EXPLORING WEIGHT BIAS AMONG NURSING STUDENTS

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A DISSERTATION

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ABSTRACT

Objective: Provide an understanding of the attributions Bachelor of Science in Nursing (BSN) students make about the cause of obesity, resulting in potential bias toward obese patients.

Methods: A concurrent mixed-methods study examined the attitudes and beliefs of nursing students, two groups of undergraduates (one in first-year and one in final-semester). They completed demographics, the Nurses’ Attitudes toward Obesity and Obese Patients Scale (NATOOPS) and this data was further supplemented by findings from focus groups.

Results: The results of the study demonstrated negative attitudes toward obesity for all five factors used to assess weight bias. The NATOOPS yielded statistically significant differences between the means of first-year and final-semester BSN students for the factors response to obese patients ($p = 0.0114$) and supportive roles for caring for obese patients ($p < 0.0001$). Male students’ scores indicated more negative attitudes as compared to female students’ scores (51.0 $\pm$ 8.1 vs. 46.7 $\pm$ 10.3; $p = 0.0293$). There were not any statistically significant differences found between the BMI categories (underweight/normal weight and overweight/obese) scores indicating evidence of weight bias. White-Caucasian BSN students demonstrated statistically higher overall scores as compared to non-White students, indicating more negative attitudes (48.4 $\pm$ 9.7 vs. 43.9 $\pm$ 10.7 $p = 0.0475$). Focus group themes indicated obese patients were often viewed as being self-indulgent, lacking self-control, and being more challenging to care for. Both groups expressed negative attitudes, and held the obese person personally responsible.
Discussion: Attribution theory was used as a theoretical lens for developing a greater understanding of the attribution influence on attitudes toward obese patients, resulting in weight bias. Identifying themes, as well as the point at which bias is most prevalent, may assist nurse educators in developing curriculum to effectively target and limit weight bias among BSN students.
DEDICATION

This work is dedicated to the loving memory of my father Gerald Hubert Chambers and to my grandmother Myrtle Brumby Eagle Grow whose love, wisdom, sacrifice, and example have not been forgotten. I am forever grateful for the life lessons both have taught me. My father taught me the true meaning of unconditional love, to always do the right thing, the importance of peace, and that character is the only thing we own worth value. I would give anything to see your face on the day of graduation and for you to watch me graduate from The University of Alabama. I am eternally grateful to my grandmother for introducing me to my Lord and Savior and for always loving me.

If you believe in yourself and have dedication and pride – and never quit – you’ll be a winner.

The price for victory is high, but so are the rewards.

Bear Bryant

Roll Tide, Roll!
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ACKNOWLEDGMENTS

I must first acknowledge my Heavenly Father, who has provided me with the ability and perseverance to accomplish this goal. You have multiplied time on many days, allowing me to accomplish more than I ever could have imagined. You are a faithful and loving Father. My success is only made possible by the love and encouragement from my family and friends, who have challenged me to overcome life’s obstacles and see this journey through to completion. To my husband, thank you for all of your enduring support and patience and for never letting me give up on myself. You are my rock, my biggest fan, and the love of my life. To my Aunt Nancy, who has been instrumental in who I am today, without you I would be lost. You are a blessing not only to me, but to our entire family. I have to thank my awesome teammates: April Jennings, Jill Hobbs, Jamie McKinney, and Andrea Sartain. We have supported and encouraged each other to the finish line, and formed a bond that will last a lifetime. I would also like to thank my committee members: Susan Appel, Committee Chair; Karen McCarty; Becky Atkinson; Margaret Rice, and Christina Calamaro. I have learned something from each of you that will benefit my work for years to come. Last, but definitely not least, I would like to thank my children, Alexandra, Jackson, and Brumby for being my number-one goal in life. I hope I have taught you it is never too late to chase your dreams.
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CHAPTER I:
EXPLORING WEIGHT BIAS AMONG NURSING STUDENTS

Introduction

In 2014, greater than 1.9 billion adults aged ≥18 were overweight and, of these, over 600 million were obese (World Health Organization [WHO], 2017). While people may associate obesity with excessive caloric intake, there are multidimensional contributing factors. These factors include social determinants and behavioral causes that may be influenced by inherent genetic and biological traits or environmental influences (National Institute of Health [NIH], 2016). While obesity is recognized as a major medical and public health challenge, the stigma fastened to it also produces extraordinary suffering (Brewis, Hruschka & Wutich, 2011). Negative attitudes toward these patients often results in bias, meaning the forming of unreasonable judgments based on the weight of the person (Washington, 2011). It is these judgments that place the individual in a vulnerable position, and may result in poor patient care. To create interventions to limit weight bias by the nurse, it is important to explore attitudes and behaviors that may begin in nursing school.

Theoretical Framework

Fritz Heider (1958) is credited with the development of attribution theory, the theoretical framework chosen for this study. Attribution theory has been used in previous research related to stigma and discrimination toward juvenile diabetes (Vishwanath, 2013), stuttering among school-based speech-language pathologists (Boyle, 2014), and intellectual disabilities (Willner & Smith, 2008), among others. Attribution theory stands on the assumption that people have an
intrinsic need to comprehend the cause of occurrences around them (Weiner, 1980). The framework helps to identify how people construct internal and external attributions that influence attitudes, resulting in an emotional response in the form of bias. One may justify their own behaviors with external influence, but may attribute another person’s as deliberate or intentional (Brooks & Clarke, 2011). This means an overweight or obese person may justify their own weight gain with external factors, such as lack of time; however, when considering someone else who is overweight or obese they may blame the weight gain on internal factors, such as laziness or lack of discipline. Internal and external attributions are most likely those that will shape the attitudes of nurses.

As the nurse encounters obese patients, attributions influence attitudes, which may result in the development of weight bias. The behavioral consequences of bias may impact treatment recommendations leading to discrimination and the patient feeling socially isolated (Mold & Forbes, 2011). Thus, the attribution theory framework was used in this study for exploring attributions’ influence on attitudes toward obese patients, resulting in weight bias. Examining Bachelor of Science in Nursing (BSN) students’ attitudes toward obese patients may provide needed information to assist nurse educators in developing curriculum to effectively target and limit weight bias.

**Statement of the Problem**

In all likelihood, due to the high prevalence of obesity in the United States (U.S.) (WHO, 2017), nurses will encounter obese patients. If the nurse caring for an obese patient associates negative personality characteristics such as a lack of self-discipline or self-control with the patient, then negative attributions may be used to explain the cause of the obesity. Essentially, the nurse is blaming the patient for his or her weight. It may be difficult for the nurse to look
beyond the obesity in the nurse-patient relationship due to it being the most noticeable characteristic (Peternelj-Taylor, 1989). Nurses must remain sensitive to patients’ feelings, while remaining objective, in order to establish a therapeutic relationship that fosters positive outcomes (Varcolis, Shoemaker, & Carson, 2005). It is important for the nurse to identify and be aware of his or her negative attitudes and potential bias toward obese patients. Increasing awareness of potential bias may limit the patient’s perception that the nurse is uncomfortable caring for him or her because of his or her obesity. Examining the attitudes among BSN students provides an opportunity to increase the understanding of weight bias and develop curriculum to limit the use of this form of negative communication. Identifying themes as well as the point at which bias may be most prevalent can assist nurse educators in developing curriculum to effectively target and limit weight bias among BSN students with the goal of improved patient care and outcomes.

Understanding the needs of the nurse-patient relationship and providing the highest quality of care requires evidence to support best practices for communicating with obese patients. Care that comes from an evidence-based approach stems from the best evidence to answer critical clinical questions and translates into clinical practice to improve patient care and outcomes (Melnyk & Fineout-Overholt, 2015). Examination of the literature therefore allows for identification of best practices and gaps in the literature in need of further study. While there is extensive literature to identify the negative consequences of the use of weight bias, minimal research exists identifying the best evidence to answer critical clinical questions in how to best communicate with the obese population. When caring for the obese population, nurses need to know how to communicate in a manner that builds a sense of community that allows the patient’s voice to be heard in a manner free from judgment, while being able to promote sustainable lifestyle changes. While care should provide support for the obese, it is unfortunate
today that nurses may not be equipped with the necessary education to know how to best communicate with this population.

**Statement of Purpose**

The purpose of this concurrent mixed methods study was to provide a deeper understanding of the attributions BSN students make about the cause of obesity, potentially resulting in weight bias toward obese patients. In a concurrent mixed methods design, the investigator collects and/or analyzes quantitative and qualitative data simultaneously, in an effort to validate the findings from the other, while strengthening the outcomes (Rudestam & Newton, 2015). The mixed methods research design included two phases of data collection and analysis for the study. Phase one consisted of a survey, the Nurses’ Attitudes toward Obesity and Obese Patients Scale (NATOOPS) (Appendix A), being distributed among recruited first-year and final-semester BSN students to assess attitudes toward obese persons. Phase two entailed focus groups interviews for in-depth qualitative data. Given the known relationship of BMI, gender, and ethnicity, these demographic variables were collected and examined to increase the understanding of additional influences or risk factors. Research has demonstrated that healthcare providers who are of normal weight recommend and have increased confidence engaging in discussing obesity interventions (Bleich, Bennett, Gudzune, & Cooper, 2012). In addition, research has well documented the relationship of weight, gender, and ethnicity and their influence to form attributions of responsibility resulting in negative attitudes toward obese persons (Crandall & Reser, 2005).

**Significance of the Study**

The literature has reported, in detail, bias by physicians when caring for obese patients (Washington, 2011), yet there is a paucity of research reporting bias by nurses and/or nursing
students. This concurrent mixed methods study was designed to contribute to the gap in research regarding nurses and potential weight bias. In addition, the study will make a positive contribution to the development of nursing education. The findings of this study have the potential to provide nurse educators with valuable information about the attributions influencing the attitudes of BSN students, resulting in bias toward obese patients. Exploring bias among BSN students at two different points within the nursing program may help to identify if increased exposure with obese patients may result in a change in attitudes and behavior. In addition, BMI, gender, and ethnicity demographic variables were examined to increase the understanding of additional influences or risk factors. Examining these factors assists in building a comprehensive understanding of weight bias and may contribute toward a stronger foundation in the development of curriculum targeted toward nursing education.

**Research Questions**

The following research questions were developed from the stated problem and the need to determine if weight bias exists among BSN students toward obese patients and, if so, if a difference in bias exists between first-year and final-semester BSN students. In addition, these research questions were developed to explore the attributions BSN students use to explain the cause of obesity and influencing attitudes that may contribute to the development of weight bias. It is the researcher’s goal to determine if the themes identified from semi-structured focus group interviews support the reported findings from the NATOOPS. Identifying themes as well as the point at which bias is most prevalent may assist nurse educators to develop curriculum that targets and potentially limits the development of weight bias among BSN students. This study sought to answer the following research questions:
Quantitative:

1. What are nursing students’ attitudes toward obese patients, as determined by NATOOPS?

2. Is there a significant difference in weight bias between first-year BSN students and BSN students in their final semester of nursing school?

3. Is there a relationship between level of weight bias identified in the NATOOPS and BMI, gender and/or ethnicity among BSN students?

Qualitative:

4. What attributions do nursing students identify with producing an emotional response toward obese patients?

5. What attitudes influence weight bias among nursing students?

6. How do the themes identified during focus group interviews support the findings from the NATOOPS questionnaire?

Assumptions

For the purpose of this study, the following assumptions were made:

1. The participants in this study answered questions honestly.

2. The participants in this study had similar education and clinical exposure within the course in which they were registered.

Definition of Terms

Throughout this dissertation, specific words are used when reviewing and discussing care for the obese population. In order to provide clarification of the terms used, the definitions for each term are stated below.
Attribution is the method through which a person explains the cause of behavior or an event (Heider, 1958).

Attitude is the viewpoint or belief about a person (Spielman et al., 2017).

Body Mass Index (BMI) is a person’s weight in kilograms divided by the square height in meters and is used to measure for weight categories (CDC, 2015).

Internal attribution is the identification of the cause of behavior to internal or personal characteristics of an individual (Heider, 1958).

External attribution is the identification of the cause of the behavior to external or situational influences on the individual (Heider, 1958).

Normal weight is defined as having a BMI of 18.5 kg/m$^2$ to $<24.9$ kg/m$^2$ (CDC, 2015).

Overweight is defined as having a BMI of 25 kg/m$^2$ to $<29.9$ kg/m$^2$ (CDC, 2015).

Obese is defined as a BMI of 30 kg/m$^2$ or greater in adults (CDC, 2015).

Social determinants are circumstances of the environment in which people are born, live, learn, work, play, and worship that can impact health status and quality of life (Winters, 2013).

Stigma is defined as placing value on negative assumptions resulting in a social sign for the obese person who is the victim of weight bias (Washington, 2011).

Underweight is defined as a BMI of 18.5 kg/m$^2$ or less in adults (CDC, 2015).

Weight bias is defined as forming unreasonable judgements based on the weight of a person (Washington, 2011).

Summary

Nurse educators are in a unique position to serve as positive role models and educate nursing students about the negative consequences of weight bias. Providing education and support to the overweight population is vital to nursing practice in a society struggling to handle
obesity (Waller, Lampman, & Lupfer-Johnson, 2012). Previous research has demonstrated attribution theory as an ideal model for understanding bias by identifying the relationship among events, attributions, emotional reactions, and behavioral responses (Corrigan, 2000). As stated previously, identifying the attributions of nursing students resulting in weight bias toward obese patients provides a deeper understanding of weight bias and what is needed for curriculum purposes. In addition, understanding the point at which bias may be most prevalent among BSN students may help to identify when weight bias education should be implemented.

Demonstrating the relationship between BMI, gender, and ethnicity may also increase the understanding of additional influences or risk factors. This concurrent mixed methods study design is warranted by the prevalence of obesity (WHO, 2017) and the lack of literature that identifies the existence of bias against the obese by healthcare professionals, specifically within the nursing profession.

I introduced the research study aimed at developing a deeper understanding of weight bias among BSN students during their first-year and the final-semester of their undergraduate nursing program using the theoretical framework attribution theory. Chapter II provides an extensive review of the existing literature related to the topic. The literature review provides an in-depth examination of the obesity epidemic, weight bias in healthcare, weight bias in nursing practice, and the influence of attributions. Chapter III includes a detailed description of the methodology used in this concurrent mixed methods study design and the potential validity threats to the study. Chapter IV provides a detailed description of the findings of this study, including quantitative and qualitative data analysis. Chapter V includes discussion of the results of the study, the relationship to the literature, study limitations, and the implications for nursing education and future research. The findings of the study provide an opportunity to build on
existing research, while making a positive contribution to the development of nursing education. This will be of great importance while nurses provide care to an increasing prevalence of obese patients.
CHAPTER II:
REVIEW OF LITERATURE

Obesity

According to the CDC National Center for Health and Statistics (2018), during 2015-2016 more than 93.3 million U.S. adults were obese. Obesity in children has dramatically increased in the past 30 years, more than tripling in children and adolescents (CDC, 2018). According to Ogden, Carroll, Kit, and Flegal (2014), the National Health and Nutrition Examination Survey (NHANES) indicated that in 2011-2012, 16.9% of the youth and 34.9% of the adults surveyed were obese. Ogden, Carroll, Fryar, and Flegal (2015) also found the data demonstrated the prevalence of obesity was greater among non-Hispanic White (34.5%), non-Hispanic Black (48.1%), and Hispanic (42.5%) adults than among non-Hispanic Asian adults (11.9%). Ogden et al. (2015) also found that while there was no significant change in the prevalence of obesity among adults or children between the years 2011-2013, the numbers for obesity remain above the Healthy People 2020 goal. The Healthy People 2020 objective is to reduce the proportion of adults who are obese to 30.5%, with the current baseline at 33.9% (HealthyPeople.gov, 2017). In the U.S. obesity is still at a level of public health concern (HealthyPeople.gov).

According to the National Institute of Health (2016), obese persons may experience costly health problems, reduced life expectancy, stigma, and discrimination. An analysis relying on data from the 1998 and 2006 Medical Expenditure Panel Surveys (MEPS) identified that
obesity remains a burden on the public and private payers, with an obese person spending roughly 42% higher than a person of normal weight and demonstrating an annual increase from 6.5% to 9.1% of annual spending (Finkelstein, Trogdon, Cohen, & Dietz, 2009). There is an increased prevalence of mortality, hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, respiratory problems, obstructive sleep apnea, and cancer among obese persons compared to those with a normal weight (CDC, 2015). If the rates of obesity continue to increase, unavoidable premature morbidity, chronic ill health, and increased mortality will impact future generations (Rabbitt & Coyne, 2012).

