gauged in relation to BMI across

multiple age groups and specific to gender. Ward et al. (2021) succeeded in illustrating that BMI affected healthcare costs across the spectrum, especially in the higher BMI categories. Ward et al. (2021) data supports the claim of current research that obesity is a costly problem in need of further study.

Kuhlmann and Tigges' (2017) study objectives were to quantify weight change in first semester college students and to identify predictors of weight gain. This study was significant because college freshman gain weight at double the rate of same-age peers (Kuhlmann & Tigges, 2017). The National College Health Risk Behavior Survey was cited in this article with findings that reveal that 23% of U. S. college students were found to be overweight, and 16% were obese (Kuhlmann & Tigges, 2017). Kuhlman and Tigges' (2017) study not only involved college student weight gain and predictors but also considered the developmental stage of college students, identified in this study as emerging adulthood.

The aim of the study was twofold: 1) Determine whether college freshman experience clinically significant weight gain in the first semester of college 2) Examine the effects of gender, ethnicity, and race on weight change in college freshmen during the first semester of college after controlling the baseline BMI category and change in height 3) Assess the additional predictive value of physical activity, sedentary behavior, nutritional intake, beverage and snack intake, alcohol consumption, stress management, interpersonal relations, spiritual growth, and health responsibilities on weight change in college freshmen.

This study was performed at a public university in New Mexico using a convenience sample of 76 college freshmen between the ages of 18 and 19. Participants

were required to be unmarried, childless, and first-time attending students. They also were required to have had less than 30 credit hours and attended college on the main campus while living in the dorms and having the cafeteria food plan be their main source for purchasing food.

Kuhlmann and Tigges (2017) determined that there was an inverse relationship with health responsibility and BMI. Weight change for participants varied from a gain of 22.2 pounds to a weight loss of 26.0 pounds. The mean increase across participants was 2.3 pounds. It was found that 42% of participants had a clinically significant weight gain during the study. Researchers also found that participants who initially had a normal BMI had the largest weight gain, with 50% of participants in this category gaining more than 3.5 pounds. Kuhlmann and Tigges' (2017) findings suggested that there was no correlation between weight gain and gender, race, or ethnicity and no correlation in personal, interpersonal, and situational variables.

Previously presented studies support claims that obesity is a health problem and a financial burden in various populations. Kuhlmann and Tigges (2017) provided clear evidence of weight gain among college students, suggesting that more study is needed to assess the obesity problem in that population. Evident weight gain during the first year of college relates directly to current research, as current research targets that population specifically.

Monroe et al. (2017) performed a study to assess college freshman students' concerns about weight gain and their interest in delivery mediums for eHealth programs. Data in this study were collected using web-based surveys completed by the participants. According to research performed by Monroe et al. (2017), college students are vulnerable

to weight gain and even more so during their freshman year. The American College of Health reported that two-thirds of college students were interested in receiving information on physical activity and diet. Monroe et al. (2017) sought to gauge how interested students were in receiving such information and to determine the best way to deliver this information to them.

The Monroe et al. (2017) study was longitudinal, using a convenience sample of incoming freshmen at a large public university in the southeastern United States. Web-based surveys were used to collect data. Two surveys were completed by participants, one given at the first day of class, the other 11 weeks later. The surveys collected data about concern with weight gain and prevention, interest in eHealth promotion programs and preferred delivery platforms, technology use, and weight gain prevention practices. Demographic data such as age, sex, race, and ethnicity were also obtained.

A total of fifty students completed both surveys. Most participants were white and of normal weight based on BMI. Three-fourths of students reported that they were concerned about weight gain, and 70% were interested in programs focused on physical activity and healthy eating. Email was found to be the preferred method of students to receive information about healthy physical activity and diet.

Monroe et al. (2017) relates to current research in several ways. Both current research and Monroe et al. (2017) focused on weight gain in the college aged population. Both studies sampled college students in the southeastern United States. Current research and Monroe et al. (2017) utilized similar methodology for data collection, using technology to collect data on weight gain from the college students' perspective.

Skelton and Evans (2019) performed a qualitative study investigating student's perceptions of their college environment and ease of selecting and accessing food options. The purpose of this study was to help identify barriers that students faced when selecting healthy food while on campus and to formulate strategies to provide students with healthy eating alternatives that were easily accessible on campus. Major barriers identified within this study were accessibility, money, food, and education.

Three research questions were answered throughout the study. 1) How do students feel about the availability and accessibility of healthy foods on campus? 2) What are college students' perceptions of healthy food on campus? 3) What are barriers for healthy eating on campus? The authors' hypothesis was that there was a direct correlation between student weight gain and the college campus environment.

This study was conducted on a college campus of 21,000 students in the Southern region of the United States. Thirty-three students participated in this study, with 28 involved in focus groups and five students being interviewed. Skelton and Evans (2019) used several different avenues to recruit participants, including posters, ads, emails, and flyers on campus. Students were grouped by class level and asked to provide their height and weight for the study. Open-ended questions were utilized to engage the students. Grounded theory was used to analyze received data, which allowed for the students themselves to identify barriers within the study.

Skelton and Evans (2019) were then able to comprise the following major themes discussed in the focus group: 1) accessibility of healthy foods, 2) money/budget, 3) food options, 4) education, and 5) lack of student input. Direct quotes from students were used throughout this study to describe the students' perceptions and barriers.

Skelton and Evans (2019) concluded that the campus environment did have a major effect on student food choices. Students perceived that the environment supported unhealthy food choices, such as processed foods rather than less accessible healthy foods. The study suggested recommendations for future studies based on an individual, interpersonal, organizational, and community level, including health education, student input of food choices, targeting social networks to educate certain students, and changing the health practices and health awareness of the campus itself.

Unlike other studies discussed, Skelton and Evans (2019) examined obesity-related concerns qualitatively rather than quantitatively. The open-ended nature of the Skelton and Evans (2019) study allowed for more participant feedback and suggestions. Findings of the Skelton and Evans study suggested that interest in health and nutrition existed among college students. Personal perceptions of college students in the American south associated with health and nutrition relate directly to current research, as health and nutrition are tied to obesity and college students in the American south comprise the studied population.

Orjuela-Grimm et al. (2021) conducted a study to determine the degree to which medical students were being trained to manage obesity. Because the obesity epidemic was so pervasive and widespread, it was necessary to examine the issue as a systemic problem. Orjuela et al. (2021) examined how well residents were being trained to deal with the issue of obesity. If these health care providers were not being adequately trained, they could not be expected to sufficiently assess, manage, and educate their patients on obesity. Examination of obesity management from this perspective provided deeper

understanding of the problem that obesity is not adequately addressed with young adults by providers.

