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An Undergraduate Baccalaureate Simulation on Weight Bias and Caring for a Patient with Obesity

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Table of Contents

Abstract

Background*:* There is considerable evidence showing the correlation between weight related bias among healthcare professionals, and poor health outcomes for patients with obesity. Educating healthcare professionals on both safe and effective care practices and compassionate patient-centered care techniques can reduce the negative health impact of weight bias on this patient population. ***Purpose****:* This scholarly project adjusted the existing curriculum to address existing weight bias among a cohort of undergraduate baccalaureate nursing students and to inspire improvement in their care of patients with obesity. ***Methods:*** Using Kolb's ELT a sequence of learning activities were adapted and implemented as a pilot learning module in the existing BSN program of study. The existing simulation was adapted to include a standardized patient who wore a bariatric simulation suit. After the simulation, the students watched a lecture on weight bias and how it can affect a patient's health outcomes and experience. The students were provided with a set of evidence-based tools and strategies to support patient dignity, respect and safety. The students then reflected on their experience and content they had learned by completing a five-question reflection. Student learning was evaluated through student responses to the reflection questions and patient experience was evaluated through a survey completed by the standardized patient. ***Results:*** Ninety-seven percent of students (*n*=100) reported encountering patients with obesity in the clinical setting. Ninety-one percent of the students (*n*=92) identified weight bias during the simulation. Seventy-one percent (*n*=72) of students identified at least one intervention that could improve patient experience and 85% (*n*=85) of students identified at least one intervention that could improve patient outcomes. ***Conclusion:*** Undergraduate nursing students encounter patients with obesity. Teaching students about weight bias and strategies to mitigate its effects is an essential part of nursing education. Simulation is an effective way to introduce patient-centered compassionate care practices and patient safety measures. These concepts reinforce learning through reflective practice. By

using simulation as a tool to teach about bias and caring for a patient with obesity, students can advance their skills in a safe environment.

Keywords: implicit bias, ELT, bariatric simulation suit, obesity, simulation, Bachelor of Nursing

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The Centers for Disease Control and Prevention (CDC) reported in March 2020 that over 40% of American adults were considered obese (CDC, 2022a). This represented a 10% increase in the prevalence of obesity over a 20-year period (CDC, 2022a). No location in the United States is untouched by the obesity epidemic. Additionally, it has been reported that 20% or more of adult residents in any given state are considered obese and in 41 states the rate increases to over 30% (CDC, 2023). Ward et al (2019) predicts that by 2030 half of all adults in the United States will be considered obese and no state will have a rate of less than 35%.

Obesity is a chronic disease that predisposes an individual to multiple medical conditions including heart disease, diabetes mellitus type 2, osteoarthritis, stroke, and certain types of cancers (CDC, 2022b). With the increase in complications from obesity and its related co-morbidities there is a high prevalence of obese individuals requiring hospitalization. Recently, obesity was a major risk factor in hospitalizations for those with COVID-19 during the first year of the pandemic and 78% of adults hospitalized in the United States for COVID-19 in 2020 fit into the overweight or obese category (Kompaniyets et al., 2021). Kompaniyets et al. (2021) reported that individuals with higher BMI's were more likely to have adverse events such as intensive care unit admissions, mechanical ventilations, and death from COVID-19. Obesity is a complex condition influenced directly by both genetics and the social determinants of health (Fouad et al., 2022). Marked health disparities have been documented in rates of obesity and obesity related conditions, compounding existing social inequalities for racial and ethnic minority groups who are also a greater risk of exposure to primary risk factors for obesity (CDC, 2022a; Washington et al., 2023). Socioeconomic status affects the availability of resources for the patient with obesity including weight-loss interventions and ability to access healthy foods, and stress associated with economic insecurity, racism, physical violence (Fouad et al., 2023; Washington et al., 2023). Frequently Registered Nurses encounter patients with obesity who require more time and resources

putting a strain on the already short-staffed healthcare system and furthering nursing burnout (Choi & Bring, 2016; Ewens et al., 2022; Huang et al., 2021; Juraschek et al., 2019).