Today, members of the healthcare team provide screenings and recommendations based on BMI measurement, nutritional needs, and physical activity of the patient (CDC, 2015). BMI is calculated by dividing an individual’s weight in kilograms by the square of height in meters (CDC, 2016). An excessive rate of weight gain relative to linear growth should be recognized as an underlying predisposing factor for obesity (American Academy of Pediatrics [AAP], 2003). For adults, obesity is defined as a BMI of 30 kg/m² or greater (CDC, 2015).

Weight Bias in Healthcare

Society frequently blames the obese individual, often passing judgement without consideration for social determinants or contributing environmental conditions (Washington, 2011). Environmental factors influencing health include a variety of social, economic, and physical factors such as accessible health care, affordable housing, food markets, public safety, and quality education (HealthyPeople.gov). As obesity has increased in prevalence in the U.S., so have reports of discrimination against obese persons (Creel & Tillman, 2011). Researchers identified weight bias to be the fourth most commonly reported form of discrimination, with a 66% increase in occurrence between 1995 and 2006 (Andreyeva, Puhl, & Brownell, 2008). The
stigma of obesity may place the individual at an increased risk for consequences of bias such as depression, economic hardship, isolation and exacerbation of over-eating, and sedentary activity (Puhl & Brownell, 2003). The literature tends to portray obesity as a stigma, with obese persons often rejected and internalizing the negative attitudes of society (Allison, Basile, & Yucker, 1991). Researchers have stated that the health consequences attributed to obesity may be better explained by weight bias and its consequences may be more harmful than being overweight (Sutin, Stephan, & Terracciano, 2015).

Healthcare professionals’ attitudes about obesity may produce stigma leading to discrimination and impacting the medical and psychological health of obese patients (Budd, Mariotti, Graff, & Falkenstein, 2011). There is increased research supporting the idea that health care providers are biased in their approach to care for obese patients (Creel & Tillman, 2011). In a survey of physicians, Jay et al. (2009) examined the attitudes regarding obesity and found newer physicians reported more positive treatment expectancies than physicians with more experience, and pediatric faculty reported more positive treatment expectancies than psychiatry faculty, with both pediatric and psychiatry demonstrating more positive treatments than internal medicine. Physicians’ negative attitudes toward obese patients may reduce the quality of care these patients receive therefore leading to a potential increased risk of health complications (Fabricatore, Wadden, & Foster, 2005).

Research suggests health care professionals may spend less time with obese patients than with normal weight patients and provide fewer treatment options, impacting quality of care (Mold & Forbes, 2011). In a study of 400 doctors, one in three identified obesity as a condition they responded to negatively and ranked obesity right behind drug addiction, alcoholism, and mental illness (Washington, 2011). Hebl and Xu (2001) examined how the weight of a patient
affects both the attitudes physicians hold as well as the treatments they tend to prescribe. The study demonstrated the patient’s weight had a significant impact on the patient’s treatment, and the perceived need to help the patient varied based on BMI. Although physicians prescribed more tests for overweight patients, they indicated that they spent less time with them, viewed them more negatively, and were more likely to recommend psychological counseling (Hebl & Xu, 2001).

Healthcare providers need weight bias education early in their careers in order to be equipped with knowledge of how to care for the increasing obese population. Phelan et al. (2015) assessed medical school weight bias against obese patients and demonstrated increased biases associated with exposure to faculty role modeling of discriminatory behavior. Educators are the role models for future healthcare providers, and examining how they influence students is important in identifying positive communication skills. Medical schools may reduce the occurrence of weight bias among medical students by providing professional role modeling and developing curricula focused on how to treat obese patients (Phelan et al., 2015). Phelan et al.’s study helps to demonstrate how the use of positive role models impacts students early on in their careers.

**Weight Bias in Nursing Practice**

The literature identifies the negative consequences of the use of weight bias; however, minimal research exists to evaluate the existence of bias toward obese patients among nurses and nursing students. Over the past decade the body of research related to weight bias has been growing to include nursing. Because nurses may not be equipped with the education to know how to best communicate with this population, it is critical to examine the literature related to this area of nursing practice. With the use of focus group methodology, Steel and colleagues
demonstrated barriers in communication among school nurses working with obese children in urban and rural school districts (Steel et al., 2011). School nurses perceived barriers to addressing weight-related health issues with children and their families and indicated a lack of knowledge in communicating with families about obesity and treatment options. The study suggests school nurses perceive barriers that affect their willingness or ability to address pediatric overweight-related health issues and identified barriers that have not been included in previous studies. These barriers include negative past experiences, lack of child motivation, family characteristics that promote obesity, difficulty establishing relationships with children, fear of reactions of others, poor quality of food at school, and societal norms that do not support addressing overweight-related issues (Steel et al., 2011). Perhaps future studies of this nature should consider communication barriers that impact the care of this patient population. Developing a deeper understanding of communication barriers would provide needed information for curriculum development.

Creel and Tillman (2011) explored the phenomenon of stigmatization of obese persons by nurses who cared for eight overweight chronically ill individuals with a BMI greater than 30 kg/m². Participation in the study meant the participants experienced verbal and nonverbal communication by the nurse, which subjected them to unintentional harm, presuppositions, and reluctant care. All of the participants in the study expressed concern with the assumptions nurses constructed because of their weight or appearance, resulting in perceptions of stigma manifested as shame, marginalization, and anxiety in seeking health care (Creel & Tillman, 2011). The participants expressed that nurses justified their avoidance in providing care to them by informing the patients that their weight could be physically harmful to the nurse (Creel & Tillman, 2011). The research supports previous findings and attribution theory in that people
attempt to identify a cause for obesity based on beliefs shaped by their environment or society (Puhl & Brownell, 2003). The study demonstrated the need for providing care that is free from verbal and non-verbal harm.

Wakefield and Feo (2017) used a case study to demonstrate the need for using a person-centered care approach when working with patients who struggle with being overweight. The study identified the psychological effects of discrimination and how negative attitudes toward the obese patients negatively impacted their self-esteem and body image. Nursing care could increase positive outcomes with the use of non-discriminatory care (Creel & Tillman, 2011). The principles of a person-centered care approach include communication that promotes treating people with respect and dignity, allowing them to be active participants in decision making, while seeking to understand the personal circumstances of the individuals that will impact health outcomes (Wakefield & Feo, 2017). It is plausible that communication that allows the patient’s voice to be heard without judgement while considering the circumstances of the individual would result in improved patient outcomes.

Limited research exists to examine weight bias in a pediatric setting; however, Garcia, Amankwah, and Hernandez (2016) surveyed registered nurses (RN) and clinical support staff (CSS) in an urban pediatric hospital using the NATOOPS. This validated, attribution theory-based instrument designed to measure nurses’ attitudes toward obese patients (Watson, Oberle, & Deutscher, 2008), was used to survey N = 308 RNs and CSS who provide direct patient care. The researchers identified that participants exhibited biased attitudes and beliefs regarding the characteristics of obese pediatric patients and perceived controllability of obesity (Garcia et al., 2016). The findings are consistent with previous research discussed; however, the research expands the existing findings by identifying bias in a pediatric setting. In addition, the
researchers identified staff that frequently cared for obese patients was more likely to identify obesity as controllable (Garcia et al., 2016). Identifying that increased exposure to obese patients leads to increased bias reinforces the need for developing curriculum to effectively target and limit weight bias when communicating with obese patients.

There is evidence exploring practicing nurses’ attitudes toward obesity and barriers to patient weight management; however, little is known about the attitudes of nursing students (Keyworth, Peters, Chisholm, & Hart, 2012). In a qualitative study conducted by Keyworth et al. (2012), the researchers interviewed 20 nursing students to explore the perceptions of obesity, potential barriers to successful patient weight management, and training needs of nursing students. Participants were recruited from an undergraduate nursing course; however, the researchers did not identify the year in which the course is required and felt the study had a limited range of non-White ethnicity participants (Keyworth et al., 2012). The study identified that nursing students experienced challenges in communicating with obese patients in healthcare settings. Nursing students expressed a lack of confidence and knowledge of techniques to discuss weight management with patients, and they perceived nursing curriculum as lacking focus on obesity while also reporting a need for advanced communication skills training (Keyworth, 2012). Understanding the attributions of nursing students could potentially help to overcome the barriers identified in the study and develop a curriculum that increases communication skills for students working with obese patients. Participants of the study found that existing nursing curriculum focused more on unhealthy behaviors rather than providing interventions for facilitating behavior change and were unable to identify communication skills training to discuss weight management with patients (Keyworth et al., 2012).
A review of two nursing textbooks was conducted and found curriculum to be lacking in communication techniques for students when caring for obese patients. In the first book reviewed, obesity was only mentioned when discussing the administration of intramuscular injections and factors affecting blood pressure (Berman, Snyder, & Jackson, 2012). In the second nursing textbook reviewed, the obesity curriculum focused on BMI, factors affecting nutrition, and the impact of obesity on wound healing, respiratory function, and other risk factors (Taylor, Lillis, LeMone, & Lynn, 2008). However, the curriculum was lacking in communication techniques for discussing weight management topics (Taylor et al., 2008).

Fillingham, Peters, Chisholm, and Hart (2013) conducted a review of previous research related to weight management interventions and found that research design assessments need to be improved before it can be understood how to best train future nurses in providing weight management interventions. The review was unable to identify effective weight management education interventions within nursing education from current research. Research did show that nurses have the ability to have a positive impact by influencing behavior change with interventions in relationship to weight management (Fillingham et al., 2013). Therefore, it is critical that research identifies what behavior change is needed and which attributions contribute toward bias of the obese.

Poon and Tarrant (2009) investigated undergraduate Asian nursing students and registered nurses in Hong Kong using the Fat Phobia Scale, the Attitudes toward Adult Patients Scale, and a demographic profile to demonstrate that registered nurses and student nurses have negative attitudes toward obesity. They found that registered nurses held more negative attitudes toward obese persons than student nurses (Poon & Tarrant, 2009). Nursing student participants consisted of students in a four-year fulltime pre-registration (directly out of secondary school)
and a two-year part-time post-registration (diploma prepared practicing nurses) program. The differences identified by the researchers between student nurses and registered nurses in the study may suggest that increased exposure to caring for patients has a negative impact on attitudes toward obese patients. The research did not identify why registered nurses hold more negative attitudes; however, the research does suggest the importance educating student nurses in undergraduate programs on the care of obese patients. With increasing prevalence of obesity and the number of obese persons affected by health conditions, current and future nurses should have positive professional attitudes toward obese individuals (Poon & Tarrant, 2009).

Waller et al. (2012) completed a mixed design experiment using a computerized implicit association test, with N = 45 nursing and N = 45 psychology students and found that these students demonstrated a statistically significant implicit bias against obese persons (p = < 0.001). Participants were enrolled in upper division nursing courses or an upper division social psychology course. The students associated images of overweight persons with negative attributes and normal-weight persons with positive attributes, with a stronger bias toward females than males (Waller et al., 2012). In addition, the research did not demonstrate a stronger bias against obese persons in medical settings, as compared with everyday settings (Waller et al., 2012). This would suggest obese patients are not immune to bias that exists outside of healthcare. Health concerns related to obesity may cause individuals who are overweight to frequently encounter nurses, and future nurses should learn methods of therapeutic communication about weight-related problems. These researchers suggest future nurses should also be instructed on ways to provide evidence-based recommendations for weight loss without stigmatizing patients (Waller et al., 2012).
When considering if increased exposure to obese patients in a clinical setting may result in a change in attitudes and behavior, research needs to examine nursing students at different points within the nursing education. In a study examining the level of advice offered to obese patients as a behavioral indicator of negative attitude, Nicholls, Pilsbury, Blake, and Davenport (2016) presented 92 student nurses in Midlands, United Kingdom with one of four vignettes. Three were affected by obesity, with reference to behavioral, social, or medical cause and the forth was of normal weight (Nicholls et al., 2016). The students’ advice was measured with validated questionnaires for attitudes toward obesity and social desirability. The researchers identified that the majority of the students provided a patient-centered discussion, with advice not associated with perceived cause of obesity or attitude, meaning there was no association found between the level of advice offered and the casual factor of obesity, and the student nurse’s attitude toward obesity, or the nurse’s BMI (Nicholls et al., 2016). The researchers found that professional training guidelines for the non-judgmental treatment of obese patients are not being recognized but are being implemented (Nicholls et al., 2016). It is important to note that a limitation of the study is the participants were primarily first-year nursing students (Nicholls et al., 2016). Findings from the study conflict with previously mentioned research, which have identified negative attitudes toward obese patients. It is conceivable to consider that increased exposure to obese patients in a clinical setting may result in a change in attitudes and behavior. The researchers from the study identified the findings as suggesting a need for nursing curriculum that fosters a constructive attitude toward obese and overweight individuals, which will help to ensure more successful treatment outcomes and prevent bias in nursing care (Nicholls, 2016). Examining nursing students at different points within nursing programs may
help to identify the point at which bias may be most prevalent and provide nurse educators with information needed in the development of weight bias curriculum.

**Attribution Influence**

“In free societies, bias, stigma, prejudice, and discrimination are considered inherently evil, seen as a threat to health, happiness, and social status of those targeted, but also to a nation’s fundamental values of inclusion and equality” (Brownell, 2005, p. 1). Media may play a role in stigmatizing attitudes with negative portrayals of obese persons in movies, internet videos, television shows, and commercials (Pearl, Puhl, & Brownell, 2012). All adults, including healthcare professionals, are exposed to these environmental influences, and these influences may impact attitudes toward the obese population. Whenever causes for obesity are unclear, the attributions chosen are partly determined by the healthcare professional’s preexisting feelings toward people or specific groups (Crandall & Reser, 2005). It is commonly believed that the obese individual is partially responsible, and it is widely accepted that when individuals are responsible for their condition, society assumes no burden to compensate them (Nielsen & Andersen, 2014). Understanding the effects of weight bias on psychological and physical health is important for the development of social policy aimed at preventing its occurrence and the development of interventions that reduce the impact of weight-bias (O’Brien et al., 2016). The role of the government and other organizations is critical toward reducing obesity so that obese persons can look forward to healthier lives (NIH, 2016).

Puhl and Brownell (2003) examined the social and psychological origins of bias using attribution theory with the goal of explaining weight stigma and ways to decrease bias against obese persons. Attribution theory is centered on causes or events that are used to determine our understanding of events or explain the outcomes (Weiner, 1980). The theory is used as a model
for understanding weight stigma. It explains how one will justify why individuals in a specific group are perceived to have particular traits and demonstrates how individuals attempt to identify information that will determine the cause for uncertain outcomes (Puhl & Brownell, 2003). It is these attributions that will shape the attitudes of nurses when caring for obese patients. Attributions may be used to form judgements about patients, resulting in nurses expressing moral judgment toward the individual.

**Summary**

The impact of negative bias on the obese population is well documented and identifies the negative outcomes of bias compromising the physical and psychosocial well-being of patients (Puhl & Brownell, 2003). Identifying weight bias among nursing students and increasing the awareness of occurrence could potentially benefit the quality of care received by patients who are at risk for or are struggling with obesity. Nurses and nurse educators have a responsibility to provide patients with care that promotes the best possible outcomes. There is a gap in the literature examining healthcare professionals and nursing students at different points in their education and/or career, and if increased exposure to obese patients impacts attitudes toward obese patients. Exploring bias among nursing students at different points within nursing programs may contribute to the development of weight bias education and determine the best time to educate future nurses. In addition, relationships between BMI, gender, and ethnicity should be examined to increase the understanding of additional influences or risk factors. The reviewed literature indicates there is cause for concern regarding nurses’ attitudes toward the obese population. More research is needed to examine the variables that influence nursing students’ attitudes toward obese patients and the impact on quality of care.
CHAPTER III:

METHODOLOGY

Introduction

The purpose of this concurrent mixed methods study design was to provide a deeper understanding of the attributions BSN students make about the cause of obesity, resulting in weight bias toward obese patients. It is important to address the philosophical assumptions and methods used for the mixed methods study. In planning a study, the researcher needed to consider her own philosophical worldview assumptions, research design related to this worldview, and the specific methods or procedures of research that transform the approach into practice (Creswell, 2014). Pragmatism is a philosophical worldview, where the researcher chooses procedures that best meet the needs of the purpose of the research (Creswell, 2014). The pragmatist researcher is flexible and selects methods, both quantitative and qualitative data collection and analysis to provide a better understanding of the stated problem (Creswell, 2014). Integrating both quantitative and qualitative data in the current study strengthened the findings.