Recognizing the seriousness of the obesity epidemic in the United States, Orjuela-Grimm et al. (2021) hypothesized that obesity management had not been adequately prioritized or effectively managed in primary care settings. Researchers set out to assess the contemporary state of obesity management training in family medicine programs. The Orjuela-Grimm et al. (2021) study attempted to answer the following questions: What proportion of family medicine programs have training programs for care of patients with obesity? Are family medicine residents adequately prepared to manage patients with obesity? How well are Obesity Medicine Education Collaborative (OMEC) competencies addressed in family medicine residency programs?

To assess the state of obesity management education in medical schools and residency programs, Orjuela-Grimm et al. (2021) invited 735 program leaders from 474 family medicine residency programs to complete a survey. Those invited included directors, assistant directors, and associate directors of medical programs. Though more than one individual may have been invited from some programs, only one participant from each program was allowed to participate to maintain data consistency and fair representation.

Invitations were sent by mail and surveys completed online. Reminders were sent by mail, email, and fax. The mailed invitation indicated Novo Nordisk as sponsor and Columbia University Mailman School of Public Health and the Bariatric and Metabolic Institute at the Cleveland Clinic as collaborators. Invitations also included study objectives, participation requirements, and instructions for completing the survey.

Participants were required to demonstrate familiarity with the Accreditation Council for Graduate Medical Education's learning objectives and requirements for family medicine and were given a \$65 check as a show of gratitude for their time (Orjuela-Grimm et al., 2021).

The survey included 47 questions based on the Obesity Medicine Education Collaborative (OMEC) competencies. Questions were designed to assess how much residency program curricula address core obesity competencies (Orjuela-Grimm et al., 2021). Participants were asked details about obesity training, expectations, and barriers to expansion of such training.

The survey was completed by 77 of those invited, a 16% response rate. The survey confirmed that most of the represented programs did have training on prevention and management of obesity, and most respondents rated obesity training as very important. However, responses from survey participants appeared to support the hypothesis that residents were insufficiently prepared for the management of patients with obesity. Participants responded that more education related to obesity management was needed in family medicine programs. Lack of faculty expertise and limited curriculum space were reported as barriers.

Current research assesses obesity-related knowledge and perceptions of college-aged individuals. Trained healthcare professionals, such as doctors, are tasked with imparting knowledge of obesity. Failing to be adequately trained for dispersal of obesity-related knowledge can lead to a knowledge deficit in vulnerable populations, such as college students. Obesity-related ignorance in the college population may result from

inadequate training of health professionals such as those studied by Orjuela-Grimm et al. (2021).

According to Fackler et al. (2021) adolescents in the United States are at an increased risk of being overweight or obese as they transition from high school to college. The study utilized a mixed-method design to assess college student's nutritional habits and activity levels by using a comprehensive website design. The basis of this study was to increase the awareness of dietary habits and weight gain by utilizing a technological health promotion model.

Fackler et al. (2021) hypothesized that addressing obesity early may prevent the population from developing long-term comorbidities/diseases related to obesity, which would decrease the risk of mortality. While there were multiple means of addressing health promotion, Fackler et al. (2021) recognized that technology-based interventions were underutilized for addressing obesity or lifestyle management for students. The goal of the Fackler et al. (2021) study was to refine and implement a web-based model for healthy lifestyle management in college students primarily related to consumption and choices of food.

Fackler et al. (2021) utilized two groups of residential college students and assessed the development of the project by using five outcomes. The five outcomes included the following: Outcome 1- the students were able to use the website, or technology, by which the intervention was utilized; Outcome 2- the students comprehended and were motivated by the material provided through the technological intervention; Outcome 3- engagement and interaction with the technology; Outcome 4-

the students moved from a phase of readiness to a phase of change; and Outcome 5- the succession of each phase of the study.

In the first group of the study, there were 22 participants enrolled and 20 in the second. All were recruited using events at dining areas, residence halls, and public events. Both groups were enrolled in a 4-week study. Each student used a website containing activities and knowledge related to healthy lifestyles. The website addressed 3 areas, which included eating, activity, and life management. Participants were deemed eligible if there was a readiness for change in all areas being addressed in the study as listed above. The first study group was given information of nutritional strategies, physical activity, and stress management. The second group utilized a website that had more sophisticated designs and information with goal setting, explanations, videos, and recommendation links.

All participants were asked to track their food intake weekly and to intermingle with other participants using social media applications such as Facebook or Twitter. At the beginning and end of each study, quantitative data were recorded, including all information listed above as well as participants' reported weight. A survey was also completed by each participant at the end of the study, which included survey questions related to website amount use, self-tracking methods, and student's comprehension of the intervention.

The results of the first group study consist of 12 students completing a post-intervention narrative, who claimed they saw no weight change after the 4-week period. Three participants (23.1%) stated they had increased level of readiness under the category of nutrition; 23.1% stated they were at an increased level of readiness for physical

activity; and two students (15.4%) claimed they were at an increased readiness for stress management. Eleven out of the twelve respondents in the first study found the website easy to use.

Ten of the twelve participants in the second study who took the post-intervention survey stated they learned or could learn from the website and offered examples of factors in which they could learn, including goal setting and self-tracking. Participants had several suggestions, such as improving accessibility of the website or possible conversion to a cellphone application. Other suggestions were to include the ability to track and add goals and the ability to track results and progress via the website. Overall, the second study group was much more pleased with the website presented than the first group due to the improvements made over time.

Current research and Fackler et al. (2021) both utilized technology for data acquisition. Data obtained by Fackler et al. (2021) suggested that college students were accepting of technology for such applications, particularly when such technology was user-friendly and streamlined. Fackler et al. (2021) and current research both examined perceptions of college students and weight gain.

Summary

Articles reviewed in this chapter represent a sample of available research on obesity and health problems related to obesity. While each article presented here views the obesity problem from a different perspective, all agree that the issue is pervasive, significant, and growing in scope and scale. Every article presented supports the claim that obesity is a problem in much need of study and improvement.

Although much useful information has been obtained through this literature review, more study on the subject is greatly needed. Presented here are multiple articles that describe the growing problem of obesity, study reasons for the problem, and make attempts to find solutions. Improving the obesity problem necessitates improvement in the young adult, college-aged population, as this age group represents a pivotal point, setting the stage for the entirety of adult life.

Current research is a useful addition to available research data. Although more research is needed into the subject of obesity in the college population, current research provides further insight into the knowledge and perceptions of college students. Data obtained by current research provide opportunity for future research by providing baseline knowledge of the college student population. Using information presented in this literature review in conjunction with data obtained by current research, future research and intervention can be more targeted and effective.