Weight Bias

Obesity is associated with weight bias and stigma. According to the World Obesity Federation (2022) weight bias and stigma are negative beliefs, judgement, or discriminatory acts towards an individual because of their size. Weight bias can be direct or indirect and can both influence one person directly and create a social standard that affects mental and physical health outcomes and healthcare equity. In healthcare, weight bias not only refers to an iniquity interaction with a healthcare worker but can also include an environment not suitable for the individual's body size (World Obesity Federation, 2022). These negative interactions can have a direct impact on patient care and outcomes (Tanneberger & Ciupitu-Plath, 2018; Ward-Smith & Peterson, 2016; Weissman et al, 2019)

Results from one cross-sectional study where almost all participants reporting caring for patients with obesity daily showed that almost half witnessed or themselves treated a patient with obesity unfairly (Tannebeger & Ciupitu-Plath, 2018). While another survey showed that healthcare workers perceived patients with obesity to be less than, not as healthy or as successful as other patients (Ward-Smith & Peterson, 2016). There is strong evidence suggesting a bias among healthcare providers that obesity is attributed to patient's behavior, noncompliance, lack of self-control and poor choices, all made at the individual level (Blackburn et al., 2015; Bleich et al., 2012b; Epling et al., 2011; Foster, 2003; McHale et al., 2020; Teixeria et al., 2015).

Furthermore, the evidence also describes the patient experience of provider bias and stigma; patients with obesity are less likely to seek healthcare and are more likely to change providers than non-obese patients (Fruh et al., 2016; Phelan et al., 2022; Washington et al., 2023). Weight bias has a negative impact on patient mental and physical health outcomes and can lead to delayed screening and diagnosis, higher rates of depression, longer hospitalizations due to immobility, and more advance

illnesses (Gallagher, 2015; Fruh et al., 2016; Phelan et al., 2022; Tannebeger & Ciupitu-Plath, 2018; Ward-Smith & Peterson, 2016; Washington et al., 2023)

Nursing Education

Nursing students either have weight bias or have witnessed weight bias from other healthcare professionals. For example, 80% of undergraduate nursing students denied having weight bias themselves but once results from the Harvard IAT were examined 65% of those students had some degree of weight bias (George et al., 2019). Many nursing students observe other healthcare professionals exhibit weight bias, but many are unaware of how to handle these situations (Oliver et al., 2021). One way to combat these disparities is for the curriculum to include education on weight bias and stigma (Gayer et al., 2017; Mayer-Browen et al., 2019; Pearl et al., 2017). With the rise of obesity in the United States new graduate registered nurses are going to encounter numerous patients with obesity. The American Association of College of Nursing [AACN, 2021] provides a framework for nursing education that includes competencies every nursing student should achieve during their education. Education on weight bias and providing the student with tools, strategies, and practice helps meet these competences and helps to combat the healthcare disparities (Gino & Coffman, 2021).

Simulation

Simulation is an essential element in nursing education. The AACN (2021) asserts that simulation provides an opportunity for students to interact, learn, and practice real-life scenarios in a safe environment. Moreover, simulation has been shown to effectively reduce obesity bias (Llewellyn et al., 2022, Mangold & Markiewicz, 2014). Simulations are typically held in a simulation laboratory and include the use of mannequins or actors to represent the standardized patient (Aebersold, 2018). When using an actor, props such as a bariatric simulation suit are used to make the scenario more realistic (Herrmann-Werner et al., 2019).

Project Setting

This quality improvement project took place at Belmont University's Gordan E. Inman College of Nursing (ICON), a private Christian-centered university located in Nashville, Tennessee. Belmont ICON offers both a Bachelor of Science in Nursing and a Doctorate of Nursing Practice. Belmont ICON has 38 full-time faculty and 64 adjunct faculty in the undergraduate nursing program. The Belmont ICON facility has five state-of-the-art nursing labs plus a state-of-the-art Simulation Center. The Simulation Center has been designated a National League of Nursing Center of Excellence in Nursing Education (NLN, 2022).