Research Design

This mixed methods study uses attribution theory as a lens for viewing the attributions resulting in potential bias toward obese patients among BSN students. Attribution theory helped to explain how attributions influence the attitudes of nurses toward obese patients resulting in weight bias. The mixed methods research design included two phases of data collection and analysis. Phase one consisted of a quantitative survey, the NATOOPS, being distributed among recruited first-year and final-semester BSN students, to assess attitudes toward obese persons.
Survey research provides a quantitative description of attitudes of a population by studying a sample of that population (Creswell, 2014). Attribution theory proposes that individuals with parallel attributes to oneself may influence one’s attitudes (Watson et al. 2008). For this reason, it is important to examine the relationships between BMI, gender, and ethnicity compared to level of weight bias among BSN students.

Phase two entailed focus groups using semi-structured interviews, with questions (Appendix C) developed by the researcher from the literature and presenting concepts from the NATOOPS to further explore the attributions of nursing students toward obese patients. Semi-structured interviews allowed for open-ended questions so the participant may have the freedom to answer openly (Morse, 2012). This also provides the facilitator with the ability to ask follow-up questions on specific participant responses.

The methods selected guided the data collection by examining nursing students’ attitudes toward obesity in an effort to demonstrate a more complete understanding of how the individual attributes the cause of obesity. In addition, examining nursing students at different points in their education may help to identify the best time to educate on the negative consequences of weight bias. The attribution theory framework assisted with examining how the students use attributions to explain the cause of obesity, which resulted in bias toward obese patients.

**Setting**

The researcher recruited first-year and final-semester students enrolled in an undergraduate nursing program from three public universities in the Southeast. The universities included one in a rural Appalachian mountain area in East Tennessee with less than 15,000 students, one in an urban metropolitan area in West Alabama with more than 38,000 students, and one in an urban metropolitan area in Georgia with more than 50,000 students. All of the
universities selected for the study had BSN programs, and were accredited by the Commission on Collegiate Nursing Education (CCNE). Enrollment occurred once permission was obtained from nursing faculty responsible for undergraduate programs. The researcher visited students in a first-year and final-semester nursing course in their undergraduate program. The researcher scheduled all dates for enrollment and meetings with students participating in the study with nursing faculty at each institution. These visits to enroll students and administer the survey lasted approximately 20 minutes. Focus group interviews took place in a reserved room designated by the faculty at the school at a later time the same day and took no more than one hour to complete. Institutional Review Board (IRB) approval (Appendix E, F, and G) was obtained prior to enrolling participants.

Participants

The researcher used purposeful sampling for identifying BSN students at the schools selected for participation within this study. With purposeful sampling, the particular settings, persons, or activities are deliberately selected to provide information that is relevant to the questions and goals of the researcher (Maxwell, 2013). Inclusion criteria for participation were as follows: students must be enrolled in their first-year or final-semester of the selected BSN program and must be aged ≥ 19 in order to participate. Exclusion criteria for participation were as follows: students who were not enrolled in their first-year or final-semester of the selected BSN program and were not aged ≥ 19. In the state of Alabama a person is considered a minor if they are < 19 years old; therefore, only students aged ≥ 19 were selected to participate. In an effort to remain consistent, the same inclusion criterion was used for all location sites.

It was the goal of the researcher to have participation of a minimum of N = 195 BSN students participating in the survey. In order to demonstrate statistically significant results, a
sufficient number of students are needed for participation in the study (Rudestam & Newton, 2015). The sample size was recalculated with Statistical Analysis System (SAS) software (version 9.4, 2013, Cary, NC) for first-year and final-semester BSN students and ascertained to be 64-86 per group. This was determined by estimating a 10-point mean difference in factor scores with a standard deviation of 20 and 80-90% power. An estimated difference in scores and variability was based on previous studies (Garcia et al. 2016; Watson et al. 2008). The final number of participants who met eligibility was 116. For the second phase of the research it was the goal of the researcher to have two to four focus groups with an ideal participation of eight to ten BSN students for each group. Five students participated in the focus groups.

**Research Questions**

This proposed study sought to answer the following research questions:

Quantitative:

1. What are nursing students’ attitudes toward obese patients, as determined by NATOOPS?

2. Is there a significant difference in weight bias between first-year BSN students and BSN students in their final semester of nursing school?

3. Is there a relationship between level of weight bias identified in the NATOOPS and BMI, gender and/or ethnicity among BSN students?

Qualitative:

4. What attributions do nursing students identify with producing an emotional response toward obese patients?

5. What attitudes influence weight bias among nursing students?
6. How do the themes identified during focus group interviews support the findings from the NATOOPS questionnaire?

**Instrumentation**

The NATOOPS is a 36-item survey with questions designed to measure nurses’ attitudes toward obese patients and attributions about obese people, such as causative factors and degree of control individuals have over their weight (Watson et al., 2008) Other items in the survey are related to values and characteristics commonly associated with overweight persons in North American Society (Watson et al., 2008). Internal consistency reliability of the scale using Cronbach’s alpha was 0.81 (Watson et al., 2008). Weight bias attitudes were reported using the 36-item NATOOPS five factors: response to obese patients (14 items), characteristics of obese individuals (9 items), controllable factors contributing to obesity (8 items), stereotypic characteristics of obese patients (2 items), and supportive roles for caring for obese patients (3 items) (Watson et al., 2008). During the development of the scale, Watson et al. (2008) had planned to group factor two (characteristics of obese individuals) and factor four (stereotypic characteristics) together, but analysis of the data revealed the items were not the same. Characteristics of obese individuals were identified as being mostly psychological and stereotypic characteristics were identified as negative personal attributes (Watson et al., 2008).

**Data Collection**

To enroll participants, the researcher visited designated first- and final-semester student courses. Participants were invited to participate in the study and informed of who was conducting the study, school affiliation, and their time commitment. There was no incentive offered for survey or focus group participation. Participants were provided a consent (Appendix D) form that informed them participation was completely voluntary with no penalty for not
participating. In addition, participants were informed there were not any foreseeable risks, but they might benefit as a result of participating in the survey and focus group interviews by possibly developing personal awareness. Participants were also informed that all collected information would remain confidential, responses would be de-identified, and findings would be used only for the purpose of the researcher’s dissertation and other publications. Enrollment, administering of surveys, and focus group interviews were completed without nursing faculty present to prevent the participants from feeling coercion to participate. Surveys were administered in the classroom where the participants attended the course visited by the researcher. Qualtrics (version June, 2018, Qualtrics. Provo, UT) software was used to administer the online, in-person survey and to collect the data. The researcher provided participants with a link, and a Quick Response (QR) code to the online survey.

At the end of the survey, participants were asked if they would be interested in participating in a focus group discussion to discuss their responses with the researcher later the same day. Participants who were interested were provided with the location and time for the focus group interviews. Focus group interviews took place in a reserved room designated by the faculty at the school at a later time the same day. The focus group interviews were audio-recorded to provide the researcher with accurate transcriptions of the focus group interviews.

Quantitative Data Analysis

The quantitative data from the NATOOPS were used to analyze research questions one through three. All statistical analyses were conducted using SAS 9.4. The BSN students’ overall attitudes were summarized using descriptive statistics to answer research question one. Associations between BSN students’ weight bias attitudes were summarized by the total and individual NATOOP factors and stratified by demographic variables to answer research
questions two and three. Demographic variables included first-year and final-semester BSN students, self-reported BMI, gender, program areas (rural and urban), and ethnicity. The NATOOP factor scores were estimated and compared using linear mixed models to account for potential heterogeneity of variance and differing sample sizes for the groups compared. Least-squares means from the mixed models were presented. Additionally, logistic regression models were run to assess associations between the probability of weight bias (>50 factor mean score) and the demographic variables. Statistical significance was assessed at the 0.05 alpha level.

Likert survey responses for the study (strongly disagree = 0, disagree = 25, neutral = 50, agree = 75, strongly agree = 100) were converted to a 0-100 scale as indicated to be consistent with previous studies’ use of a 0-100 visual analog/sliding scale (Garcia et al., 2016; Watson et al., 2008). Scores were summed and averaged to get a mean factor score. A total was also computed by averaging the mean factor scores. A mean factor score $\geq 50$ indicated evidence of weight bias (Garcia et al., 2016).

**Qualitative Data Analysis**

Qualitative data from the focus groups interviews were used to answer research questions four through six. The data analysis of the study was based on coding methods, which consisted of multiple steps using categorizing analysis. Categorizing analysis is the identification of segments of data that are meaningful and represent important ideas or themes (Maxwell, 2013). According to Saldana (2016) themes may be an outcome of coding or categorization, meaning organizing data with similar characteristics into categories. Verbatim transcripts of the participant’s responses, analytic memos and field notes were coded. Field notes were completed by the researcher during and after completion of the interviews. Memo writing about how some codes seemed to cluster and interrelate helped to identify categories.
Initial coding was used for the first cycle of breaking down the qualitative data into discrete parts that could be examined for similarities (Saldana, 2016). All proposed codes during this cycle were tentative and provisional (Saldana, 2016). The researcher viewed transcripts and field notes and coded line-by-line. Some codes needed to be reworded as analysis progressed; however, careful consideration was given to prevent changing the meaning of codes. As coding was completed, a Process Code (e.g., CONTROLLABLE) was used, as was a Sub-code (e.g., EXERCISE) with specific referents (e.g., CONTROLLABLE: EXERCISE, CONTROLLABLE: EXERCISE) (Saldana, 2016). Many of these referents evolved into categories used for data analysis. The participants’ actions having antecedents, causes, or consequences (Saldana, 2016) such as INFLUENCED BY ENVIRONMENT is an active process identified during initial coding. These findings were integrated into analytic memo writing at the end of each cycle in an effort to reflect on the process and identify how the codes interrelate with one another. In addition, this provided a personal debriefing for the researcher and an exercise to examine segments of data that appeared to represent categories or themes. A personal debriefing or “reality check” by the researcher was important throughout and after the initial coding of qualitative data, thus an analytic memo was written to reflect on the process (Saldana, 2016). Throughout initial coding and data analysis, the researcher detected identifiable causes and outcomes in the transcribed text that would be examined closer during the Causation coding process.

Causation coding was used to identify the participants’ attitudes and attributions toward obese persons, supporting the theoretical framework Attribution theory. Causation coding recommends procedures for extracting attributions from participant data to explain how and why particular outcomes come about (Saldana, 2016). It is important to not mistake attribute coding
with causation coding. Attributes in attribute coding refer to descriptive variables such as age, gender, and ethnicity and causation coding refers to casual explanations (Saldana, 2016). The focus group transcripts were evaluated with the goal of examining the relationships between attributions and attitudes of BSN students that lead to an outcome such as weight bias.

A three-part process was completed when analyzing the data with a CODE 1 > CODE 2 > CODE 3 sequence, where > means “leads to” (e.g., SELF-INDULGENCE > DIET > OBESITY) (Saldana, 2016). More than one cause in the equation resulted in the need for subsets such as a CODE 1a + CODE 1B > CODE 3A + CODE 3B + CODE 3C sequence (e.g., LACK OF SELF-CONTROL + SELF-INDULGENCE > DIET + NO EXERCISE > OBESITY + COMORBIDITIES) (Saldana, 2016).

Careful consideration was given to words used by the participants that helped to explain the “why” such as “since,” “result,” and “because.” Language that incorporates a chronological process, such as “first,” “initial,” “then,” “next,” and “future presents a storyline, and should be examined (Saldana, 2016). As a result of the questions asked by the researcher, the participants’ responses often began with the outcome (e.g., “someone who is overweight . . .”) and did not always describe the “why” in chronological order (e.g., “someone who is overweight is someone who leads a more sedentary lifestyle and doesn’t watch what they eat”). This required “decoding” methods to explain the cause or outcome (e.g., SEDENTARY LIFESTYLE + “DOESN’T WATCH WHAT THEY EAT” > OBESITY).

A flow chart with three columns was used to categorize and analyze the antecedent conditions, mediating variables, and outcomes in order to organize similarities and identifying what leads to the outcome. Similar outcomes were placed into outcomes categories in an effort to expand and categorize further. Two-dimensional subsets were used to identify internal and
external attributions that form a bias toward obese patients. The researcher gave careful consideration to not relying on speculation when assessing attributions.

No emergent themes within the data called for use of alternate forms of analysis or the consideration of additional forms of coding. A tentative plan that involved alternative forms of coding was left open to modify the plan if necessary (Maxwell, 2013). A possible consideration for second-cycle coding methods included pattern coding to examine common themes. Pattern codes are explanatory or inferential codes that identify an emergent theme, pattern, or explanation (Saldana, 2016).

**Validity**

The potential validity threat to the study was the risk of the researcher eliminating data that did not represent what the researcher expected to find or the goals of the research. Analytic memos were used for personal debriefing and to create an audit trail, and all analytic memos were coded. In addition, the risk of the researcher eliminating data identified the need for expert reviewers. Regena Spratling, PhD, RN, APRN, CPNP, who is the Director of the PhD in Nursing Program at the Byrdine F. Lewis College of Nursing and Health Professions at Georgia State University, and Cynthia B. Sinha, PhD, Associate Scientist at Emory School of Medicine, both of whom have extensive experience in the use of qualitative analysis completed an expert review. The expert review involved reviewing coding methods; thematic categories identified by the researcher, and providing feedback on data analysis findings. There were no differences in analysis identified by the expert reviewers.
CHAPTER IV:

RESULTS

Introduction

The purpose of this concurrent mixed methods research study was to provide a deeper understanding of the attributions BSN students make about the cause of obesity, resulting in weight bias toward obese patients. The mixed methods research design included two phases of data collection and analysis. Phase one consisted of administering the NATOOPS to BSN students in their first-year and final-semester of their undergraduate program, in an effort to assess attitudes toward obese persons and identify if there was a significant difference between the two groups. Phase two entailed using semi-structured interviews in focus groups in order to explore the attributions of nursing students and the attitudes influencing weight bias. Quantitative data from the NATOOPS were used to answer research questions one through three. Qualitative data from the focus group interviews were used to answer research questions four through six.

The following questions guided the research:

Quantitative:

1. What are nursing students’ attitudes toward obese patients, as determined by NATOOPS?

2. Is there a significant difference in weight bias between first-year BSN students and BSN students in their final semester of nursing school?
3. Is there a relationship between level of weight bias identified in the NATOOPS and BMI, gender and/or ethnicity among BSN students?

Qualitative:

4. What attributions do nursing students identify with producing an emotional response toward obese patients?

5. What attitudes influence weight bias among nursing students?

6. How do the themes identified during focus group interviews support the findings from the NATOOPS questionnaire?

**Sample Description**

The researcher visited students enrolled in their first-year or final-semester of the undergraduate nursing program at three universities in the Southeast, including one in a rural area and two in an urban area. A total of 399 BSN students were recruited to participate in the concurrent mixed methods study. Of these BSN students, 156 (39%) consented and agreed to participate; 40 participants were excluded due to incomplete survey responses to the NATOOPS items or failure to indicate completion of the consent. Of the 156 participants providing consent, 116 (74.4%) met eligibility and completed the NATOOPS. The final number of participants was 116 (N = 116). Of the 116 (N = 116) participants who completed the NATOOPS, 52 (N = 52) were first-year BSN students and 64 (N = 64) were BSN students in their final semester. Of the 116 participants, five nursing students consented to participate in the focus group interviews. Three (60%) of the five participants were enrolled in their first-year of the BSN program, and two (40%) of the students were enrolled in their final semester of the BSN program.
Participant Demographics

The majority of the participants were female (86%) with minimal variance between first-year female BSN students (87%) and final-semester BSN students (86%). The participants were self-identified as White-Caucasian (74%), Black-African American (17%), Hispanic/Latino (0.9%), and other (10%), which includes Asian/Pacific Islander and Native American. There was minimal variance between first-year and final-semester BSN students.