Chapter III: Methodology

Education on obesity is essential for prevention of obesity and other health care related issues. The researchers of the current study were seeking information regarding knowledge and perceptions of college students. The data gathered were reviewed and analyzed for relevance and importance. The purpose of the current study was to determine if college students were knowledgeable of the long-term effects of obesity, on how to prevent obesity and maintain a healthy weight, and to identify how college students perceive their weight. In this section, the study design, setting, population, methods of data collection, and data analyses were presented and discussed.

Design of Study

The researchers conducted a quantitative, descriptive design utilizing a questionnaire to determine college students' perceptions and knowledge of obesity risk factors and long-term effects. After exemption was obtained from the Institutional Review Board (IRB) (Appendix B), data were collected by distributing the College Student Obesity Questionnaire (Appendix A) to students who attend college in the southeastern United States. Convenience sampling was utilized for data collection.

Setting for the Research Project

The setting of the current study was colleges located in the southeastern United States. The institutions included were two- and four- year colleges. Technological distribution of the College Student Obesity Questionnaire (Appendix A) was a major factor in the setting of the research.

Population and Sample

The target population was college students in the southeastern United States who were between the ages of 18 to 25. The inclusion criteria were used to gain knowledge of a specific category of individuals. Study participants were provided a link to the College Student Obesity Questionnaire (Appendix A) provided to them through either a quick response (QR) code posted on the “Questionnaire Flyer” (Appendix C) or a weblink emailed to his or her school web email address (Appendix D). The current study used convenience sampling to collect data from a limited number of colleges in the southeastern United States. Data gathered were representative of all members of the college-aged population.

Methods of Data Collection

The College Student Obesity Questionnaire for the current study was created using the SurveyMonkey application. The College Student Obesity Questionnaire included 18 questions pertaining to patient demographics, knowledge of obesity, and perception of obesity. The questionnaire was administered to college students via a QR code on the Questionnaire Flyer, located in the Mississippi University for Women’s Student Health Center and other buildings located on the Mississippi University for Women’s campus. Also, a weblink containing the survey was sent to the students’ school email addresses. The students who met the current study criteria, 18-25 years of age and attending college in the southeastern United States, were offered the opportunity to complete the obesity questionnaire. The participants then reviewed the consent statement (Appendix D) and the questionnaire. They were informed that the survey was anonymous and they were able to withdraw from the current research study at any point before

submitting the questionnaire. If they chose to complete and submit, they were giving consent to be included in the current research project. The questionnaire was available from March 2022 through May 2022. All submissions were reviewed at the end of the collection period. The researchers obtained 124 questionnaires from several sources. The data obtained from the questionnaires were placed into an excel spreadsheet with no identifying data from the participants. The spreadsheet was saved on a password protected USB drive and the data was statistically analyzed. After the current research project was completed on July 15, 2022, the USB drive was destroyed.

Methods of Data Analysis

The researchers used the College Student Obesity Questionnaire (Appendix A) including eighteen questions to gather data for the current study. The College Student Obesity Questionnaire consisted of an initial section of demographics; this includes questions 1 and 2. These demographics included questions about students' sex assigned at birth and race. The next section included questions 3-8, which were utilized to gather specific participant data on the students' perception of his or her weight. Questions 9-18 inquired about the participants' knowledge of obesity and long-term effects associated with obesity. Data were collected and descriptive statistics were used to analyze the data obtained. The statistical data were represented by frequency distributions and percentages using charts and tables. The data were used to determine college students' knowledge and perception of obesity and long-term effects of obesity.

Summary

A quantitative descriptive approach was utilized while seeking to answer research questions. The College Student Obesity Questionnaire (Appendix A) was used to obtain

data from students from various colleges in the southeastern United States. The goal was to gain knowledge of students' perceptions, thoughts, and comprehension of obesity. All participants were informed and consent was obtained through completion of the questionnaire. Confidentiality of participants was maintained and respected throughout the research process. Statistics were utilized to analyze and present data.

Chapter IV: Results

Obesity is a significant problem in the United States, affecting many individuals, families, and the healthcare system. Kaufman et al. (2018) states that based on body mass index (BMI), more than one-third of the United States college student population, aged 19-24, is considered overweight or obese. In 2008, the annual medical cost in the United States for obesity was \$147 billion (CDC, 2021). The current study was designed to evaluate college students' knowledge of obesity prevention, long-term effects of obesity, and the students' perceptions.

The researchers sought specifically to answer the following questions:

1. Are college students knowledgeable regarding the long-term effects of obesity?
2. Are college students knowledgeable on how to prevent obesity and maintain a healthy weight?
3. What are college students' perceptions of their weight?

The methodology for data retrieval in the current study included the College Student Obesity Questionnaire (Appendix A), which was developed by the researchers to evaluate college students' perception, knowledge of obesity, and long-term effects of obesity in the southeastern United States. The survey was accessible through either a weblink sent to a college students' email (Appendix D), or a quick response (QR) code located on flyers located throughout the Mississippi University for Women's campus (Appendix C). Both, the weblink and QR code, sent the respondent to the questionnaire that was provided through SurveyMonkey. The questionnaire was developed by the researchers and designed to obtain data from college students regarding perceptions, knowledge of obesity prevention, knowledge of long-term effects associated with obesity,