During the Fall semester of 2023, 575 undergraduate students enrolled in the Belmont ICON. This included 118 freshman, 121 sophomore, 106 juniors, 104 seniors and 60 accelerated second-degree seeking students. The BSN is offered through three tracks that include a traditional program, accelerated second degree program, and community college bridge program which allows students to complete most of their non-nursing education at a different college in the community. Depending on which track the undergraduate student enters determines the structure of curriculum. For the accelerated second degree and bridge degree programs the student can complete the required nursing curriculum in four to five semesters. The traditional program requires students to complete their nursing curriculum throughout the four years they obtain their bachelors. There were 462 students enrolled in the traditional program, 60 in the second-degree program, and 53 in the bridge program.

Belmont ICON BSN curriculum is a competency-based education. Competency-based education focuses on students demonstrating mastery of critical competencies (AACN, 2021). Students are provided with knowledge, offered opportunities for guided practice, and routinely demonstrate their progress toward mastering each competency. A key component to competency-based education is for the student to assess and self-reflect on their own progress. To provide competency-based education Belmont ICON BSN program offers both didactic and experiential learning courses. These classes focus on all aspects of nursing and caring for patients through all stages of life. Belmont ICON curriculum

includes five consecutive didactic theory courses, Care Management, that have a correlating clinical study course, Experiential Learning, which focuses on the care of patients with acute and chronic conditions.

The project leader of this quality improvement project was a current Bemont ICON BSN to DNP student and an adjunct faculty member who taught in one of the undergraduate experimental learning courses. As the project leader began the planning phase the nursing curriculum was thoroughly reviewed, and the project was discussed with various faculty members. Through this review, the project leader identified a senior level experimental learning course, Experimental Larning 3, as the ideal location for adding content related to weight bias and safe care of the obese patient. Students are enrolled in Experimental Learning 3, during their senior year and the semester preceding their final semester of the nursing curriculum. Experimental Learning 3 is the fourth experimental learning course in the series and is taken concurrently with the didactical course, Care Management 3.

The primary learning objectives of Experimental Learning 3 and Care Management 3 consists of students obtaining knowledge about chronic conditions, factors that influence health outcomes, and how to collaborate with their patients to improve healthcare outcomes. The knowledge is obtained in the didactic course and put into practice in the experiential learning course. The experiential learning course is broken into clinical groups that include five to six students. During the experiential learning course students participate in lab, hospital clinical days, and simulation. During the Fall 2023 semester 112 students were enrolled in the Experimental Learning 3 course.

The simulation for this project took place in Belmont ICON's state-of-the-art simulation center. The simulation center consists of four hospital-like rooms. This set-up allows for multiple groups to participate in the simulation simultaneously. The simulation center's design allows faculty members to evaluate the students via video directly outside the simulation rooms.

AIM and Purpose

This scholarly project applied Kolb's Experiential Learning Theory (ELT) to expand an existing simulation to include learning outcomes to address existing weight bias among undergraduate baccalaureate nursing students and to inspire improvement in their care of patients with obesity. ELT stresses the importance of experience as a learning process and complements competency-based education by emphasizing the importance of reflection and applying new knowledge. (Kolb et al., 2001). Refer to figure one for a pictorial representation of the ELT model and how it was applied to this scholarly project. ELT has been extensively used as the foundational theory for healthcare simulation development, making it ideal for use in this project (Aebersold, 2018; Davitadze et al., 2022; Kolb et al., 2001; Krol & Adimando, 2021; Maguire & White, 2021; Wijnen-Meijer et al., 2022; Zulkosky et al., 2021).

Methods

The Institute for Healthcare Improvement's Model for Improvement was used as the implementation framework for the project (figure 2). The Model for Improvement is a four-phase evaluation process that was developed to help accelerate quality improvement changes in an organization (Ogrinc et al., 2022). The Model of improvement starts with asking three essential questions to help with the project's design. These questions include determining the project's aim, what changes will be made, and how they will be evaluated. Once these questions are answered the four-phase process of planning, implementing, and studying the intervention begins. These phases include *plan, do, study* and *act* (PDSA) and occur in a circular motion allowing for adjustments to be made during the planning phase of the next cycle.