The standard formula for BMI was used to calculate self-reported height and weight by dividing the individual’s weight in kilograms by the square of height in meters (weight (kg)/[height (m)]^2). BMI categories were determined by the Centers for Disease Control and Prevention (CDC) and defined underweight as having a BMI of 18.5 kg/m2 or less, normal weight as having a BMI of 18.5 kg/m2 to < 24.9 kg/m2, overweight as having a BMI of 25 kg/m2 to < 29.9 kg/m2, and obese as having a BMI of 30 kg/m2 or greater in adults (CDC, 2015). Of the 116 participants, four (4%) indicated they were underweight, with three (6%) being first-year BSN students and one (2%) being a final-semester BSN student; 56 (49%) were normal weight, with 28 (55%) being first-year BSN students and 28 (44%) being final-semester BSN students; 28 (25%) were overweight, with 11 (22%) being first-year BSN students and 17 (27%) being final-semester BSN students; and 26 (33%) were obese, with 9 (18%) being first-year BSN students and 17 (27%) being final-semester BSN students. Descriptive statistics for the study sample are reported in Table 1.
Table 1

**BSN Student Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>N (%): All, N=116</th>
<th>1st Year BSN Students, N=52</th>
<th>Final-Semester BSN Students, N=64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender - Female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>100 (86%)</td>
<td>45 (87%)</td>
<td>55 (86%)</td>
</tr>
<tr>
<td>Male</td>
<td>16 (14%)</td>
<td>7 (13%)</td>
<td>9 (14%)</td>
</tr>
<tr>
<td>Program, Collapsed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>67 (58%)</td>
<td>22 (42%)</td>
<td>45 (70%)</td>
</tr>
<tr>
<td>Urban</td>
<td>49 (42%)</td>
<td>30 (58%)</td>
<td>19 (30%)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>17 (15%)</td>
<td>11 (21%)</td>
<td>6 (9%)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>1 (0.9%)</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>White</td>
<td>86 (74%)</td>
<td>35 (67%)</td>
<td>51 (80%)</td>
</tr>
<tr>
<td>Other¹</td>
<td>12 (10%)</td>
<td>5 (10%)</td>
<td>7 (11%)</td>
</tr>
<tr>
<td>BMI Category²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>4 (4%)</td>
<td>3 (6%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Normal Weight</td>
<td>56 (49%)</td>
<td>28 (55%)</td>
<td>28 (44%)</td>
</tr>
<tr>
<td>Overweight</td>
<td>28 (25%)</td>
<td>11 (22%)</td>
<td>17 (27%)</td>
</tr>
<tr>
<td>Obese</td>
<td>26 (23%)</td>
<td>9 (18%)</td>
<td>17 (27%)</td>
</tr>
<tr>
<td>BMI Category, Collapsed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight/Healthy</td>
<td>60 (53%)</td>
<td>31 (61%)</td>
<td>29 (46%)</td>
</tr>
<tr>
<td>Overweight/Obese</td>
<td>54 (47%)</td>
<td>20 (39%)</td>
<td>34 (54%)</td>
</tr>
</tbody>
</table>

¹Other: Includes Asian/Pacific Islander, Native American, Other
²BMI Categories determined by CDC: underweight (BMI<18.5), healthy weight (BMI 18.5-24.9), overweight (BMI 25-29.9), and obese(BMI≥30)

**Quantitative Data Analysis Results**

For the current study, weight-biased attitudes were reported using the 36-item NATOOPS five factors: (1) response to obese patients, (2) characteristics of obese individuals, (3) controllable factors contributing to obesity, (4) stereotypic characteristics of obese patients, and (5) supportive roles in caring for obese patients (Watson et al., 2008). The NATOOPS yielded significant differences between the means of the two groups (first-year and final-semester BSN students). Factor one (response to obese patients) shows a significant difference with a higher
score for final-semester students compared to first-year BSN students (36.1 {1.8} vs. 29.9 {2.0}; \( p = 0.0014 \)), indicating a more negative attitude for final-semester students. However, mean factor scores greater than \( \geq 50 \) indicates evidence of weight bias, and both of the mean factor scores for first-year and final-semester BSN students were < 50. For factor five (supportive roles in caring for obese patients), first-year BSN students had significantly higher scores compared to final-semester students (57.4 {2.3} vs. 42.1 {1.6}; \( p < 0.001 \)), indicating presence of weight bias in the first-year group. While there were not any significant differences between the means of the two groups for factor two (characteristics of obese individuals) or factor three (controllable factors contributing to obesity), a mean factor score \( \geq 50 \) for each group indicated evidence of weight bias.

Factor one (response to obese patients) shows a significant difference with a higher score for male participants compared to female participants (41.8 {16.2} vs. 31.6 {14.0}; \( p=0.0293 \)), indicating more negative attitudes. Factor four (stereotypic characteristics) shows a significant difference with a higher score for male participants compared to female participants (43.8 {15.8} vs. 33.1 {21.2}; \( p=0.0260 \)), indicating more negative attitudes. However, a mean factor score \( > 50 \) indicates evidence of weight bias, and both of these mean factor scores for the gender groups were < 50. While there were not any significant differences between the means of the two gender groups for factor two (characteristics of obese individuals) or factor three (controllable factors contributing to obesity), a mean factor score \( > 50 \) for each group indicated evidence of weight bias. Male BSN participants had higher overall scores compared to female participants (51.0 {8.1} vs. 46.7 {10.3}; \( p<0.0684 \)), indicating presence of weight bias.

There were not any significant differences found between the BMI categories (underweight/normal weight and overweight/obese). While there were not any significant
differences between the means of the two BMI groups, a mean factor $> 50$ for both groups for factor two (characteristics of obese individuals) and factor three (controllable factors contributing to obesity) indicated evidence of weight bias. Underweight/normal weight BSN participants had higher overall scores for factor five (supportive roles in caring for obese patients) as compared to overweight/obese BSN participants ($50.1 \pm 17.7$ vs. $47.5 \pm 15.7$; $p < 0.41$). A mean factor score for factor five (supportive roles in caring for obese patients) was $> 50$ for underweight/normal weight BSN participants, indicating presence of weight bias.

The overall NATOOPS score shows a significant difference with a higher score for White-Caucasian as compared with non-White BSN participants ($48.4 \pm 9.7$ vs. $43.9 \pm 10.7$; $p = 0.0475$), indicating more negative attitudes. However, a mean factor score $> 50$ indicates evidence of weight bias, and both of these mean factor scores for White-Caucasian and non-White BSN participants were $< 50$. Factor one (response to obese patients) shows a significant difference with a higher score for White-Caucasian as compared to non-White participants ($35.4 \pm 14.2$ vs. $26.3 \pm 14.2$; $p = 0.0038$), indicating more negative attitudes. Factor two (characteristics of obese patients) shows a significant difference with a higher score for White-Caucasian as compared to non-White participants ($56.8 \pm 10.7$ vs. $48.9 \pm 15.3$; $p = 0.0125$), indicating more negative attitudes for White-Caucasian. Factor four (stereotypic characteristics of obese patients) shows a statistically higher score for White-Caucasian as compared to non-White participants ($37.4 \pm 20.2$ vs. $26.7 \pm 21.0$; $p = 0.0188$), indicating more negative attitudes. Factor five (supportive roles in caring for obese patients) shows a significant difference with a higher score for non-White as compared to White-Caucasian participants ($54.4 \pm 16.8$ vs. $47.0 \pm 16.3$; $p = 0.0399$), indicating more negative attitudes. A mean factor score for factor three (controllable factors contributing to obesity) was $> 50$ for each race group, indicating evidence of
weight bias. A mean factor score for factor two (characteristics of obese patients) was > 50 for the White-Caucasian group indicating evidence of weight bias. A mean factor score for factor five (supportive roles in caring for obese patients) was > 50 for the non-White group, indicating evidence of weight bias.

The overall NATOOPS score shows a significant difference with a higher score for rural participants as compared to participants attending an urban BSN program (49.0 \( \pm \) 9.2 vs. 44.9 \( \pm \) 11.0; \( p = 0.0357 \)), indicating more negative attitudes. However, a mean factor score > 50 indicates evidence of weight bias, and both of these mean factor scores for participants’ BSN program area groups (rural and urban) were <50. Factor one (response to obese patients) shows a significant difference with a higher score for rural as compared to urban participants (35.4 \( \pm \) 14.6 vs. 29.8 \( \pm \) 14.3; \( p = 0.0394 \)), indicating more negative attitudes. Factor two (characteristics of obese patients) shows a significant difference, with a higher score for rural as compared to urban participants (57.6 \( \pm \) 10.2 vs. 50.9 \( \pm \) 14.3; \( p = 0.0057 \)), indicating more negative attitudes. Factor four (stereotypic characteristics of obese patients) shows a significant difference with a higher score for rural as compared to urban participants (39.4 \( \pm \) 19.2 vs. 28.1 \( \pm \) 21.4; \( p = 0.0042 \)), indicating more negative attitudes. Factor five (supportive roles in caring for obese patients) shows a significant difference with a higher score for urban as compared to rural participants (52.9 \( \pm \) 15.8 vs. 46.0 \( \pm \) 15.3; \( p = 0.0315 \)), indicating more negative attitudes. A mean factor score for factor two (characteristics of obese individuals) and three (controllable factors contributing to obesity) was > 50 for each group, indicating evidence of weight bias. A mean factor score for factor five (supportive roles in caring for obese patients) was > 50 for the urban group, indicating evidence of weight bias. Descriptive statistics for the 36-item NATOOPS
five factors and the relationship between first-year and final-semester BSN students are reported in Table 2.

Table 2

**NATOOPS 5 Factors Score Summary**

<table>
<thead>
<tr>
<th>LS-Means ± SE</th>
<th>Total Score</th>
<th>Factor 1 Response to obese patients</th>
<th>Factor 2 Characteristics of obese patients</th>
<th>Factor 3 Controllable factors contributing to obesity</th>
<th>Factor 4 Stereotypic characteristics of obese patients</th>
<th>Factor 5 Supportive roles in caring for obese patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, N=116</td>
<td>47.7 (10.1) ± 0.9</td>
<td>33.0 (14.7) ± 1.36</td>
<td>54.8 (12.5) ± 1.2</td>
<td>65.0 (13.7) ± 1.3</td>
<td>34.6 (20.8) ± 1.9</td>
<td>48.9 (16.6) ± 1.5</td>
</tr>
<tr>
<td>Nursing Student year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Year BSN Students, N=52</td>
<td>48.2 (11.4) ± 1.6</td>
<td>29.2 (14.3) ± 2.0</td>
<td>54.2 (14.5) ± 2.0</td>
<td>67.2 (15.7) ± 2.2</td>
<td>33.2 (20.8) ± 2.9</td>
<td>57.4 (16.9) ± 2.3</td>
</tr>
<tr>
<td>Final-Semester BSN Students, N=64</td>
<td>46.7 (9.0) ± 1.1</td>
<td>36.1 (14.4) ± 1.8</td>
<td>55.3 (10.7) ± 1.3</td>
<td>67.2 (11.6) ± 1.5</td>
<td>35.7 (20.9) ± 2.6</td>
<td>42.1 (13.0) ± 1.6</td>
</tr>
<tr>
<td>P-value</td>
<td>0.37</td>
<td>0.0114</td>
<td>0.65</td>
<td>0.13</td>
<td>0.51</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male, n=16</td>
<td>51.0 (8.1) ± 2.0</td>
<td>41.8 (16.2) ± 4.1</td>
<td>55.7 (10.9) ± 2.7</td>
<td>64.7 (13.5) ± 3.4</td>
<td>43.8 (15.8) ± 4.0</td>
<td>49.0 (15.8) ± 3.9</td>
</tr>
<tr>
<td>Female, N=100</td>
<td>46.7 (10.3) ± 1.0</td>
<td>31.6 (14.0) ± 1.4</td>
<td>54.6 (12.8) ± 1.3</td>
<td>65.0 (13.8) ± 1.4</td>
<td>33.1 (21.2) ± 2.1</td>
<td>48.9 (16.9) ± 1.7</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0684</td>
<td>0.0293</td>
<td>0.71</td>
<td>0.94</td>
<td>0.0260</td>
<td>0.99</td>
</tr>
<tr>
<td>Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural, N=67</td>
<td>49.0 (9.2) ± 1.1</td>
<td>35.4 (14.6) ± 1.8</td>
<td>57.6 (10.2) ± 1.2</td>
<td>66.5 (11.5) ± 1.4</td>
<td>39.4 (19.2) ± 2.3</td>
<td>46.0 (15.3) ± 1.9</td>
</tr>
<tr>
<td>Urban, N=49</td>
<td>44.9 (11.0) ± 1.6</td>
<td>29.8 (14.3) ± 2.0</td>
<td>50.9 (14.3) ± 2.0</td>
<td>62.8 (16.1) ± 2.3</td>
<td>28.1 (21.4) ± 3.1</td>
<td>52.9 (15.8) ± 2.5</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0357</td>
<td>0.0394</td>
<td>0.0057</td>
<td>0.17</td>
<td>0.0042</td>
<td>0.0315</td>
</tr>
</tbody>
</table>

*(table continues)*
Logistic regression models were run to assess associations between the probability of weight bias (> 50 factor mean score) and the demographic variables. Results from logistic regression models indicate the odds of weight bias tend to be higher in BSN participants in rural areas as compared to urban areas (OR > 1.0). Although some results were not significant, first-year BSN students had higher odds of weight bias (OR 4.07) (95% CI 1.69-9.80), \( p = 0.0018 \) compared to final-semester students for factor five (supportive roles in caring for obese patients).

Logistic regression models are reported in Table 3.

---

### BMI Category

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Total Score</th>
<th>Factor 1: Response to obese patients</th>
<th>Factor 2: Characteristics of obese patients</th>
<th>Factor 3: Controllable factors contributing to obesity</th>
<th>Factor 4: Stereotypic characteristics of obese patients</th>
<th>Factor 5: Supportive roles in caring for obese patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight/Normal Weight, N=60</td>
<td>47.0 ± 1.2</td>
<td>32.4 ± 1.7</td>
<td>53.9 (11.0) ± 1.4</td>
<td>65.6 (12.4) ± 1.6</td>
<td>32.9 (20.3) ± 2.6</td>
<td>50.1 (17.7) ± 2.3</td>
</tr>
<tr>
<td>Overweight/Obese, N=54</td>
<td>47.3 ± 1.5</td>
<td>33.2 ± 2.2</td>
<td>55.8 (14.2) ± 1.9</td>
<td>64.0 (15.2) ± 2.1</td>
<td>36.1 (21.4) ± 2.9</td>
<td>47.5 (15.7) ± 2.1</td>
</tr>
</tbody>
</table>

### Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Total Score</th>
<th>Factor 1: Response to obese patients</th>
<th>Factor 2: Characteristics of obese patients</th>
<th>Factor 3: Controllable factors contributing to obesity</th>
<th>Factor 4: Stereotypic characteristics of obese patients</th>
<th>Factor 5: Supportive roles in caring for obese patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-White, N=30</td>
<td>43.9 ± 1.0</td>
<td>26.3 ± 2.6</td>
<td>48.9 (15.3) ± 2.8</td>
<td>63.2 (16.7) ± 3.0</td>
<td>26.7 (21.0) ± 3.8</td>
<td>54.4 (16.8) ± 3.1</td>
</tr>
<tr>
<td>White, N=86</td>
<td>48.4 ± 1.0</td>
<td>35.4 ± 2.6</td>
<td>56.8 (10.7) ± 1.2</td>
<td>65.6 (12.5) ± 1.3</td>
<td>37.4 (20.2) ± 2.2</td>
<td>47.0 (16.3) ± 1.8</td>
</tr>
</tbody>
</table>

Note: Likert scores were converted to a 0-100 scale (Strongly Disagree=0, Disagree=25, Neutral=50, Agree=75, Strongly Agree=100). Scores were summed and averaged for each factor. The total score was calculated by taking the average of the combined factor weight bias mean scores; a higher mean factor score (>50) indicates a more negative attitude (Watson et al. 2008; J.T Garcia et al. 2016).