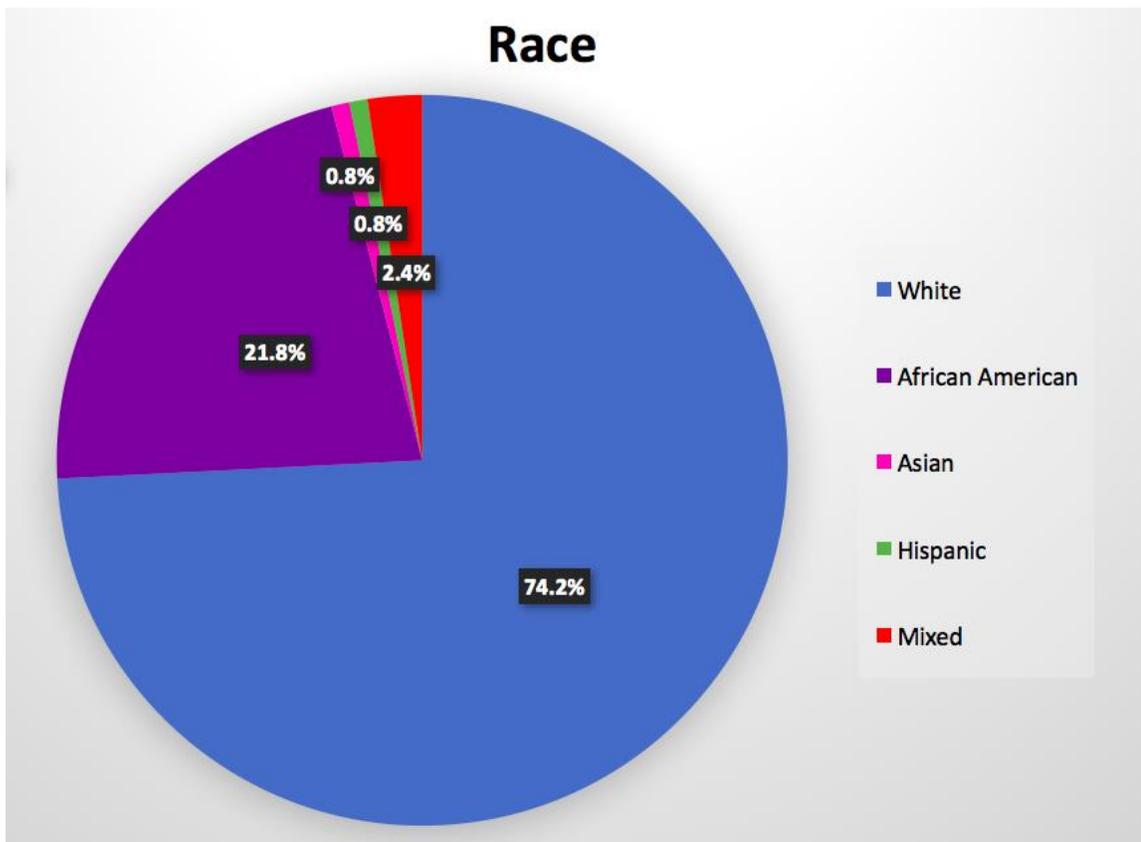
and demographics. Overall, the survey consisted of 18 questions, and each question was analyzed separately. The remaining portion of this chapter provides the demographics of the respondents and a summary of the statistical results of data collected.

Profile of Study Participants

A quantitative study was used to obtain data for the current research study. The College Student Obesity Questionnaire (Appendix A) was designed to evaluate college students' perceptions, knowledge of obesity prevention, and long-term effects of obesity. The College Student Obesity Questionnaire was sent out through the list-serve email database at several colleges in the southeastern United States (Appendix D). The email contained a link to the SurveyMonkey questionnaire. Flyers that included a QR code (Appendix C) were also utilized in the current research study. The QR code was linked directly to the SurveyMonkey questionnaire. Demographic data contained gender and race.

The College Student Obesity Questionnaire was available for one month, and a total of 124 college students participated and completed the questionnaire. There was a much greater number of female participants than male, with females comprising 86.3% of the respondents. The male gender comprised 12.9%. Participants were predominantly of two races. The White race consisted of the majority of the respondents at 74.2%. The African American race consisted of 21.8% of the respondents. The different racial groups among the respondents are represented in *Figure 1*.

Figure 1



Statistical Results

Each knowledge question answered correctly earned one point. A knowledge score was calculated by adding the number of correct knowledge questions answered, and percent score was computed. The minimum possible score was 50% and the maximum possible score was 100%. The mean of the scores was 86.2 and the standard deviation was 11.8. The frequency of the distribution is shown below in *Table 1*.

Table 1

Knowledge Score Percent				
	Frequency	Percent	Valid Percent	Cumulative Percent
50.00	1	.8	.8	.8
60.00	7	5.6	5.6	6.5
70.00	13	10.5	10.5	16.9
80.00	27	21.8	21.8	38.7
90.00	45	36.3	36.3	75.0
100.00	31	25.0	25.0	100.0
Total	124	100.0	100.0	

(N=124)

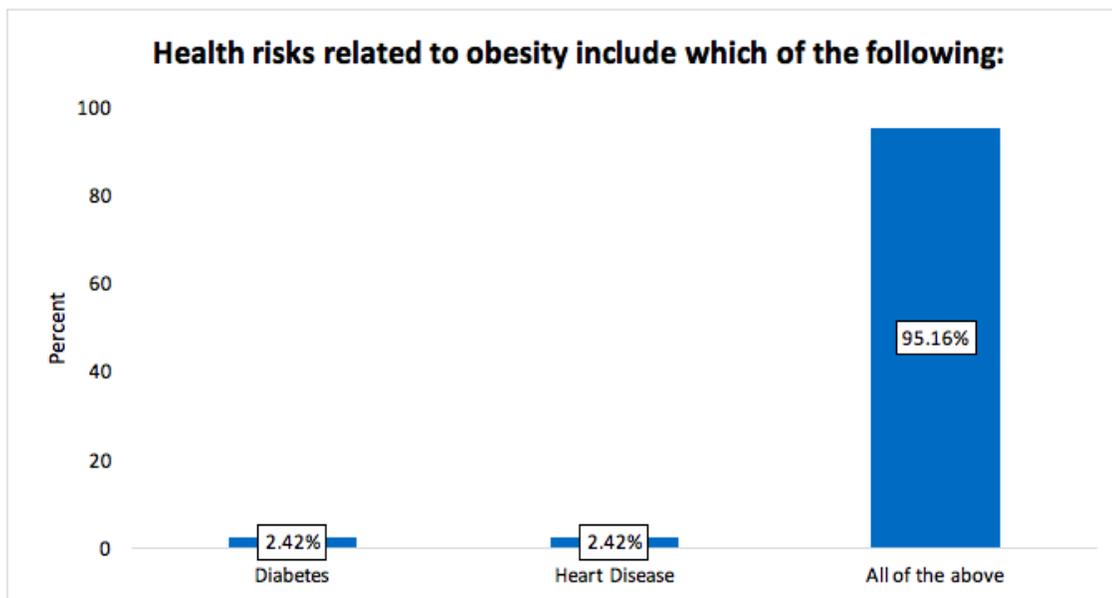
Data Analysis

Are college students knowledgeable regarding the long-term effects of obesity?

Questions 10, 12, and 13 queried respondents about the long-term effects of obesity. A knowledge score was calculated for those responses, and the percent correctly answered was computed. The mean score for these knowledge items in the College Student Obesity Questionnaire was 96.2, with a standard deviation of 10.6.

Question 12 offered four multiple choice options that included cancer, diabetes, heart disease, and all of the above. The question asked respondents to identify which of the following is/are a health risk related to obesity. Out of the respondents, 2.42% of people chose diabetes and 2.42% chose heart disease, while no one chose cancer. The correct answer, which approximately 95% of the respondents chose, was all of the above. These results are shown in *Figure 2*.