Assembling the Improvement Project Team

After collaborating with a variety of faculty and staff involved in simulation design and implementation at Belmont ICON, the project leader invited key stakeholders to join the improvement team. The team included the project leader, the Director of Education Simulation Center, the course

coordinator for Experiential Learning 3, and the project leader's faculty advisor. The team met to discuss the existing simulation and identified areas of the simulation where quality improvement would be beneficial. Stakeholder letters of agreement and the project plan were submitted for review by the Belmont Institutional Review Board (IRB) and was verified as exempt in May 2023.

During the planning phase of the project, Belmont ICON experienced a change in organization and leadership. This change resulted in part of the team changing positions and responsibilities. Due to this change the project team had to be adjusted to include the new members whose job responsibilities were aligned with the simulation being used. The new team included the project leader, the project leader's faculty advisor, the new Experiential Learning 3 course coordinator, and the director of the Experiential Learning series. The new project team members were reluctant for this quality project to progress due to concerns that the changes would affect the simulation's existing learning objectives. Using the tools provided by Ogrinc et al. (2022) a stakeholder analysis and readiness for change were assessed. This assessment demonstrated that the reluctance of the new team members came from the lack of understanding of the need for changes to the simulation, the concern these changes would negatively influence the existing learning objectives, and the perception that staff support was lacking. By completing this assessment, the project leader was able to address the team members' concerns and collaborate with them to continue this quality improvement project by adjusting the objectives and plan. Details on how this affected the overall quality of the project will be discussed in greater detail in the limitation's sections of the paper.

Mapping the Existing Simulation

The existing simulation is a three-tier unfolding scenario which allows the students to care for the two patients simultaneously. To identify opportunities for improvement, the project leader began by mapping the existing simulation, studying the objectives of the simulation and exploring options to translate evidence surrounding the context of nurse implicit bias and the nursing interventions that

would most influence patient's experience of their care and patient safety into the redesign of the existing simulation.

The existing simulation included the following learning objectives:

- Compare and contrast acute and chronic illness assessment findings.
- Utilize non-pharmacologic calming therapeutic interventions
- Evaluate the need for an increased level of care.
- Utilizing screening to assess a patient's condition.

These objectives are met by utilizing two standardized patients, one who with signs and symptoms of dementia and the other with signs and symptoms of delirium due to an infected diabetic foot ulcer. For each tier, two students participated in the simulation while the remaining students watched via video from a nearby location. Between each tier the faculty debrief the students on the prior tier and allow the students to work as a group to plan for the next tier. Before the simulation day, the students complete pre-planning activities that include reviewing concepts included in the simulation. Students are evaluated by faculty and staff throughout the simulation using a standardized competency evaluation instrument. Faculty and staff are provided with a timeline that outlines all the activities to ensure the entire simulation is completed in the allotted timeframe. This timeline is depicted in figure 3.

Adapting the Simulation

This scholarly project used the concepts of the ELT to adjust the existing simulation to enhance and further the existing student learning objectives. These objectives were intended to address and identify weight bias among undergraduate baccalaureate nursing students and to inspire improvement in their care of patients with obesity. The enhanced learning outcomes were achieved through the implementation of a series of scaffolded learning activities that challenged students to move from unconscious awareness to more conscious awareness. The new learning objectives with the related learning activity to achieve these competencies are as follows:

1. Identify existing weight bias through participation in the simulation, watching a pre-recorded lecture, taking the weight Implicit Association Test, completing a reflection, and having the standardized patient complete a survey.
2. Explore the relationship between weight bias and healthcare quality, patient experience, and patient safety by participating in the simulation, watching a pre-recorded lecture, and completing a reflection.
3. Identify nursing interventions that can improve healthcare quality and experience for patients with obesity by watching a pre-recorded lecture and completing a reflection.

To accomplish these learning objectives the project leader worked with the team members to enhance the simulation. It was determined that the standardized patient, Homer, was the best patient for this adaptation. In the simulation Homer has type two diabetic mellitus and is suffering from delirium due to an infected diabetic foot ulcer. Due to the relationship between type two diabetes mellitus and obesity, Homer was a realistic patient to present with a weight-related comorbidity. In the existing simulation Homer had gained weight since he lost his wife. This made a Homer the perfect patient to introduce the concept and impact of weight bias in the simulation. For simulation to achieve the realistic representation of a patient with obesity, the blueprint was adapted so that the standardized patient portraying Homer would wear a bariatric simulation suit for the entire simulation. Previous research has shown that the bariatric simulation suit is an effective prop to represent a patient with obesity (Herrmann-Werner et al., 2019).