LS-Means: Least-squares means from linear mixed model

P-value from differences of LS-means groups.
Table 3

**Logistics Regression Model**

<table>
<thead>
<tr>
<th>Factor</th>
<th>OR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 – Response to Obese Patients (n=15, weight bias, 13%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year (vs. Final-semester) BSN student</td>
<td>0.35 (0.08-1.49)</td>
<td>0.16</td>
</tr>
<tr>
<td>Female (vs. Male)</td>
<td>0.36 (0.07-1.85)</td>
<td>0.22</td>
</tr>
<tr>
<td>White (vs. non-White)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Rural (vs. Urban)</td>
<td>1.22 (0.26-5.77)</td>
<td>0.80</td>
</tr>
<tr>
<td>Underweight/Normal Weight (vs. Overweight/Obese)</td>
<td>0.63 (0.19-2.10)</td>
<td>0.45</td>
</tr>
<tr>
<td>Factor 2 – Characteristics of Obese Patients (n=87, weight bias, 75%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year (vs. Final-semester) BSN student</td>
<td>1.04 (0.41-2.65)</td>
<td>0.94</td>
</tr>
<tr>
<td>Female (vs. Male)</td>
<td>0.63 (0.15-2.59)</td>
<td>0.52</td>
</tr>
<tr>
<td>White (vs. non-White)</td>
<td>1.84 (0.58-5.86)</td>
<td>0.30</td>
</tr>
<tr>
<td>Rural (vs. Urban)</td>
<td>2.72 (0.86-8.71)</td>
<td>0.0901</td>
</tr>
<tr>
<td>Underweight/Normal Weight (vs. Overweight/Obese)</td>
<td>0.63 (0.25-1.58)</td>
<td>0.32</td>
</tr>
<tr>
<td>Factor 3 - Controllable factors contributing to Obesity (n=103, weight bias, 89%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year (vs. Final-semester) BSN student</td>
<td>1.79 (0.50-6.34)</td>
<td>0.37</td>
</tr>
<tr>
<td>Female (vs. Male)</td>
<td>1.07 (0.20-5.86)</td>
<td>0.94</td>
</tr>
<tr>
<td>White (vs. non-White)</td>
<td>0.50 (0.10-2.51)</td>
<td>0.40</td>
</tr>
<tr>
<td>Rural (vs. Urban)</td>
<td>2.74 (0.66-11.48)</td>
<td>0.17</td>
</tr>
<tr>
<td>Underweight/Normal Weight (vs. Overweight/Obese)</td>
<td>0.61 (0.18-2.09)</td>
<td>0.32</td>
</tr>
<tr>
<td>Factor 4 - Stereotypic Characteristics of Obese Patients (n=47, weight bias, 41%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year (vs. Final-semester) BSN student</td>
<td>1.01 (0.45-2.30)</td>
<td>0.98</td>
</tr>
<tr>
<td>Female (vs. Male)</td>
<td>0.52 (0.17-1.61)</td>
<td>0.25</td>
</tr>
<tr>
<td>White (vs. non-White)</td>
<td>1.44 (0.46-4.49)</td>
<td>0.54</td>
</tr>
<tr>
<td>Rural (vs. Urban)</td>
<td>1.65 (0.59-4.61)</td>
<td>0.34</td>
</tr>
<tr>
<td>Underweight/Normal Weight (vs. Overweight/Obese)</td>
<td>0.60 (0.27-1.32)</td>
<td>0.20</td>
</tr>
<tr>
<td>Factor 5 - Supportive Roles in Caring for Obese Patients (n=69, weight bias, 59%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year (vs. Final-semester) BSN student</td>
<td><strong>4.07 (1.69-9.80)</strong></td>
<td><strong>0.0018</strong></td>
</tr>
<tr>
<td>Female (vs. Male)</td>
<td>1.60 (0.49-5.16)</td>
<td>0.44</td>
</tr>
<tr>
<td>White (vs. non-White)</td>
<td>0.69 (0.22-2.24)</td>
<td>0.54</td>
</tr>
<tr>
<td>Rural (vs. Urban)</td>
<td>0.96 (0.34-2.74)</td>
<td>0.94</td>
</tr>
<tr>
<td>Underweight/Normal Weight (vs. Overweight/Obese)</td>
<td>0.60 (0.26-1.38)</td>
<td>0.23</td>
</tr>
</tbody>
</table>

NATOOPS mean factor score was dichotomized into those with ≥ 50 factor mean score (evidence of weight bias) vs <50 (no evidence of weight bias).

OR= Odds Ratio

95% CI= 95% confidence intervals

NA= was not estimated (not enough data points – quasi-complete separation of data points) since only modeling 15 events.

Each model was adjusted for nursing student year, gender, race, program (rural vs. urban), and weight status (OR presented for each above)
Qualitative Data Analysis

The qualitative data analysis of the study was based on coding methods, which consisted of multiple steps using categorizing analysis. All of the focus group interviews were audio recorded in order to have accurate transcription of the participants’ responses. Participant responses consisted of personal experiences and how they described a healthy, overweight, or obese person. Field notes were completed by the researcher during and after the completion of the interviews. Verbatim transcripts of the participants’ responses, analytic memos, and field notes were coded using initial coding for the first cycle and Causation coding for the second cycle. There were subtle differences in the responses from BSN students in their first-year and students enrolled in their final semester. However, all of the participant groups demonstrated evidence of negative attitudes toward obese patients for one or more factors.

Initial Coding

Initial coding was used for the first cycle of breaking down and organizing the qualitative data (Saldana, 2016). Line-by-line analysis was completed to identify similarities and differences and organize the data. As coding was completed, Process Codes were identified and collapsed into categories, and then themes were identified. The categories were similar to the five factors of the NATOOPS during the coding process. The five factors are as follows: (1) response to obese patients, (2) characteristics of obese individuals, (3) controllable factors contributing to obesity, (4) stereotypic characteristics of obese patients, and (5) supportive roles in caring for obese patients. These factors were used to organize categories in the qualitative coding process. Examples from interview transcripts are included to illustrate the themes identified.
Factor 1: Response to Obese Patients

The participants’ comments were similar to the quantitative findings for factor one, where participants expressed frustration, bias, challenges, and concerns with safety while holding the obese person responsible for the obesity. One first-year BSN participant described caring for an obese person by stating, “Just with obesity itself you have the comorbidities . . . you’re not just treating one symptom; you have . . . risk for cardiac and respiratory symptoms, so it’s a bigger challenge.” Safety was a common concern, with a participant stating, “Helping them move in the bed and stuff like that can lead to further injuries to yourself; that’s kind of a concern.” The first- year BSN participant expressed more empathy for obese patients, with one participant stating about an obese person, “it’s not a comfortable area for anybody that’s just getting into the new lifestyle of being healthy.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the category, response to obese patients were participants attributed challenges with care to the assumption that the obese person would have more comorbidity conditions to manage and safety was a common concern.

Factor 2: Characteristics of Obese Individuals

Participants often described an obese person as struggling with a form of mental illness and/or comorbidities and not conforming to the “societal norms.” BMI was often used to place persons in the overweight or obese category. However, BMI was never used to identify someone who is “optimal weight.” A first-year BSN participant stated, “An obese person is somebody who has a greater BMI of 35 or higher who is also starting to develop more comorbidities conditions such as diabetes, cardiovascular disease, and hypertension.” Another participant stated, “I just think of when people are not necessarily what is the standard.” Obesity was viewed
as not being the “standard” or what is considered normal. Genetics were also used as a characteristic, with another first-year participant stating, “Mental health can play a role; a lot of depressed patients tend to eat more. Also genetics, some people have a higher predisposition to weight gain than others; it’s hard for them to lose weight and also they have a higher prevalence of cardiovascular disease and hyper-lipidema.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the category, characteristics of obese individuals were participants associated negative psychological characteristics with the obese person and assumed the obese person would have comorbidity conditions.

**Factor 3: Controllable Factors Contributing to Obesity**

All of the participants attributed obesity to controllable factors, including diet, exercise and lifestyle choices. A person having self-control when making lifestyle choices related to diet and exercise was viewed as the method for avoiding being overweight. In addition, obesity was viewed as controllable and treatable. When describing an obese person, a first-year BSN participant stated, “Their eating habits, their lack of exercising . . . I think their mental and emotional can play a part, if it’s not handled, that would be a contribution.” Another first-year participant stated, “I think someone is obese because a continuous progression of bad lifestyle choices compiled with the lack of motivation to change those lifestyle choices.” A final-semester BSN participant also stated, “Sugar, like sedentary lifestyle, diet and minimal physical exercise.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. The theme that emerged from the category, controllable factors contributing to obesity were participants held the obese person personally responsible for the obesity.
Factor 4: Stereotypic Characteristics of Obese Patients

The participants associated stereotypic characteristics with the codes “lazy” and “unkempt.” When describing an obese person, a first-year BSN participant stated, “not caring about the way they look.” A final-semester BSN participant stated they struggle, “with getting in a routine . . . I think it’s the lack of seriousness.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the category, stereotypic characteristics of obese patients were participants expressed negative attributes to identify characteristics of the obese person, identifying the obese patient as being “lazy” or “unkempt.”

Factor 5: Supportive Roles in Caring for Obese Patients

When caring for obese patients, the participants’ responses were related to providing nutrition and exercise education and emotional support often related to mental health. A first-year BSN participant stated, “Providing patient education . . . providing dietician or resources . . . getting them connected to maybe a social worker.” A participant in their final semester stated, “Try to do patient education to them, just helping them out, that kind of thing.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the category, supportive roles in caring for obese patients were participants’ anticipated providing nutrition and exercise education and mental health support. The categories and related codes identified are found in Table 4.
Table 4

*Categories and Related Codes*

<table>
<thead>
<tr>
<th>Categories and Related Codes</th>
<th>First-Year BSN Participant</th>
<th>Final-Semester BSN Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong> Response to Obese Patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>irritation</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>impatience</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>frustration</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>stress</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>discomfort</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>empathy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>fear/safety</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>impartial</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>biased</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>responsible</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Category</strong> Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>low self-esteem</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>depression</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>non-conformist</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>self-conscious</td>
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<td></td>
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<tr>
<td>fatigued</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BMI</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>mental illness/stress</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>genetics</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>comorbidities</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Category</strong> Controllable Factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>lifestyle</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>self-control</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>obesity is treatable</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>self-indulgent</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>influenced by environment</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>exercise</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>mental health</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>weight</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Category</strong> Stereotypic Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lazy</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>unkempt</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Category</strong> Supportive Roles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nutrition</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>exercise</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>emotional</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Causation Coding

The researcher detected identifiable causes throughout initial coding data analysis that support Attribution theory and how people construct attributes that influence attitudes toward others. In addition, participants used external and internal attributions to explain the cause for obesity. Nursing school, family, and work were examples of external attributions provided by the participants. “Craving sugar,” comparing self to “other people,” and “lack of desire” were examples of internal attributions. The codes identified during initial coding were examined during the Causation coding process. Causation coding was used to identify relationships between attributions and attitudes of BSN students, leading to a particular outcome. Codes were placed in a three-part sequence to categorize the antecedent conditions, mediating variables, and outcomes in order to organize similarities. Seven outcome categories were identified, including: (1) healthy, (2) comorbidities, (3) optimal weight, (4) overweight, (5) obesity, (6) response to care, and (7) supportive nursing care. Examples from interview transcripts are included to illustrate the outcome categories identified.

Outcome Category: Healthy

The participants associated one’s ability to maintain self-control, seek passions, and stay physically and mentally fit as antecedents to exercise, diet, self-care, weight, alcohol, and illegal drug use as identifiable causes for sustaining optimal health. A first-year participant identified a healthy person as “someone who exercises at least three time a week, who watches that they eat, who limits their alcohol intake, who refrains from smoking and illicit drugs, who reduces their stress, and who talks about their problems instead of letting things build up so that their emotional and psychological needs are met as well.” A final-semester participant stated, “Somebody who is healthy obviously knows how to make healthy lifestyle choices, especially in
terms of . . . exercise and diet, working out or not doing some type of physical exercise at least 3-4 times a week, someone who obviously follows . . . a proper nutritional diet. I mean someone who knows how to manage themselves, and self-care is huge, so just kind of preserving themselves.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing self-control, seeking passions, and staying physically and mentally fit to successful diet and exercise, and refraining from illegal drug use, as identifiable causes for sustaining optimal health, which led to the outcome of healthy. The outcome category healthy is identified in Table 5.

Table 5

*Outcome Category: Healthy*

<table>
<thead>
<tr>
<th>ANTECEDENT</th>
<th>MEDIATING VARIABLE</th>
<th>OUTCOME CATEGORY: HEALTHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSICAL+MENTAL</td>
<td>SELF-CARE +EXERCISE+DIET</td>
<td>HEALTHY</td>
</tr>
<tr>
<td>SEEKING PASSIONS</td>
<td>SELF-CARE</td>
<td>HEALTHY</td>
</tr>
<tr>
<td>SELF-CONTROL</td>
<td>EXERCISE + LIMIT ALCHOHOL + ABSTAIN ILLEGAL DRUG USE</td>
<td>HEALTHY</td>
</tr>
<tr>
<td>Final-Semester BSN Participant</td>
<td>MAINTANIING WEIGHT + EXERCISING+ PROPER DIET</td>
<td>HEALTHY</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

### Outcome Category: Comorbidities

The participants associated obesity as an identifiable cause for comorbidities. A first-year participant stated, “When I think of obese I think of their having more health issues, so it’s more so than they’re just overweight for their height. They’re starting to have their health impacted.”

A participant in their final semester stated, “Just with obesity itself you have the comorbidities,
like you’re not just treating one symptom, you have . . . risk for cardiac and respiratory symptoms.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing obesity to having more comorbidity conditions. The outcome category comorbidities are identified in Table 6.

Table 6

**Outcome Category: Comorbidities**

<table>
<thead>
<tr>
<th>ANTECEDENT &gt;</th>
<th>MEDIATING VARIABLE &gt;</th>
<th>OUTCOME CATEGORY: COMORBIDITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td>OBESITY</td>
<td>INCREASED RISK</td>
</tr>
<tr>
<td>Final-Semester BSN Participant</td>
<td>OBESITY</td>
<td>INCREASED RISK</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

**Outcome Category: Optimal Weight**

The participants associated one’s ability to maintain self-control and to not focus on losing weight as the antecedents to exercise and diet, which leads to sustaining optimal health. In addition, they believed that working out led to improved mental health and resulted in optimal weight. A first-semester participant stated, “I think I enjoy working out, and I think that’s a benefit for me because I do enjoy it; I feel the mental results.” A final-semester participant identified optimal weight as being the result of “food, like the diet itself, then physical exercise.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing self-control and not focusing on weight to successful diet and exercise, which led to the outcome of having optimal or normal weight. The outcome category optimal weight is identified in Table 7.
Table 7

Outcome Category: Optimal Weight

<table>
<thead>
<tr>
<th>ANTECEDENT &gt;</th>
<th>MEDIATING VARIABLE &gt;</th>
<th>OUTCOME CATEGORY: OPTIMAL WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF-CONTROL (“WORKING TOWARD EXCELLENCE”)</td>
<td>DIET + EXERCISE</td>
<td>“NORMAL WEIGHT”</td>
</tr>
<tr>
<td>“STOP BEING FOCUSED ON LOSING WEIGHT”</td>
<td>DIET + EXERCISE</td>
<td>OPTIMAL WEIGHT</td>
</tr>
<tr>
<td>WORKING OUT</td>
<td>IMPROVES MENTAL HEALTH</td>
<td>“NORMAL WEIGHT”</td>
</tr>
<tr>
<td>Final-Semester BSN Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF-CONTROL</td>
<td>DIET + EXERCISE</td>
<td>OPTIMAL WEIGHT</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

Outcome Category: Overweight

The participants associated self-indulgence and self-control with a number of variables, which resulted in being overweight. For example, a first-year participant stated, “Someone who is overweight is someone who leads a more sedentary lifestyle and doesn’t watch what they eat.” Another first-year participant stated, “They will eat the whole bag of chips or the whole bag of pretzels just like not even consciously . . . that’s their way of coping I guess.” A number of antecedents were identified by the participants’ own weight loss challenges as leading to a person being overweight, including stereotypes, standards, and comparing one’s self to other people, time, life responsibilities, stress, medications, and economic factors. A first-year participant identified challenges with weight loss as “comparing myself to other people, especially being in a sorority . . . there is a lot of stereotypes and standards that are placed upon people, even if they don’t want to receive it.” A final-semester participant associated “diet and a
little bit of alcohol” with weight loss challenges leading to being overweight. A first-year participant identified economic challenges leading to obesity when stating, “I think there are challenges for people that economically cannot afford to eat healthy. It is way cheaper to buy little Debbie snacks than to get some fruit that is going to expire within the week.”