Figure 2

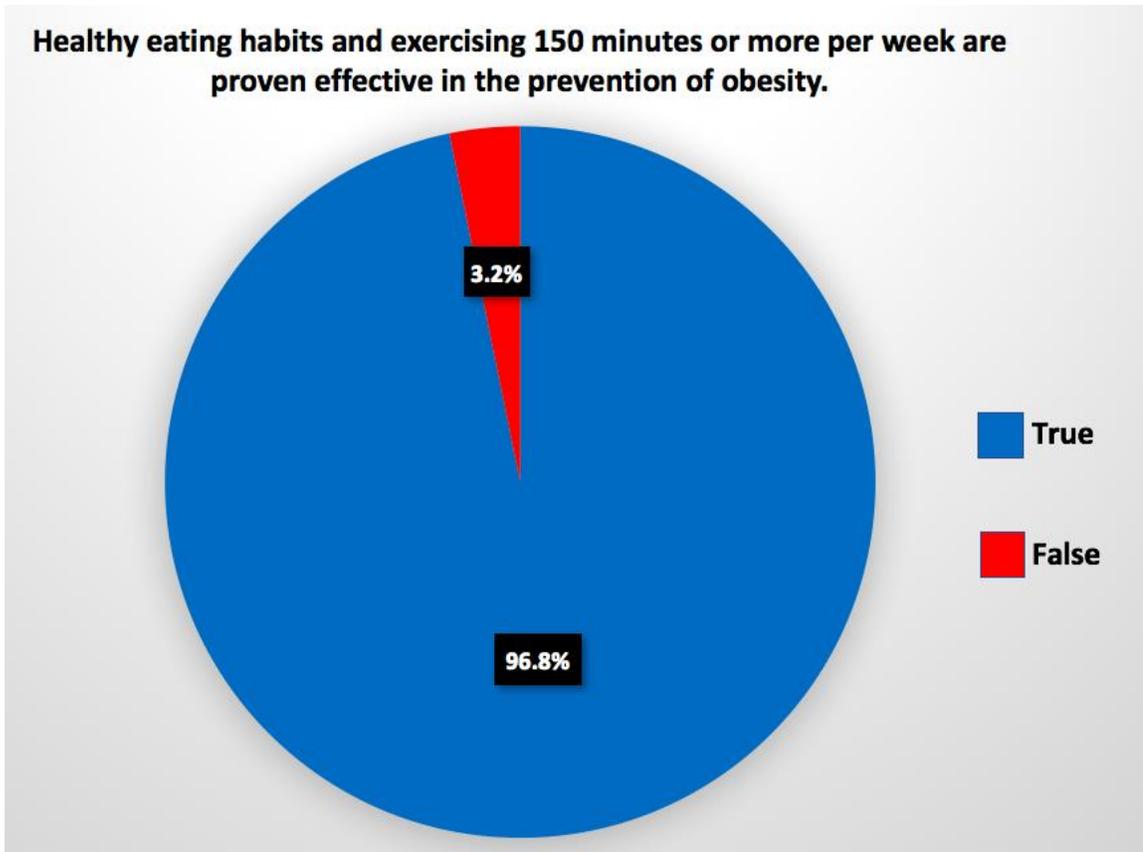


Are college students knowledgeable on how to prevent obesity and maintain a healthy weight?

Questions 14, 16, and 18 of the survey evaluated respondents' knowledge regarding obesity prevention. A knowledge score was calculated for those responses, and the percent correctly answered was computed. Scores for these knowledge questions in the survey ranged from 66.7% to 100%, with a mean score of 98.4 and a standard deviation of 7.2. Questions 9, 11, 15, and 17 were also included in the knowledge section on the "College Student Obesity Survey." These questions evaluated the participants' knowledge in regards to statistics and facts in terms of obesity, in the United States.

Respondents were given the choice of true or false on question 14, which stated “Healthy eating habits and exercising 150 minutes or more per week are proven effective in the prevention of obesity.” Almost 97% of respondents correctly answered true, while 3.2% answered false. See *Figure 3*.

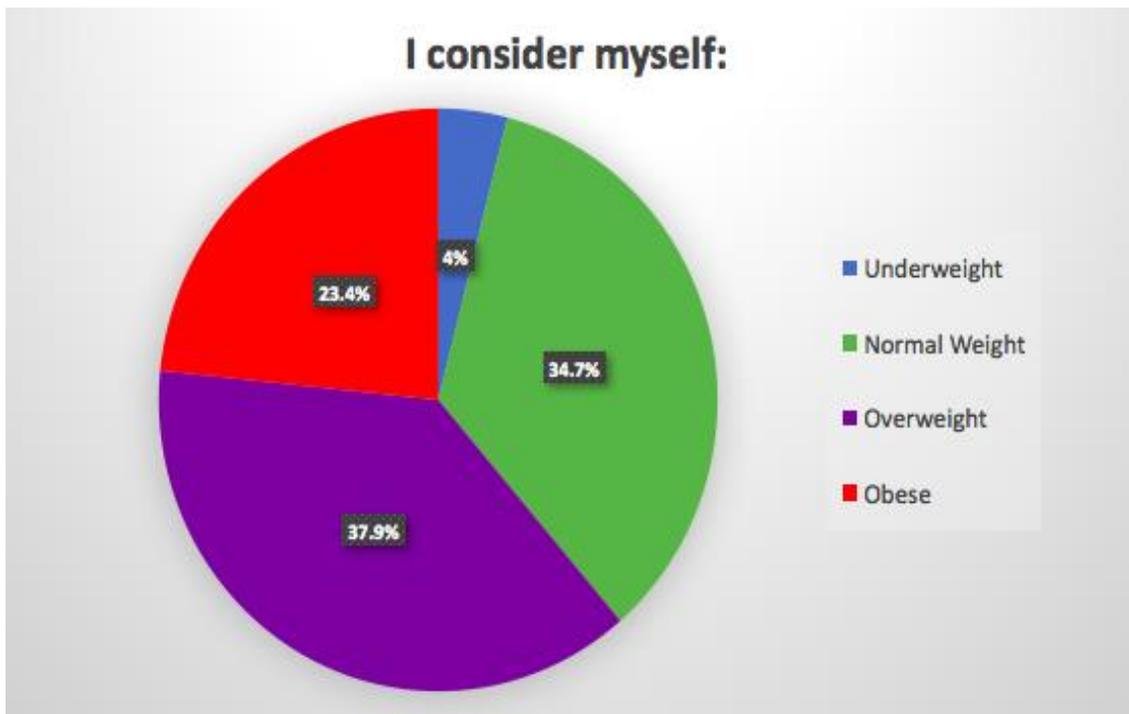
Figure 3



What are college students' perceptions of their weight?