Research has also recognized a link between a patient's perception of weight bias and continued weight gain leading to needed strategies on approaching the subject of weight and diabetic diet in an unbiased manner (Puhl et al., 2016). During the shift report in the simulation, students learned that since the death of Homer's wife he has struggled with managing his diabetes. One of the tasks the students perform during the simulation is educating Homer on dietary strategies to help better control

his diabetes. To prompt the students in educating Homer on proper diet while keeping mindful the relationship between weight bias and how it can negatively impact the patient, candy wrappers were added to Homer's bed. These wrappers were a way of prompting students to practice unbiased education.

At the beginning of the students allotted simulation time they are given the opportunity to explore the simulation space and become familiar with the resources available. The students are then taken to their holding room. In the holding room the students who are not currently participating have the opportunity to watch the simulation unfold. Once the students arrive in the room, they are given shift report on their patients and given the opportunity to discuss their strategies for the first tier of the simulation.

To add additional weight bias into the simulation and to ensure all students received the same information the beginning shift report was pre-recorded by the project leader. The pre-recorded shift report was given from the perspective of the off-going nurse and provided information on both patients in the simulation. During the report given about Homer, weight bias was introduced by including judgement about the patient and his circumstance. This judgement included not knowing his current weight due to lack of equipment, attitude about his eating habits and a preconceived notion that he was never going to change his poor habits. The script was pre-recorded to ensure all students heard the same report and to ensure attitude was portrayed as report was given. A copy of the shift report script can be reviewed in Figure 4.

The project team members were concerned that further additions or adjustments to the simulation would interfere with the primary established learning objectives. Therefore, the agreed upon approach to addressing the additional learning objectives was to address them after the students participated in the simulation. During the simulation, the students were unaware that this scholarly project was being implemented. The students were informed about the project after the simulation

when they were asked to watch a pre-recorded lecture about weight bias, the effects on patient outcomes and experience, and strategies to mitigate these effects.

By using the ELT model as the basis for the creation of this quality improvement project it allows for flexibility in planning the various constructs. The ELT model is circular allowing for the various phases to be shifted during development of the project. By having the weight bias lecture after the simulation, the active experimentation phase of the ELT model was addressed during the reflection completed by the students. Whereas if the lecture was prior to the simulation the active experimentation phase would be addressed as they participated in the stimulation.

To pre-recoded lecture was a 20-minute lecture made available via the schools learning management system after the students participated in the simulation. This lecture addressed the learning objectives which this projected added to the simulation. The lecture addressed the following learning objectives:

1. Describe how weight implicit bias impacts the care of the patient.
2. Describe the relationship between poor-quality healthcare and the health outcomes of a patient with obesity.
3. Review nursing interventions to improve patient-centeredness and the healthcare experience for a patient with obesity.
4. Review nursing Interventions to improve healthcare quality, safety and health outcomes for a patient with obesity.
5. Reflect on your own experience caring for a patient with obesity.

Using the concepts of ELT and to further the student knowledge of their own weight bias, they were asked to complete the Harvad University's' Weight Implicit Association Test (IAT) before watching the pre-recorded lecture (Project Implicit, 2011). By taking the weight-related IAT, the students could assess their own weight-related bias. Prior research has revealed that having the students report their

IAT results is met with mixed emotions (George et al., 2019). Therefore, for this project there was no explicit reason for the students to share their results. Instead, the students were asked to reflect on their results as they listened to the pre-recorded lecture and completed the reflection.

Following the concepts of ELT and to tie in the students experience with the simulation Homer was used as an example throughout the lecture as each learning objective was discussed. The lecture focused on ways Homer's care would have influenced his health outcomes and experiences.