These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing self-indulgence and self-control with lack of success with diet, exercise, and other lifestyle choices, which resulted in the outcome of being overweight. In addition, weight is viewed as being controllable. Contributing factors, such as social determinants, genetics, and environmental influences were also attributed as causes to being overweight. The outcome category overweight is identified in Table 8.

Table 8

*Outcome Category: Overweight*

<table>
<thead>
<tr>
<th>Antecedent &gt;</th>
<th>Mediating Variable &gt;</th>
<th>Outcome Category: Overweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nursing School</td>
<td>Lack of Time</td>
<td>Overweight</td>
</tr>
<tr>
<td>Stereotypes + Time + Exercise + Responsibility + Stress + Medications + Economical Reasons</td>
<td>Increase Challenges with Weight Loss</td>
<td>Overweight</td>
</tr>
<tr>
<td>Self-Indulgence - Mismanaged Stress</td>
<td>Eating a “Whole Bag of Chips”</td>
<td>Overweight</td>
</tr>
<tr>
<td>Self-Control</td>
<td>Not Exercising + Not Eating Healthy</td>
<td>Overweight</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>GENETICS + LIFESTYLE</th>
<th>INCREASE RISK</th>
<th>OVERWEIGHT</th>
</tr>
</thead>
</table>

Final-Semester BSN Participant

<table>
<thead>
<tr>
<th>SELF-INDULGENT</th>
<th>ALCOHOL</th>
<th>OVERWEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRESS</td>
<td>UNMANAGED</td>
<td>OVERWEIGHT</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

**Outcome Category: Obesity**

As with being overweight, the participants associated self-indulgence and self-control with obesity. A first-year participant stated, “Not exercising, not eating healthy, eating too much high fat, and high calorie foods” leads to obesity. Other participants noted that medication and genetics decrease motivation while increasing the risk for obesity. A first-year student participant stated, “They could eat as little as bird and it wouldn’t matter because of the medication they’re on, they are just going to stay there, so if you have someone like your doctor tell you that, you have no motivation to not drink that extra soda, because why bother?” Another participant also believed that culture and upbringing led to ignorance, which resulted in a person being obese. A first-year participant stated, “It could be they don’t know any better, they were raised that way they were raised going to McDonald’s every day for breakfast, lunch, and dinner, so they don’t know how to cook and eat healthy.” A final-semester participant identified culture as an antecedent leading to poor lifestyle choices, resulting in a person being obese by stating, “I think its culture. I think a lot has to do with how they were raised.” Another belief was that being overweight led to decreasing motivation, which also results in obesity. A first-year participant stated, “It could be that once they reach the overweight stage they figure . . . why bother, why work out? I’m still gonna look this way, so I am just going to eat what I want, do what I want, die when I want.” Mental health was a common cause for obesity throughout the coding process, as represented in a final-semester participant statement when explaining the causes for obesity as
“stress, anxiety, again no self-care.” External attributions such as work, school, and children led to lack of time, and were identified as a contributing cause of obesity. Internal attributions such as self-indulgence and self-control were identified as a contributing cause of obesity. A participant made a statement that echoed the personal struggles of many first-year and final-semester participants when stating, “They do not have time, it’s like their job requires too much time or they’re in school.” These descriptions for obesity were similar to the overweight outcome. These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing self-indulgence and self-control to success or lack of success with lifestyle choices such as diet and exercise, which resulted in the obesity outcome. Once again, the participants did identify other contributing factors such as social determinants, genetics, and environmental influences. The outcome category obesity is identified in Table 9.

Table 9

*Outcome Category: Obesity*

<table>
<thead>
<tr>
<th>ANTECEDENT &gt;</th>
<th>MEDIATING VARIABLE &gt;</th>
<th>OUTCOME CATEGORY: OBESITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td>MEDICATIONS + GENETICS</td>
<td>INCREASE BMI + INCREASE RISK + DECREASE MOTIVATION</td>
</tr>
<tr>
<td></td>
<td>SELF-INDULGENCE</td>
<td>LIFESTYLE + EATING + “LACK OF EXERCISE”</td>
</tr>
<tr>
<td></td>
<td>COMORBIDITES</td>
<td>INCREASE CHALLENGES WITH WEIGHT LOSS</td>
</tr>
<tr>
<td></td>
<td>HOW YOU WERE RAISED</td>
<td>IGNORANCE</td>
</tr>
<tr>
<td></td>
<td>BEING OVERWEIGHT</td>
<td>DECREASED MOTIVATION</td>
</tr>
<tr>
<td></td>
<td>MENTAL HEALTH</td>
<td>INCREASED WEIGHT</td>
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</table>

*(table continues)*
Final-Semester BSN Participant

<table>
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<tr>
<th>OBESITY</th>
<th>OBESITY</th>
<th>OBESITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAZY + SELF-CONTROL</td>
<td>NOT EATING PROPER DIET +</td>
<td>OBESITY</td>
</tr>
<tr>
<td></td>
<td>MINIMAL EXERCISE + STRESS +</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ANXIETY</td>
<td></td>
</tr>
<tr>
<td>CULTURE</td>
<td>POOR LIFESTYLE CHOICES</td>
<td>OBESITY</td>
</tr>
<tr>
<td>SELF-INDULGENCE</td>
<td>DIET + NOT EXERCISING</td>
<td>OBESITY</td>
</tr>
<tr>
<td>LACK OF SELF-CONTROL</td>
<td>DIET + EXERCISE</td>
<td>OBESITY</td>
</tr>
<tr>
<td>LIFE RESPONSIBILITES</td>
<td>LACK OF “TIME” + LACK OF DESIRE</td>
<td>OBESITY</td>
</tr>
<tr>
<td>GENETICS</td>
<td>INCREASE RISK</td>
<td>OBESITY</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

**Outcome Category: Response to Care**

The participants identified obese patients as difficult to move, resulting in increased safety risks for the nurse. A final-semester participant demonstrated their aversion to caring for an obese person by stating, “Be careful for your own safety and . . . ask for help if you need . . . help moving the patient.” One participant identified comorbidities as a variable that would increase challenges to providing care by stating, “Obese patients you have comorbidities to worry about.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are attributing obese patients to having more comorbidities and being more difficult to move, resulting in increased challenges to provide care and safety risk for the nurse. The outcome category response to care is identified in Table 10.
Table 10

*Outcome Category: Response to Care*

<table>
<thead>
<tr>
<th>ANTECEDENT &gt;</th>
<th>MEDIATING VARIABLE &gt;</th>
<th>OUTCOME CATEGORY: RESPONSE TO CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBESE PATIENT</td>
<td>DIFFICULT TO MOVE</td>
<td>INCREASED SAFETY RISK</td>
</tr>
<tr>
<td>OBESE PATIENT</td>
<td>COMORBIDITIES</td>
<td>INCREASED CHALLENGE TO PROVIDE CARE</td>
</tr>
<tr>
<td>Final-Semester BSN Participant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBESE PATIENT</td>
<td>COMORBIDITIES</td>
<td>INCREASED CHALLENGE TO PROVIDE CARE + INCREASED “WORRY” FOR THE NURSE</td>
</tr>
<tr>
<td>OBESE PATIENT</td>
<td>DIFFICULT TO MOVE</td>
<td>INCREASED SAFETY RISK</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

*Outcome Category: Supportive Nursing Care*

As with initial coding, when caring for obese patients, providing emotional (primarily mental health support) care, nutritional supervision, and exercise interventions resulted in a supportive nursing role. A first-year participant provided examples of variables resulting in supportive care as “giving access to . . . dieticians or giving them workouts to do while they’re in the hospital, showing them how to do certain things because some of them do have . . . muscular issues.” A final-semester participant stated, “We really have to take into account . . . their culture and . . . where they come from, the area we are serving, interventions also . . . like basic stuff of . . . making sure you get enough exercise, eating right, taking care of yourself mentally.” These examples from interview transcripts helped to represent the themes that emerged during data analysis. Themes that emerged from the outcome category are how the participants identified obese patients as needing specific education related to lifestyle, medication, and mental health.
support to result in the nurse providing supportive care. The outcome category supportive nursing care is identified in Table 11.

Table 11

**Outcome Category: Supportive Nursing Role**

<table>
<thead>
<tr>
<th>ANTECEDENT &gt;</th>
<th>MEDIATING VARIABLE &gt;</th>
<th>OUTCOME CATEGORY: SUPPORTIVE NURSING ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Year BSN Participant</td>
<td>OBESE PATIENT</td>
<td>NUTRITIONAL SUPPORT + LIFESTYLE CHOICES + EXERCISE + “MEDICATION MODIFICATION” + MENTAL HEALTH CARE + SOCIAL WORK</td>
</tr>
<tr>
<td>Final-Semester BSN Participant</td>
<td>OBESE PATIENT</td>
<td>CULTURE AWARENESS + NUTRITIONAL SUPPORT + EXERCISE + MENTAL HEALTH CARE</td>
</tr>
</tbody>
</table>

> means “leads to”
+ more than one cause in the equation

**Summary**

Both first-year and final-semester BSN participant scores indicated negative attitudes and evidence of weight bias, as demonstrated by the NATOOPS. Male participants’ scores indicated more negative attitudes as compared to female participants’ scores. There were not any significant differences found between the BMI categories scores (underweight/normal weight and overweight/obese), indicating evidence of weight bias. White-Caucasian BSN participants demonstrated significantly higher overall scores as compared to non-White participants, indicating more negative attitudes. However, evidence of weight bias was demonstrated in both ethnicity groups. Participants attending a rural BSN program demonstrated higher overall scores indicating more negative attitudes, as compared to participants attending an urban BSN program. However, both rural and urban programs scores also indicated evidence of weight bias.
Initial coding provided a strong method for extracting the attitudes of the nursing students who participated. Causation coding assisted in identifying how the participants used attributions to explain the cause or “why” contributing to the obesity. Themes were identified during qualitative analysis that were similar to and supporting the quantitative findings from the NATOOPS. Participants identified obese patients as being more challenging to care for as a result of having comorbidities to manage and increased safety risk to the nurse. Obese patients were associated with negative psychological characteristics and participants expressed negative attributes, such as “unkempt” or “lazy” to describe an obese person. Obesity was viewed as being controllable, with self-indulgence and a lack of self-control contributing to the outcome. However, a unique finding was the participants attributed factors such as social determinants, genetics, and environmental influences to being overweight and obese. When providing supportive care to the obese patients, the participants identified lifestyle choices, medication, and mental health support as needed education topics. Assuming obese patients were in need, a mental health support was a common theme for the participants. As with the NATOOPS, the qualitative findings were similar in that there was little difference between the first-year and final-semester BSN participant groups.
CHAPTER V:
DISCUSSION AND RECOMMENDATIONS

Introduction

The purpose of this concurrent mixed methods study was to provide a deeper understanding of the attributions BSN students make about the cause of obesity, resulting in weight bias toward obese patients. This study was warranted due to the high prevalence of obesity among U.S. adults and children (CDC, 2017), and the negative effects that healthcare professionals’ attitudes have on the medical and psychological health of obese patients (Budd et al., 2011). While there is research that explores the attitudes of practicing nurses, little is known about the attitudes of nursing students. Identifying the negative attitudes influencing weight bias among nursing students may provide educators with the needed tools to develop curriculum to increase awareness of weight bias occurrence, and potentially benefit obese patients’ quality of care.

Discussion of Results

The mixed methods research design included the administration of the NATOOPS to first-year and final-semester BSN students, followed by focus groups interviews. A total of 399 BSN students were recruited to participate from three universities in the Southeast, including one in a rural area and two in an urban area. Of the 156 students who consented to participate, 116 students met eligibility and completed the NATOOPS, with only five students participating in the focus group interviews. There was minimal variance between first-year BSN participants (87%) and final-semester BSN participants (86%), with the majority of participants being female
(86%). There was minimal variance for ethnicity between the BSN groups; however the majority of the participants were identified as White-Caucasian (74%). The standard formula for BMI was used to calculate self-reported height and weight. There was minimal variance for underweight/normal weight (53%) as compared to overweight/obese (47%).

**Research Question One**

What are nursing students’ attitudes toward obese patients, as determined by NATOOPS?

The NATOOPS uses five factors to assess weight bias: (1) response to obese patients, (2) characteristics of obese individuals, (3) controllable factors contributing to obesity, (4) stereotypic characteristics of obese patients, and (5) supportive roles in caring for obese patients (Watson et al., 2008). The results of the study demonstrated negative attitudes toward obesity for all factors. All BSN participant scores indicated negative attitudes and evidence of weight bias. However, a mean factor score greater than ≥ 50 indicates evidence of weight bias, and overall scores for both BSN groups indicate weight bias for factor two (characteristics of obese individuals) and factor three (controllable factors contributing to obesity). For factor three (controllable factors contributing to obesity), a mean factor score ≥ 50 for all groups indicated evidence of weight bias.

**Research Question Two**

Is there a significant difference in weight bias between first-year BSN students and BSN students in their final semester of nursing school?

The NATOOPS yielded significant differences between BSN students, with participants in their final semester having higher scores for factor one (response to obese patients) as compared to first-year BSN participants, also indicating more negative attitudes for final-semester participants. However, unexpectedly the first-year BSN participants had significantly
higher scores compared to final-semester participants for factor five (supportive roles in caring for obese patients), indicating presence of weight bias in the first-year group. Both first-year and final-semester BSN participant scores indicated negative attitudes and evidence of weight bias.

**Research Question Three**

Is there a relationship between level of weight bias identified in the NATOOPS and BMI, gender, and/or ethnicity among BSN students?

The results of the study yielded significant differences between some of the demographic variables. Male participants’ scores for factor one (response to obese persons) and factor four (stereotypic characteristics) indicated more negative attitudes as compared to female participants. Both gender groups’ scores indicated evidence of weight bias for factor two (characteristics of obese individuals) and factor three (controllable factors contributing to obesity). Male BSN participants had higher overall scores compared to female participants, indicating the presence of weight bias. There were not any significant differences found between the BMI categories. However, scores indicated evidence of weight bias in both BMI categories. White-Caucasian BSN students demonstrated statistically higher scores for factor one (response to obese patients), factor two (characteristics of obese patients), factor four (stereotypic characteristics of obese patients), and factor five (supportive roles in caring for obese patients) as compared to non-White students, indicating more negative attitudes as compared to non-White students. White-Caucasian BSN participants demonstrated statistically higher scores in factor three (controllable factors contributing to obesity) as compared to non-White participants, indicating more negative attitudes as compared to White-Caucasian participants.

The universities where recruitment took place were not considered as a demographic variable during the initial planning of the proposal for this study. However, the study yielded
significant differences between rural and urban undergraduate nursing programs. Participants attending a rural undergraduate nursing program demonstrated higher overall scores, indicating more negative attitudes. Participants attending a rural undergraduate nursing program demonstrated significantly higher scores for factor one (response to obese patients), factor two (characteristics of obese patients), and factor four (stereotypic characteristics of obese patients) as compared to those attending an urban undergraduate nursing program, indicating more negative attitudes for participants attending a rural program. Participants attending an urban undergraduate nursing program demonstrated significantly higher scores for factor five (supportive roles in caring for obese patients), as compared to those attending a rural undergraduate nursing program, indicating more negative attitudes. However, both rural and urban programs’ NATOOPS scores indicated evidence of weight bias.

**Research Question Four**

What attributions do nursing students identify with producing an emotional response toward obese patients?