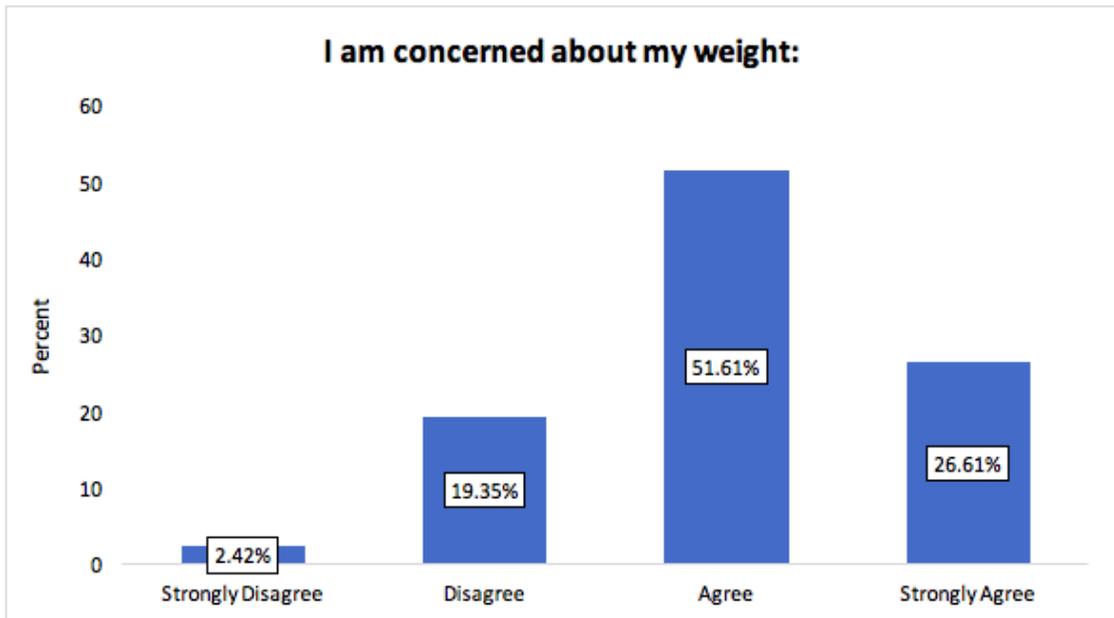
Six questions on the College Student Obesity Questionnaire looked at perceptions: 3, 4, 5, 6, 7, and 8. Question 4 asked respondents how they perceive their weight. The multiple-choice options were underweight, normal weight, overweight, or obese. The results concluded 4% considered themselves underweight, 34.7% considered themselves of a normal weight, 37.9% considered themselves overweight, and 23.4% considered themselves obese. See *Figure 4*.

Figure 4



Respondents were given the statement “I am concerned about my weight” and given the selections of strongly disagree, disagree, agree, or strongly agree. It was found that 2.42% strongly disagreed, 19.35% disagreed, 51.61% agreed, and 21.61% strongly agreed. See *Figure 5*.

Figure 5



Respondents overwhelmingly responded that having a normal body weight leads to a better quality of life (91.1%). However, a majority of respondents rejected the statements that people who are not obese are not as successful (statement rejected by 77.4% of respondents) and that people who are obese have no will power (statement rejected by 85.5% of respondents). Most respondents (91.1%) reported that they do not feel that the older they get, the easier it will be to lose weight.

Summary of the Findings

In summary, 78.2% of students agreed or strongly agreed that they were concerned about their weight, but only 61.3% of participants considered themselves

overweight or obese. A total of 103 respondents, or 83.1%, were deemed knowledgeable in the researcher's study. Knowledgeable was defined as scoring 80% or higher on the knowledge section of the College Student Obesity Questionnaire. Twenty-one participants, or 16.9%, scored 70% or less on the questionnaire, with the lowest grade being 50%. The majority of the participants considered themselves overweight or of a normal weight. The majority of respondents also answered the question regarding obesity prevention and healthy weight maintenance correctly. More research should be conducted due to the majority of respondents answering the prevention of obesity and maintenance of a healthy weight question correctly, but 61.3% still considering themselves as overweight or obese.

Chapter V: Summary

Annual monetary costs related to obesity in the United States have been estimated in the billions of dollars. According to the CDC, in 2008 medical costs for obesity reached \$147 billion (CDC, 2021). Other studies estimate direct costs associated with obesity at \$190 billion and indirect costs at \$124 trillion (Orjuela-Grimm, 2021). More concerning are the health effects associated with obesity, including comorbidities such as heart disease, stroke, cancer, and diabetes (CDC, 2021). The prevalence of obesity has almost tripled since 1975, increasing serious health risks for obese individuals (Newman, 2020).

More than one-third of the United States college student population, aged 19-24, is considered overweight or obese (Kaufman et al., 2018). College freshmen gain weight at double the rate of non-college students of the same age (Kuhlmann & Tigges, 2017). By the fourth year of college, student weight gain can increase from 23% to 34% (Skelton & Evans, 2019). Improving the obesity problem necessitates improvement in the young adult, college-aged population, as this age group represents a pivotal point, setting the stage for the entirety of adult life.

The purpose of the current study was to gauge college students' knowledge and perceptions of obesity. Overall, study findings revealed the sample population as 83.1% knowledgeable about obesity, long term effects of obesity, obesity prevention, and healthy weight maintenance. Participants' perceptions were mixed, but most agreed that they were concerned about their weight. Results of this study can be used by clinicians, educators, and researchers in working toward better health outcomes for the college student population.

Dorothea Orem's Self Care Deficit Theory provided conceptual framework for the current research. Orem's theory was suitable to the current research because obesity in the studied population was identified as a self-care deficit for that group. Using Orem's theory as a guide, researchers collected data to better understand college students' contemporary understanding and personal views about obesity.

The College Student Obesity Questionnaire (Appendix A) was utilized for data collection, as the researchers set out to answer the following questions:

- 1) Are college students knowledgeable regarding the long-term effects of obesity?
- 2) Are college students knowledgeable on how to prevent obesity and maintain a healthy weight?
- 3) What are college students' perceptions of their weight?

A thorough review of literature was conducted prior to the start of the current study. Multiple articles were collected and analyzed for data relevant to current research. Pertinent data from existing literature were considered and methods examined. While much research has been done examining the obesity problem and some has focused on the college-aged population, few studies were found that examined and measured the subjective experience of that population in relation to obesity.