After listening to the lecture, the students were asked to complete five reflection questions. The students were never asked to provide personal data and no personal data was saved. Each of the questions asked in the reflection correlated to one of the learning objectives from the pre-recorded lecture. The reflection consisted of the following five open-ended questions:

1. Describe one way the bias portrayed during the report at the beginning of simulation could have influenced the healthcare environment for Homer
2. Summarize one-way poor-quality healthcare could affect the health outcomes for Homer
3. Recall one nursing intervention you can implement at the bedside to improve Homer's healthcare experience
4. State one nursing intervention you can implement at the bedside that could have improved Homer's outcome
5. In 1-3 sentences write about your own experience in either simulation or hospital where you have encountered an obese patient.

The reflection questions were not submitted for a grade. Per the constructs of the ELT the reflection questions are intended to meet the reflective observation and abstract conceptualization stages by allowing the student to reflect on the new knowledge and apply it to their real-life scenario.

To further address the learning objective of weight bias and how it can affect health care experience the standardized patient portraying Homer was asked to complete a Likert-scale survey after

each group completed the third tier of the simulation. A literature review was conducted to find a survey that could be used, but no single survey was found that addressed all the intended objectives. Therefore, the survey used for this project was created using the literature review as a basis (figure 5). The survey asked the standardized patient their perception of how the students treated them and if they acknowledged their medical condition of obesity. At the end of the survey feedback was requested on the standardized patient's experience with the bariatric simulation suit and any additional information they would like to provide. The survey was created in Qualtrics, and each actor was provided a QR code to complete the survey.

Evaluating the Learning Outcomes

The added learning objectives were assessed using the student's reflection question answers and the Likert-scale survey completed by the standardized patients. The first learning objective, identifying weight bias, used both the standardized patient survey and the reflection questions. The standardized patient survey provided additional data to analyze the learning objective. The survey results, when shared with the faculty, provided the opportunity for the feedback from the standardized patient to be share with the students. The survey allowed for data collection pertaining to the bias experienced by the standardized patient throughout the simulation. A copy of the survey completed by the standardized patient is depicted in figure 5.

To further assess this learning objective the students completed the first and fifth reflection questions. All the reflection questions were open-ended where the students answered them in their own words. The first reflection question asked the students to identify the bias they witnessed during the simulation. Weight bias was portrayed during the report given at the beginning of the simulation. This reflection question asked the students to describe one way this bias could have influenced the healthcare environment for Homer. Each of the students' responses were analyzed by the project leader. For this reflection question the project leader determined if the answer provided by the student

acknowledged bias within the simulation and if the student specifically acknowledged this bias as weight bias.

The fifth reflection question answered by the students also addressed the learning objective on identifying weight bias. This reflection question asked the students to reflect on their own experiences either in simulation or at the hospital where they have encountered a patient with obesity. This question was also analyzed by the project leader to determine if the learning objective of identifying weight bias was met. The project leader determined the learning objective was met when the response included acknowledging the students own weight bias or witnessing weight bias.

The second learning objective pertaining to exploring the relationship between weight bias and healthcare quality, experience, and patient safety was evaluated by the students completing reflection question two. This question asked the students to summarize how poor-quality healthcare could affect the health outcomes for Homer. The responses to this question were analyzed by the project leader who determined if the student's response proving at least one example answering the question.

The third learning objective related to the students identify nursing interventions that could improve the healthcare quality and experience for a patient with obesity. This learning objective was assessed through the evaluation of reflection questions three and four. The third reflection question asked the students to name one nursing intervention that could be implemented at bedside that could improve Homer's healthcare experiences. The fourth reflection question asked the students to name one nursing intervention that could be implemented at bedside that could improve Homer's healthcare outcomes. Both reflection questions were analyzed by the project leader to determine if this learning objective was met. The project leader determined the learning objective was met if the students provided at least one appropriate nursing intervention.

Results

The simulation ran for one week during the Fall 2023 semester. One hundred and twelve students participated in the stimulation in September 2023. Students were divided into 20 distinct groups of five to six students with two groups participating in the simulation simultaneously. The simulation ran twice daily for five days allowing four groups to participate each day. One hundred of the students who participated in the simulation completed all of the reflection questions with one additional student completing a portion. During the simulation week there were three different standardized patients portraying Homer. Eighteen surveys were collected from the standardized patients.