Attribution theory helped in understanding the attribution influence on attitudes toward obese patients, often resulting in weight bias. Humans are biased toward casual reasoning and use their own understanding of the world to explain the causes of outcomes (Saldana, 2016). The interview transcripts themselves demonstrated this need to answer the “why.” This is evident in the participant statement, “depressed patients tend to eat more” when explaining the factors contributing to obesity. Attribution theory suggests that an individual with similar attributes to oneself may influence one’s attitudes (Watson et al., 2008). The description of one of the participants explaining his own challenges with weight loss illustrates this concept: “I come up with all kinds of excuses not to exercise between school, work, family, household stuff, and then
just having alone time or if I’m just tired or have a headache I much rather sit on the couch and eat a bag of potato chips than go to the gym and exercise.” When the participant explained the challenges of others, the participant stated, “Time I mean that is a factor for everybody. It’s an excuse for everybody, but we live in such a high-paced, fast society that things are going and it is hard to fit 30 hours into a 24-hour day.” It is evident in these statements that the participant’s own attitudes influence how the participant attributes another person’s own challenges with weight loss. Attribution theory helped to explain how the participants used attributions to explain the cause of the obesity, and the influence of their own attitudes toward obese patients.

Causation coding method is suited for exploring how one attributes responsibility or causes leading to a particular outcome (Saldana, 2016). Participants described healthy, overweight, and obese persons in detail, sharing their own personal experiences and what they attribute to the outcome. Participants attributed self-indulgence and lack of self-control to lifestyle choices such as diet and exercise, which resulted in the obesity outcome. However, the participants also identified social determinants, genetics, and environmental influences as other contributing factors.

**Research Question Five**

What attitudes influence weight bias among nursing students?

The focus group interviews provided an opportunity to gather more information about the participants’ attitudes toward obesity, and identified themes to support the reported findings from the NATOOPS. Initial coding provided a strong method for extracting the attitudes of the nursing students who participated. The participants’ expressed negative attitudes toward obese patients and identified them as more challenging to care for and responsible for the obesity. The obese person was often described as being self-indulgent and lacking self-control. In addition, it
was common for the participants to identify them as struggling with a form of mental illness and not conforming to the “societal norms.”

**Research Question Six**

How do the themes identified during focus group interviews support the findings from the NATOOPS questionnaire?

The themes identified supported the NATOOPS findings, with obese patients being associated with negative psychological characteristics, such as being depressed or struggling with some other form of mental illness. In addition, obese patients were identified as having more comorbidities and being more difficult to move, resulting in increased challenges to provide care and safety risk for the nurse. As with the NATOOPS findings, obesity was viewed as being controllable, with self-indulgence and a lack of self-control contributing to the outcome.

**Relationship of Findings to the Literature**

The prevalence of bias and discrimination of obese persons is well documented in education, employment, and healthcare (Puhl & Brownell, 2003). In a recent study, 73 nurses from an acute care hospital completed the Weight Control/Blame Subscale of the Antifat Attitudes test aimed at exploring the nurses’ beliefs about weight controllability (Tanneberger & Ciupitu-Plath, 2018). The researchers found that when nurses held greater beliefs that weight is under self-control, they were more likely to report discrimination of the obese patient (Tanneberger & Ciupitu-Plath, 2018). As noted in the current study, nurses felt that obese patients were more challenging to care for than patients of normal weight (Tanneberger & Ciupitu-Plath, 2018). This is consistent with previous findings where nurses have justified avoidance of providing care to obese patients with fear of their weight causing physical harm to the nurses (Creel & Tillman, 2011).
Research has demonstrated evidence of nurses making assumptions about patients as a result of their weight or appearance, with little consideration for environmental or biological factors (Creel & Tillman, 2011). These contributing factors include social determinants that are influenced by inherent genetic and biological traits/or environmental influences (National Institute of Health [NIH], 2016). However, in the current study, participants demonstrated negative attitudes toward obese persons during focus group interviews but also acknowledged environmental and biological factors that may contribute to obesity.

Evidence supports that those healthcare providers who are of normal weight recommend and have increased confidence in discussing obesity interventions (Bleich et al., 2012). The current study did not demonstrate significant differences between the BMI categories underweight/normal weight and overweight/obese. However, scores indicated evidence of weight bias in both BMI categories.

Garcia et al. (2016) found weight-biased attitudes among nurses and clinical support staff in an urban pediatric hospital, as demonstrated by NATOOPS findings. In addition to the weight-biased attitudes, staff that cared for obese patients regularly was more likely to view obesity as controllable. In the present study, the NATOOPS yielded statistically significant differences between BSN students in their first-year and final-semester; however, both scores indicated negative attitudes and evidence of weight bias. Poon and Tarrant (2009) found in a previously mentioned study that registered nurses held more negative attitudes toward obese persons as compared to undergraduate nursing students, suggesting that increased exposure to caring for patients has a negative impact on attitudes toward obese patients. The findings in the current study showed that both first-year and final-semester BSN students hold negative attitudes, demonstrating the need for weight bias education early on in the undergraduate nursing
curriculum. Nicholls et al. (2016) found in a previously mentioned study that first-year nursing students provided patient-centered discussion with obese patients not associated with perceived cause of obesity or negative attitudes. The study suggested that increased exposure to obese patients has a negative impact on attitudes toward obese patients (Nicholls et al., 2016). The findings from the current study conflict with these findings, where first-year BSN students demonstrated negative attitudes and weight bias, as demonstrated by the NATOOPS. With the increasing prevalence of obese patients, it is critical that current and future nurses have positive professional attitudes toward obese individuals (Poon & Tarrant, 2009).

**Limitations**

This study has limitations that should be considered when interpreting results. First, the sample size limitations lowered power to detect statistical differences in the study, especially when looking at smaller demographic groups such as ethnicity and gender. The study participants were primarily White-Caucasian (74%) and female (86%). Because weight and height were self-reported, there is an increased risk for misreported numbers for the BMI variable. Focus-group interviews did not meet the desired number; however, the five participants interviewed provided rich data to support the qualitative findings. The researcher had decreased access to the students at one of the universities due to faculty concerns with potential survey fatigue. Decreased access may have resulted in a smaller sample size than anticipated.

Following permission from the author, the NATOOPS was converted to Likert responses for this study (strongly disagree = 0, disagree = 25, neutral = 50, agree = 75, strongly agree = 100) from 0-100 to be consistent with previous studies’ use of a 0–100 visual analog/sliding scale (Garcia et al., 2016). Likert response items are of equal distance between each choice, meaning they are balanced and score better reliability than a measurement with 100 possible
answers (Bishop & Herron, 2015). Some investigators prefer visual analog scale, but they are a challenge to use for computerized surveys (Bishop & Herron, 2015).

Qualitative findings are dependent on self-reported data by the researcher. As a result, there is the risk of the researcher eliminating data, identifying the need for the completed outside reviewers. In addition, the researcher gave careful consideration to not relying on speculation when assessing attributions, leading to the outcomes.

**Implications for Nursing Education**

While there were limitations to the study, the findings of the study demonstrated negative attitudes and weight bias among first-year and final-semester BSN students and demographic groups such as ethnicity and gender. Research findings have identified that nursing students express a lack of knowledge of techniques to discuss weight management with patients and perceive nursing curriculum as lacking focus on obesity (Keyworth et al., 2012). This study supports the need for developing curriculum to effectively target and limit weight bias among BSN students. Nurses need to be educated about the negative consequences of weight bias early in their careers. Weight bias education begins with nurse educators, who are in a unique position to serve as positive role models and mentors.

A recent study at a U.K. (United Kingdom) university, explored the attitudes of nursing students toward obese persons by allowing students to wear a bariatric empathy suit, which provided them with the opportunity to experience the social and emotional challenges that obese patients face (Hunter, Rawlings-Anderson, Lindsay, Bowden, & Aitken, 2018). Following the simulation, nursing students reported more positive attitudes toward patients (Hunter et al., 2018). Similar curriculum for nursing students should be developed to include positive communication skills and techniques to discuss weight topics with patients. In addition,
providing students with an opportunity to undergo the encounters of the patient with obesity may contribute to a better understanding of their experience.

Knowing how to effectively communicate with obese patients is critical; however, it is also important that students are aware of their own attributions that could potentially result in negative attitudes toward a patient. Nursing curriculum should include assessments that can be used to assess the attitudes and level of bias that students demonstrate when providing care. Nurses have the ability to have a positive impact by influencing behavior change from weight management interventions (Fillingham et al., 2013). Nurse educators have a responsibility to equip future nurses with the tools to provide patients with care that promotes the best possible outcomes. The findings of the current study have the potential to make a positive contribution to the development of nursing education.

**Recommendations for Future Research**

The present research indicated that negative attitudes and weight bias exist among first-year and final-semester students. Additional research is needed to support the findings of this study. Replicating the present study with a larger sample size may result in greater significance of the variables measured. In addition, the study should be replicated in different geographical areas. Conducting the same study in other geographical areas outside of the Southeast, may result in different findings, and identify additional influences or risk factors. Studies should continue to measure the attitudes of nursing students toward obese patients, because of the negative effects bias may have on patient outcomes and the quality of care provided (Garcia et al., 2016). Limited research studies exist that examine weight bias among nursing students or compare nursing students at different points in their education. Further longitudinal studies are needed to measure nurses’ attitudes over time and whether increased exposure to obese patients leads to increased
bias. Most of the studies identified in the review of the literature were quantitative findings. More qualitative research is needed to expand upon quantitative findings and provide more details exploring nursing students’ attitudes toward obese patients.

Further research is necessary to assess current nursing curriculum for educating nursing students on how to best care for obese patients. As demonstrated in the literature (Keyworth, 2012), participants struggled to identify curriculum aimed at providing techniques to communicate with obese patients, and found the content was often integrated into other topics. One final semester student stated, “Officially, I do not think I have received any education, but . . . they have told us to be careful for your own safety.” Researchers should measure the effectiveness of any future curriculum developed, assessments, or interventions used for educating nursing students. Nursing textbooks should include content focused on pathophysiology, nursing care plans, assessment skills, and communication techniques for obesity. While one would expect to find obesity integrated with the discussion of other diagnosis, it is worthy of its own dedicated content. Not only is it critical to educate nursing students, nurses who are currently practicing may be in need of weight bias training. Therefore, curriculum development is also needed for the practicing nurse. In addition to assessing curriculum, further research needs to be conducted to explore the attitudes of nursing faculty. Nursing faculty are the role models for future nurses, and examining how they influence and educate students is critical to understanding how nurses provide care to an increasing prevalence of obese patients.
REFERENCES


Statistical Analysis System (Version 9.4) [Computer Software] Carey, NC: SAS.


APPENDIX A:

NURSES’ ATTITUDES TOWARD OBESITY AND OBESE PATIENTS SCALE (NATOOPS)
The following Likert scale will be used for the statements below:

1. I strongly agree
2. I disagree
3. I am neutral
4. I agree
5. I strongly agree

Please read the following statement and select the statement below according to how much you agree or disagree.

1. Obese adults over eat.
2. Obese adults exercise.
3. Obesity is influenced by one’s family environment.
4. Nurses feel uncomfortable when caring for obese adult patients.
5. If given the choice, nurses would prefer not to care for adult obese patients.
6. Obese adult patients would prefer to be put on a weight management program while in the hospital.
7. Obesity is treatable.
8. Obese adult patients need more emotional support than other patients.
9. Nurses should monitor the food intake of obese adult patients more carefully than that of non-obese patients.
10. Obese adult patients are more self-conscious than normal weight patients.
11. Obesity can be prevented by self-control.
12. Obese adults can lose weight if they change their eating habits.
13. Obesity is a matter of lifestyle.
14. I feel the same about caring for an obese patient as a normal weight patient.
15. Caring for an obese adult patient is more frustrating than caring for a normal weight patient.
16. I feel more irritated when I care for an obese adult patient than a normal weight patient.
17. I feel more impatient when caring for an obese adult patient than a normal weight patient.
18. I feel disgust when I am caring for an obese adult patient.
19. I feel indifferent to the obesity when I am assigned to an obese adult patient.
20. It is difficult to feel empathy for an obese adult patient.
22. Caring for an obese adult patient is more emotionally draining than caring for a normal weight patient.
23. Caring for an obese adult patient is more stressful than caring for a normal weight patient.
24. Caring for an obese adult patient repulses me.
25. Obese adults are self-indulgent.
26. Obese adults are unkempt.
27. Obese adults are lazy.
28. Obese adults are self-confident.
29. Obese adult patients are depressed.
30. Obese adults feel socially accepted.
31. Obese adults experience unresolved anger.
32. Fatigue is a problem for obese adults.
33. Obese adult patients are the subjects of ridicule.
34. Obese adult patients feel guilty.
35. I would rather work with a normal weight person than an obese person.
36. Obese people have a lower opinion of themselves than normal weight people.
APPENDIX B:

NATOOPS TOOL PERMISSION
Permission to use Nurses' Attitudes Toward Obesity and Obese Patients Scale (NATOOPS)

Wendy Johnson <wejohnson4@crimson.ua.edu>
To: oberle@ucalgary.ca
Mon, Oct 16, 2017 at 7:12 PM

Dr. Kathleen Oberle,

I am a doctoral student in the EdD Nurse Educator Program at the University of Alabama. I am writing to request your permission to use the Nurses' Attitudes Toward Obesity and Obese Patients Scale (NATOOPS) as an instrument in my research. I discovered the NATOOPS instrument during a literature review when I came across your published work, Development and psychometric testing of the nurses' attitudes toward obesity and obese patients (NATOOPS) scale (2008). My dissertation is a mixed methods study, designed to determine if weight bias exists among Bachelor of Science in Nursing (BSN) students towards obese patients, and if a difference in weight bias exists between first year students and students in their final semester of nursing school. I feel the NATOOPS tool meets the needs of this research project, as it measures nurses' attitudes towards obesity and obese adult patients. Would you be willing to grant me permission to use the NATOOPS tool? I would greatly appreciate your permission and be willing to share any findings with you. In addition, would you be able to provide a copy of the questions used in the survey? Please let me know if you need any additional information.

Thank you for your consideration,

Wendy Johnson, EdD (c), MSN, RN

678-357-0186

Kathleen Oberle <oberle@ucalgary.ca>
To: Wendy Johnson <wejohnson4@crimson.ua.edu>
Mon, Oct 16, 2017 at 7:14 PM

Dear Wendy
You have my permission to use the scale. I am pleased that you believe it will be useful. Good luck with your research.

Kathleen Oberle

[Quoted text hidden]
Wendy Johnson <wejohnson4@crimson.ua.edu>
To: Kathleen Oberle <oberle@u calgary.ca>

Mon, Oct 16, 2017 at 8:05 PM

I can not thank you enough! Could I obtain a copy of the original questions used? I have seen edited versions and I want to make sure I use the original tool.

Once again, thank you.

Wendy Johnson

[Quoted text hidden]

Kathleen Oberle <oberle@ualberta.ca>
To: Wendy Johnson <wejohnson4@crimson.ua.edu>

Mon, Oct 16, 2017 at 8:36 PM

I don't have a copy of the original as such but all the questions we used are in the article. I've been retired for some time and much of my academic stuff is gone. Sorry - but in the original we had the demographics at the end. You can put in whatever you think you need for demographics. It won't affect the validity of the questions as we only did the factor analysis on the actual content questions. All the content questions are in the article.

K

[Quoted text hidden]

Wendy Johnson <wejohnson4@crimson.ua.edu>
To: Kathleen Oberle <oberle@u calgary.ca>

Tue, Oct 17, 2017 at 8:18 AM

I will look back at the article for the questions.

Once again, thank you.

Wendy Johnson

[Quoted text hidden]

Wendy Johnson <wejohnson4@crimson.ua.edu>
To: Kathleen Oberle <oberle@u calgary.ca>

Tue, Oct 17, 2017 at 5:16 PM

Are you okay if I change the response format to a Likert scale?

Thank you,

Wendy Johnson

[Quoted text hidden]

Kathleen Oberle <oberle@u calgary.ca>
To: Wendy Johnson <wejohnson4@crimson.ua.edu>

Tue, Oct 17, 2017 at 9:57 PM

Certainly, I think you should do whatever you think works. I believe the validation is primarily on the content. However, the responses could conceivably be changed by the format. I don't think it would be significant.

K

[Quoted text hidden]
APPENDIX C:

FOCUS GROUP INTERVIEW QUESTIONS
The following interview questions will be asked in a focus group setting, and responses to the open-ended questions can be probed for further explanation. This method will guide the data collection by examining nursing students’ attributions toward obesity.