After researching existing data on the subject of obesity in the college students, researchers designed the College Student Obesity Questionnaire (Appendix A) to assess the knowledge and perceptions of college students about obesity. Researchers obtained Institutional Review Board (IRB) exemption (Appendix B) and made the College Student Obesity Questionnaire available by email letter (Appendix D) and via posted flyers

(Appendix C). Emails contained a link, and flyers displayed a Quick Response (QR) code which linked participants to the College Student Obesity Questionnaire in SurveyMonkey. Emails were sent to students at colleges in the southeastern United States. Flyers were displayed at various locations on the Mississippi University for Women's campus, including the campus health center. The College Student Obesity Questionnaire was made available for a period of one month.

In this chapter, data obtained by the current study will be discussed, comparing these findings to previous research. Possible implications of research findings will be examined, and potential future utilization of data will be suggested. Limitations of the study will be considered, and recommendations for future research will be presented.

Summary of Findings

Participants in the current study consisted of 124 college students between the ages of 18 and 25. 107 of the participants were female (86.3%), one preferred not to answer the gender question, and 16 were male (12.9%). Most participants in the study were of the White race, 74.2%. The African Americans race consisted of 21.8% of participants, while 2.4% were of mixed race. Less than 1% were Asian, and less than 1% were Hispanic.

Six items on the 18-question survey (Appendix A) addressed participant perceptions. Two questions asked participants if they were concerned about their weight and how they viewed their own weight. Most respondents either agreed or strongly agreed that they were concerned about their weight, totaling 78.2%. Responses to question 4, "I consider myself:", were more varied; a total of 61.3% of participants

considered themselves either overweight or obese, 34.7% considered themselves normal weight, and 4% considered themselves underweight.

Most respondents (91.1%) answered they did not believe weight would be easier to lose as they aged. Likewise, 91.1% answered that they believed having a normal body weight leads to better quality of life. When provided with the statement “People who are obese have no will power”, 85.5% selected false. The statement “People who are obese are not as successful” was rejected by 77.4% of participants.

Knowledgeable in the current study was defined as scoring 80% or greater on the ten multiple choice knowledge questions. Overall, 83.1% of participants were knowledgeable about obesity. For questions about the long-term effects of obesity, participant mean score was 96.2. On knowledge about obesity prevention, a mean score of 98.4 was calculated. Knowledge was graded lowest for questions asking the following: percentage of the U.S. population considered obese (58.1% correct); and racial group with the highest obesity rates (62.1% correct). When asked to select the correct classification of a person with BMI of 38, only 67.7% selected correctly that the answer was obese.

Discussion of Findings

At 86.3%, the majority of participants were female. The gender disparity was likely related to convenience sampling. The current research was conducted by nurses in a graduate school program at a predominantly female institution and distributed to undergraduate (majority female) nursing students at other colleges. While the questionnaire was available to any college student between the ages of 18 and 25, most of those made aware of the questionnaire were likely female. Responses to the questionnaire

were anonymous, so conclusions related to gender representation are speculative but informed.

Likewise, race was unevenly represented in the study. Ninety-two of the 124 participants were White (74.2%), 27 were African American (21.8%), three were mixed race (2.4%), one was Asian (0.8%), and one was Hispanic (1%). While numerical majority hierarchy for race in the study was representative of the racial distribution for the populations studied, percentages were not representative of the college student population. For example, The Mississippi University for Women in Columbus, MS, reported that in 2020 African Americans represented 37.3% of enrollment with Whites at 57.4%, much different from the reported racial representation of the current study (Office for Institutional Research and Assessment, 2020). These discrepancies in racial representation percentages were also likely due to convenience sampling.

Previous research examined through literature review suggested that health education was in need of further investigation. Skelton & Evans's (2019) qualitative study assessed barriers to healthy food access on a college campus utilizing flyers and email for participant recruitment to investigate students' personal perceptions. Skelton & Evans (2019) found that students perceived the college environment supported unhealthy food choices, and the study suggested further research into health awareness and student education. Current research found that, while there was room for improvement, the population sample overall was knowledgeable about obesity.

Monroe, et al. (2017) found email to be the preferred method of receiving information by the college student population, and email was successfully used methodologically for current research. Studying a similar population to current research

both demographically and geographically, Monroe, et al. (2017) found that three-fourths of those studied, were concerned about their weight. These findings were remarkably similar to those of current research, which found that slightly more than three-fourths of participants were concerned about their weight, at 78.2%.

Lester et al.'s (2013) study examined obesity as a self-care deficit resulting from the shortcomings of healthcare providers. Current research examined obesity as a possible deficit of received information from the perspective of the population. Methodology for the two studies differed significantly; current research utilized questionnaires while Lester et al. (2013) conducted chart reviews for data collection.

Both current research and Lester et al. (2013) found Dorothea Orem's Self Care Deficit Theory to be appropriate and useful as framework for studying obesity. Examining information dissemination about obesity (or lack thereof) on different populations, from opposite perspectives, almost ten years apart demonstrates the adaptability of Orem's theory to research and practice. Successful use of Orem's theory by both Lester et al. (2013) and current research supports the claim that examining the obesity problem as a self-care deficit is appropriate.

Limitations

Limitations of this study related to research design and methods include the following:

1. Methodology options were limited due to COVID-19 pandemic restrictions.
2. Digital format of the College Student Obesity Questionnaire excluded individuals without the necessary technology or ability to use said technology.

3. Convenience sampling limited sample size to 124 participants and restricted diverse representation.
4. Timeframe for data collection of one-month limited sample size.
5. Generalizability lacking due to small, geographically limited sample size.

Implications

In conveying information and teaching, it is important to know the recipient or recipients' baseline knowledge. Targeted instruction is only possible with some awareness by the instructor of the learner's current understanding. Data obtained through current research provides information potentially useful for both educators and healthcare providers in teaching and communicating with college students.

Results of the current study indicated that the majority of college student were knowledgeable about obesity prevention and the long-term effects of obesity. College students appeared to understand the potential consequences of becoming obese, and they knew how to avoid becoming obese. Regardless of their knowledge and understanding of obesity, college students continue to gain unhealthy weight, adding to the growing statistics that show obesity is a serious and growing problem.

Armed with results from the current study as knowledge of the contemporary condition of college student obesity knowledge, providers can tailor patient teaching and care. Thus, educators can more accurately guide future providers in preparation for care of the college student population.

In future research, findings of the current study can be used as a baseline. Recognizing that college students are generally aware of the negative effects of obesity

and know how to prevent obesity, future research can focus on other areas to better understand factors leading to obesity.