1. Describe someone who is in your opinion healthy?
2. Describe someone who is overweight?
3. Describe someone who is obese?
4. What factors do you feel contribute to obesity?
5. How would you describe your own weight?
6. Have you experienced challenges with losing weight?
7. What obstacles did you experience?
8. What challenges might others (people you know, students, patients) experience with losing weight?
9. Why would someone be overweight?
10. Why would someone be obese?
11. Are you concerned about caring for overweight patients?
12. What are your concerns?
13. Are you concerned about caring for obese patients?
14. What are your concerns?
15. How often have you cared for obese patients?
16. What nursing education regarding interventions or care for overweight or obese patients have you received?
APPENDIX D:

INFORMED CONSENT
UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM

Informed Consent for a Non-Medical Study

Study title: EXPLORING WEIGHT BIAS AMONG NURSING STUDENTS
Investigator: Wendy Johnson, Candidate for the degree of Doctor of Education in the
Department of Educational Leadership, Policy, and Technology Studies in the Graduate
School of The University of Alabama.

Institution: The University of Alabama

You are being asked to take part in a research study. This study is titled Exploring
Weight Bias Among Nursing Students. The study is being conducted by Wendy
Johnson, MSN, RN, who is a graduate student at the University of Alabama. Mrs.
Johnson is conducting the study under the supervision of Susan J. Appel, PhD, who is a
professor at the University of Alabama.

The investigator will not profit from this study. All data from this project will remain
confidential and will be used for research purposes only. This study is being done to
provide a deeper understanding of the attributions nursing students use to explain the
cause of obesity. Identifying themes, as well as the point at which bias may be most
prevalent can assist nurse educators. The results of this study will help nurse educators
in developing curriculum to effectively target and limit weight bias among BSN students.
Two groups of nursing students will be surveyed at each institution during their first year
and the final semester in their undergraduate nursing program.

You have been asked to be in this study because you are currently enrolled in a BSN
program and you are a first-year nursing student or enrolled in the final semester of the
undergraduate nursing program. You must be 19 years of age or older to participate in
the study. It is the goal of the researcher to have a minimum participation of 195 BSN
students for the online survey administered in person, and 8-10 BSN students for each
focus group. If you meet the criteria and agree to be in this study, you will be asked to
complete an online survey and/or focus group interview. You may agree to participate in
the online survey only or the online survey and the focus group interview. All
participants who agree to participate in the online survey will be provided with a link to
the survey upon completion of this form. The focus group interview will take place today
in a reserved room designated by the faculty at your institution. The survey will take
approximately 15 minutes to complete. The focus group interview will take up to 2 hours
to complete. The online study will take 15 minutes to 2 hours of your time over 1 day.
Time variance will depend on if you choose to participate in the survey and the focus
group interview. Other than time, there is no cost for participating. You will not be
compensated for being in this study.
There is no foreseen risk to you when completing the survey or focus group interview. The investigator may take you out of the study if you no longer meet the requirements or if she feels the questions within the survey or the focus group interview are upsetting you. This study may benefit you directly, by increasing your awareness of the occurrence of weight bias. This study will help nurse educators in developing curriculum to effectively target and limit weight bias among BSN students.

There will be no penalty for not participating and participation does not impact course grades. In order to protect your privacy, instructors for your course will not be present during administering of the survey or during the focus group interview and will not be informed of your decision to participate or not to participate. If you find any of the questions difficult to answer you may skip the question or choose to end your participation at any time. Participation is strictly voluntary and you may withdraw from the study at any time, even if you choose to participate. There will be no penalty for not participating and participation does not impact course grades. If you do not wish to participate, please select I do not wish to participate at the bottom of the form and return this form along with the other enclosed forms.

All collected information will remain confidential, and your responses will be void of identifiers. Confidentiality is protected by separating signed consent forms from survey results and focus group interview responses. Focus group interviews will be audiorecorded and are necessary for participation. Agreement to taping is necessary for focus group interview participation. Audiorecords will only be used for the purpose of data analysis. All survey responses and focus group interview responses will be stored in the researcher’s password protected institutional system. All consent forms and audio tapes will be stored in the locked box. The researcher will request people who attend the focus group interview keep the discussion confidential, but the researcher cannot guarantee this will happen. The alternative to being in this study is not to participate. The results of this research will only be used for the purpose of the researcher’s dissertation and possibly other publications, such as journals or books.

Taking part in this study is voluntary. It is your free choice. You can refuse to be in it at all. If you start the study, you can stop at any time. There will be no effect on your relations with the University of Alabama.

The University of Alabama Institutional Review Board ("the IRB") is the committee that protects the rights of people in research studies. The IRB may review study records from time to time to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

If you have any questions regarding any part of the study, please speak to Wendy Johnson before signing the consent form. If you have questions, concerns, or complaints about the study later on, please call Wendy Johnson at (878)357-0186.

If you have questions about your rights as a person in a research study, call Ms. Tania Myles, the Research Compliance Officer of the University, at 205-348-8461 or toll-free at 1-877-820-3066.

UNIVERSITY OF ALABAMA
IRB COMPLIANCE OFFICER
11/16/18
12/11/18
You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCC_Welcome.html or email the Research Compliance office at participantoutreach@bama.ua.edu.

After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 359 Rose Administration Building, Tuscaloosa, AL 35487-0127.

I have read this consent form. I have had a chance to ask questions. I agree to take part in it. I will receive a copy of this consent form to keep.

☐ I wish to participate in the research study, but wish to only participate in the online survey.

☐ I wish to participate in the research study, and would like to participate in the online survey and the focus group interviews.

☐ I agree to be audio-taped during the focus group interview.

__________________________________________  __________________________
Signature of Research Participant           Date

__________________________________________  __________________________
Signature of Investigator                   Date
APPENDIX E:

THE UNIVERSITY OF ALABAMA IRB APPROVAL LETTER
Wendy Johnson  
ELPTS  
College of Education  
Box 87032  

Re: IRB#: 18-OR-052 “Exploring Weight Bias among Nursing Students”

Dear Wendy Johnson:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note that this approval only applies to the stated procedures at The University of Alabama and Georgia State University, as noted within the study procedures. You will be required to provide our office with an update on the official determination from the East Tennessee State University IRB prior to enrolling participants at that location through a modification form of the approved IRB protocol. Your application will expire on February 11, 2019. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent/assent forms to provide to your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

358 Rose Administration Building | Box 870127 | Tuscaloosa, AL 35487-0127  
205-348-8461 | Fax 205-348-7189 | Toll Free 1-877-820-3664
APPENDIX F:

EAST TENNESSEE STATE UNIVERSITY IRB APPROVAL LETTER
IRB APPROVAL – Initial Expedited Review

February 26, 2018

Wendy Johnson

Re: Exploring Weight Bias Among Nursing Students
IRB#: 0218.15s
ORSPA #:

The following items were reviewed and approved by an expedited process:
- New protocol submission xform, CV of PI, Georgia State University IRB Compliance email, UIA, ICD version 2/12/18, Survey and Focus Group Script, Focus Group Questions, Nurses’ Attitudes toward obesity and Obese Patients Scale (NATOOPS) survey, University of Alabama, IRB approval

On February 26, 2018, a final approval was granted for a period not to exceed 12 months and will expire on February 25, 2019. The expedited approval of the study will be reported to the convened board on the next agenda.

The following enclosed stamped, approved Informed Consent Documents have been stamped with the approval and expiration date and these documents must be copied and provided to each participant prior to participant enrollment:
- ICD version 2.12.18 stamped approved 2.26.2018

Federal regulations require that the original copy of the participant’s consent be maintained in the principal investigator’s files and that a copy is given to the subject at the time of consent.

Projects involving Mountain States Health Alliance must also be approved by MSHA following IRB approval prior to initiating the study.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108(g)(5)]. In such a
APPENDIX G:

IRB APPROVAL LETTER WITH APPROVED CHANGES
July 15, 2013

Wendy Johnson
Department of ELPS
College of Education
The University of Alabama
Box 13802

Re: IRB #18-03R-001-A "Exploring Weight Bias among Nursing Students"

Dear Ms. Johnson:

The University of Alabama Institutional Review Board (IRB) reviewed the revision to your previously approved expedited protocol. The board has approved the change in your protocol.

Please remember that your protocol will expire on February 11, 2019.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate imminent hazards to participants.

Good luck with your research.

Sincerely,

[Signature]
APPENDIX H:

NATOOPS 5 FACTORS SCORE SUMMARY INCLUDING CONFIDENCE INTERVAL
NATOOPS 5 Factors Score Summary

<table>
<thead>
<tr>
<th>LS-Means ± SE (95% CI)</th>
<th>Total Score</th>
<th>Factor 1 Response to obese patients</th>
<th>Factor 2 Characteristics of obese patients</th>
<th>Factor 3 Controllable factors contributing to obesity</th>
<th>Factor 4 Stereotypic characteristics of obese patients</th>
<th>Factor 5 Supportive roles in caring for obese patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, N=116</td>
<td>47.7 (10.1) ± 0.9 (45.4-49.1)</td>
<td>33.0 (14.7) ± 1.36 (30.3-35.7)</td>
<td>54.8 (12.5) ± 1.2 (52.5-57.1)</td>
<td>65.0 (13.7) ± 1.3 (62.4-67.5)</td>
<td>34.6 (20.8) ± 1.9 (30.8-38.4)</td>
<td>48.9 (16.6) ± 1.5 (45.9-52.0)</td>
</tr>
<tr>
<td>Nursing Student year</td>
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<tr>
<td>1st Year BSN Students, N=52</td>
<td>48.2 (11.4) ± 1.6 (45.0-51.4)</td>
<td>29.2 (14.3) ± 32.5 (39.7)</td>
<td>54.2 (14.5) ± 2.0 (50.1-58.2)</td>
<td>67.2 (15.7) ± 2.2 (62.8-71.5)</td>
<td>33.2 (20.8) ± 2.9 (27.4-39.0)</td>
<td>57.4 (16.9) ± 2.3 (52.7-62.1)</td>
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<tr>
<td>Final-Semester BSN Students, N=64</td>
<td>46.7 (9.0) ± 1.1 (44.2-48.7)</td>
<td>36.1 (14.4) ± 32.5 (39.7)</td>
<td>55.3 (10.7) ± 1.3 (52.6-57.9)</td>
<td>67.2 (11.6) ± 1.5 (60.3-66.1)</td>
<td>35.7 (20.9) ± 2.6 (30.5-41.0)</td>
<td>42.1 (13.0) ± 1.6 (38.8-45.2)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.37</td>
<td>0.0114</td>
<td>0.65</td>
<td>0.13</td>
<td>0.51</td>
<td>&lt;0.0001</td>
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<tr>
<td>Gender</td>
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<td></td>
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</tr>
<tr>
<td>Male, n=16</td>
<td>51.0 (8.1) ± 2.0 (46.7-55.3)</td>
<td>41.8 (16.2) ± 33.1 (50.4)</td>
<td>55.7 (10.9) ± 2.7 (49.9-61.5)</td>
<td>64.7 (13.5) ± 3.4 (57.5-71.9)</td>
<td>43.8 (15.8) ± 4.0 (35.3-52.2)</td>
<td>49.0 (15.8) ± 3.9 (40.6-57.4)</td>
</tr>
<tr>
<td>Female, N=100</td>
<td>46.7 (10.3) ± 1.0 (44.6-48.7)</td>
<td>31.6 (14.0) ± 28.9 (34.4)</td>
<td>54.6 (12.8) ± 1.3 (52.1-57.1)</td>
<td>65.0 (13.8) ± 1.4 (62.3-67.7)</td>
<td>33.1 (21.2) ± 2.1 (28.9-37.3)</td>
<td>48.9 (16.9) ± 1.7 (45.6-52.3)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0684</td>
<td>0.0293</td>
<td>0.71</td>
<td>0.94</td>
<td>0.0260</td>
<td>0.99</td>
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<tr>
<td>Rural, N=67</td>
<td>49.0 (9.2) ± 1.1 (46.8-51.2)</td>
<td>35.4 (14.6) ± 31.9 (39.0)</td>
<td>57.6 (10.2) ± 1.2 (55.1-60.1)</td>
<td>66.5 (11.5) ± 1.4 (62.7-69.3)</td>
<td>39.4 (19.2) ± 2.3 (34.7-44.0)</td>
<td>46.0 (15.3) ± 1.9 (42.3-49.8)</td>
</tr>
<tr>
<td>Urban, N=49</td>
<td>44.9 (11.0) ± 1.6 (41.7-48.0)</td>
<td>29.8 (14.3) ± 25.7 (33.9)</td>
<td>50.9 (14.3) ± 2.0 (46.7-55.0)</td>
<td>62.8 (16.1) ± 2.3 (58.2-67.5)</td>
<td>28.1 (21.4) ± 3.1 (21.9-34.2)</td>
<td>52.9 (15.8) ± 2.5 (47.8-58.0)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0357</td>
<td>0.0394</td>
<td>0.0057</td>
<td>0.17</td>
<td>0.0042</td>
<td>0.0315</td>
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<tr>
<td>Underweight/Normal Weight, N=60</td>
<td>47.0 (9.7) ± 1.2 (44.5-49.5)</td>
<td>32.4 (13.1) ± 29.0 (35.8)</td>
<td>53.9 (11.0) ± 1.4 (51.0-56.7)</td>
<td>65.6 (12.4) ± 1.6 (62.4-68.8)</td>
<td>32.9 (20.3) ± 2.6 (27.7-38.2)</td>
<td>50.1 (17.7) ± 2.3 (45.6-54.7)</td>
</tr>
<tr>
<td>Overweight/Obese, N=54</td>
<td>47.3 (10.8) ± 1.5 (44.4-50.3)</td>
<td>33.2 (16.1) ± 28.8 (37.6)</td>
<td>55.8 (14.2) ± 1.9 (51.9-59.6)</td>
<td>64.0 (15.2) ± 2.1 (59.9-68.2)</td>
<td>36.1 (21.4) ± 2.9 (30.3-42.0)</td>
<td>47.5 (15.7) ± 2.1 (43.3-51.8)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.86</td>
<td>0.77</td>
<td>0.44</td>
<td>0.55</td>
<td>0.42</td>
<td>0.41</td>
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<tr>
<td>Race</td>
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<tr>
<td>Non-White, N=30</td>
<td>43.9 (10.7) ± 2.0 (39.9-47.9)</td>
<td>26.3 (14.2) ± 21.0 (31.6)</td>
<td>48.9 (15.3) ± 2.8 (43.2-54.6)</td>
<td>63.2 (16.7) ± 3.0 (57.0-69.5)</td>
<td>26.7 (21.0) ± 3.8 (18.8-34.5)</td>
<td>54.4 (16.8) ± 3.1 (48.2-60.7)</td>
</tr>
<tr>
<td>White, N=86</td>
<td>48.4 (9.7) ± 1.0 (46.3-50.5)</td>
<td>35.4 (14.2) ± 32.3 (38.4)</td>
<td>56.8 (10.7) ± 1.2 (54.5-59.1)</td>
<td>65.6 (12.5) ± 1.3 (62.9-68.3)</td>
<td>37.4 (20.2) ± 2.2 (33.0-41.7)</td>
<td>47.0 (16.3) ± 1.8 (43.5-50.5)</td>
</tr>
<tr>
<td>P-value</td>
<td>0.0475</td>
<td>0.0038</td>
<td>0.0125</td>
<td>0.48</td>
<td>0.0188</td>
<td>0.0399</td>
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</table>

Note: Likert scores were converted to a 0-100 scale (Strongly Disagree=0, Disagree=25, Neutral=50, Agree=75, Strongly Agree=100). Scores were summed and averaged for each factor. The total score was calculated by taking the average of the combined factor weight bias mean scores; a higher mean factor score (≥50) indicates a more negative attitude (Watson et al., 2008; J.T Garcia et al., 2016).

LS-Means: Least-squares means from linear mixed model

P-value from differences of LS-means groups.
APPENDIX I:

QUICK RESPONSE (QR) CODE TO THE ONLINE
Please log onto the Exploring Weight Bias among Nursing Students survey at

https://universityofalabama.az1.qualtrics.com/jfe/form/SV_b8cpC5MFGLEueA5

Or scan the QR Code below