Similarly useful in practice and teaching, are data obtained in the current study gauging college students' perceptions about obesity. Findings suggest that while many college students know harmful effects related to obesity and understand how to prevent obesity, they perceive themselves to be overweight or obese. Further examination of this population's perceived obstacles to healthy weight may be beneficial for illuminating potentially successful interventions to positively impact this problem.

Recommendations

Recommendations related to future research based on limitations of current research:

1. Obtain a larger sample size.
2. Recruit a more diverse sample.
3. Increase timeframe of questionnaire availability.

Practical recommendations:

1. Continue/sustain current education of college students and future college students related to long term effects of obesity and obesity prevention.
2. Encourage healthy lifestyle choices, putting knowledge into practice, for the college population.
3. As a next step, focus future research on perceived barriers to healthy weight.

Conclusions

The current research set out to examine baseline knowledge and gauge perceptions about obesity in the college student population. Data indicated that the

sample population was largely knowledgeable about obesity, the effects of obesity, and obesity prevention. With 83.1% of participants scoring greater than 80% on the knowledge portion of the College Student Obesity Questionnaire, results were sufficient to deem the population knowledgeable about obesity.

Participant perceptions revealed that a majority were concerned about their weight, even some who reported themselves as normal weight. Overall scoring revealed the sample population to be knowledgeable, with a majority concerned about their weight. Thus, researchers concluded that, although college students may know the risks of obesity and how to prevent obesity, the population studied was either unwilling or unable to effectively manage their own weight.

Future study is recommended to further examine knowledge about obesity, obesity prevention, and obesity management in the college student population to identify remaining knowledge gaps. However, the obesity problem is complicated and multifactorial; many variables must be considered. Because results indicate that knowledge deficit may not be the primary contributor to widespread obesity in the college student population, more may be gained by focusing future research on other factors related to obesity, such as dietary habits, caloric intake, food availability, sedentary time, or exercise routine.

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Appendix A

College Student Obesity Questionnaire

Please do not participate if you are under the age of 18 or older than 25.

Participants are to be currently enrolled in a college or university in the southeastern United States of America. Participants may withdraw at any point during the questionnaire. Once a questionnaire is submitted, participants may not withdraw from the study. Submission of a questionnaire ensures participants consent to the study. All responses are anonymous. Participation, or lack thereof, does not affect your academic standing.

1. Sex assigned at birth:

- A. Male
- B. Female
- C. Prefer not to answer

2. Race:

- A. White
- B. African American
- C. Asian
- D. Hispanic
- E. Mixed
- F. Other
- G. Prefer not to answer

3. I am concerned about my weight:

- A. Strongly Disagree
- B. Disagree
- C. Agree
- D. Strongly Agree

4. I consider myself:

- A. Underweight
- B. Normal Weight
- C. Overweight
- D. Obese

5. Do you feel the older you get, the easier it will be to lose weight?

- A. Yes
- B. No

6. Having a normal body weight leads to a better quality of life.

- A. True
- B. False

7. People who are obese are not as successful.

- A. True
- B. False

8. People who are obese, have no will power.

- A. True
- B. False

9. What is true about the rate of obesity in the last 30 years?

- A. The rate of obesity has declined
- B. The rate of obesity has almost tripled since 1975
- C. The rate of obesity has remained the same

10. The higher my Body Mass Index (BMI), the more at risk I am for health problems.

- A. True
- B. False

11. A person with a BMI of 38 is considered:

- A. Underweight
- B. Normal Weight
- C. Overweight
- D. Obese

12. Health risks related to obesity include which of the following:

- A. Cancer
- B. Diabetes
- C. Heart disease
- D. All of the above

13. High blood pressure, stroke, osteoarthritis, and sleep apnea are long term effects of obesity.

- A. True
- B. False

14. Healthy eating habits and exercising 150 minutes or more per week are proven effective in the prevention of obesity.

- A. True
- B. False

15. Which racial group has the highest rates of adult obesity? (As determined by the CDC).

- A. African Americans
- B. Hispanics
- C. Non-Hispanic Whites
- D. Asians

16. Which factor contributes to the development of obesity?

- A. Overweight or obesity runs in the family
- B. Living a sedentary (no physical activity) lifestyle
- C. Frequently consuming sugary beverages, food, or snacks
- D. All of the above

17. What approximate percent of the United States of America population is considered obese?

- A. 40%
- B. 30%
- C. 20%
- D. 10%

18. Skipping meals is the best way to lose weight.

- A. True
- B. False

Appendix B

Letter of Exemption from Institutional Review Board

To: Jenny Baucum, Dr. Terri Hamill, Dr. Shonda Phelon

From: Irene Pintado, IRB Chair *I.P*

Date: 03-10-2022

Project: Freshman 15 Knowledge and Perception of Obesity Among College Students in the Southeastern United States

The Mississippi University for Women IRB committee has determined that your project: Freshman 15: Knowledge and Perception of Obesity Among College Students in the Southeastern United States, is exempt under 45 CFR 46.101 (b)(4). Surveys of participants ages 18+. Responses cannot be identified.

If any changes are made to the study, the Committee must be notified. If the project is still running twelve months after the date of this memo, please be advised that we will need an update for our files.

Good luck with your work!

Appendix C

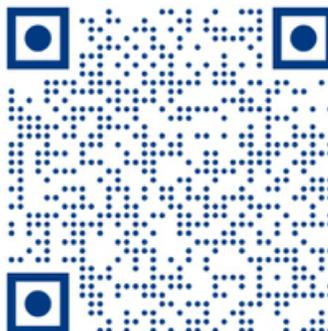
Questionnaire Flyer

WE WANT TO HEAR FROM YOU!



What is your
knowledge and
opinion about
weight?

Scan the QR code below to complete the
questionnaire and let us know!



Appendix D

Email to Participants

Dear Participants,

We are a group of nurses in the family nurse practitioner program at MUW. We are gathering data for a research project studying students' perception of their weight and knowledge of current weight guidelines recommended by the Centers for Disease Control and Prevention. College students between the ages 18-25 will be asked to complete the questionnaire. Your completion of this questionnaire serves as your consent and your verification of age. At any time, you may quit the questionnaire without penalty. The questionnaire is anonymous, and your privacy is protected. All data will be destroyed after completion of this project. This questionnaire is not mandatory and does not affect your academic standing. Your participation is greatly appreciated.

The survey monkey link is:

<https://www.surveymonkey.com/r/9WWBLXY>

If you have any questions, please feel free to contact the committee chair, Dr. Terri Hamill, at 662-392-7323 or tjhamill@muw.edu