Identifying Weight Bias

To address the first learning objective concerning weight bias the results from the Likert-scale survey completed by the standardized patient were analyzed (table 1 & 2). Half of the surveys collected reported that the students were attentive to the patient's dignity. Sixty percent of the surveys reported that the students were attentive to the patient's comfort. The standardized patient reported all of the students made appropriate eye contact and introduced themselves. The candy placed in the bed was a prompt for the students to educate on diet. The surveys collected reported 78 percent of the students acknowledged the candy. One of the student's tasks during the simulation was to educate the standardized patient on strategies to control his diabetic. Thirty-nine percent of the students mentioned weight loss as a strategy to control diabetes.

To further assess this learning objective the students were asked to complete reflection questions one and five. The first reflection question had 101 students respond. Each response to this reflection question was analyzed to determine if the student identified bias in the simulation and if the student specifically mentioned weight bias. Of the responses to the first question concerning bias in the

simulation 91% (*n* = 92*)* of students identify bias in the initial report with 66% (*n* = 61) specifically identifying it as weight bias. Nine percent (*n* = 9) of the students did not identify bias.

To further assess the student's ability to identify weigh bias they were asked about personal experience. One hundred students answered this question. This reflection question was analyzed by identifying themes. These themes included location of the students encounter, if the student witnessed healthcare staff being biased, and if the student acknowledged or portrayed bias in their answer. Eight-six percent (*n* = 86) of the students had experiences with a patient with obesity during their clinical experiences. Ten percent (*n* = 10) wrote about an experience they had while working in the hospital. One student wrote about a personal experience. Three percent (*n* = 3) did not list a specific example.

Of the students who provided an example of bias 32 % (*n* = 32) of students acknowledged they had personally witnessed bias toward a patient with obesity. This bias comes in various forms such as nurses disregarding the patient's care, making jokes or rude comments about the patient, and not having appropriate equipment to care for the patient. Thirty-seven percent (*n* = 37) of the students acknowledged their own bias pertaining to patients with obesity. The student portrayed bias in their answer by stating the obese patient was "needy", "requires more education" then other patients, "took some intentionality compared to other patients because we couldn't count on them", or "it's hard for me to deal with...thinking about how hindered their life is due to their weight." Several students wrote about how the simulation experience has made them aware of their own bias. One student wrote about how she used to think "how could she let herself get like this" but after learning more about patients with obesity it has "inspired me to take those situations as opportunities to have more therapeutic conversations."

Weight Bias and Quality

Of the 101 student responses 90% (*n* = 91) identified at least one-way poor-quality healthcare could affect health outcomes for the standardized patient Homer. In their answer 22% (n=20) of those

individuals specifically mentioned ways in which bias and obesity could lead to poor health outcomes. The answers listed a variety of examples including inappropriate assessment due to lack of equipment and lack of education due to weight bias. Of the additional answers 40% mentioned either other disease processes (*n* = 33) or trust (*n* = 3) that would be affected by poor-quality healthcare.

Nursing Interventions

To assess the third learning objective the third and fourth reflection question completed by the student were evaluated. The third reflection question asked the students to name one nursing intervention that could improve the healthcare experience for the standardized patient. Of the 101 students who answered the question 71% (*n* = 72) identified at least one evidence-based nursing intervention. These interventions included (*n* = 20) providing a proper size gown or bed, using appropriate equipment (*n* = 9) such as the correct sized blood pressure cuff, lifts, scales, and wedges. Twenty percent (*n* = 20) identified trust and communication as an intervention and one student mentioned dignity. Twenty-nine percent (*n* = 29) of students did not identify a nursing intervention to improve the healthcare experience, but gave responses related to educating Homer on proper diabetes management.

To further assess the third learning objective the fourth reflection question asked students to identify a nursing intervention to improve Homer's health outcome. One hundred students answered this reflection question. Eighty-five percent (*n*=85) identified an intervention. These responses included education (*n*=30), obtaining the correct vital signs (n = 19), preventing pressure injuries (n = 8), advocating for the patient (n = 3), and providing dignity (n = 2) as interventions.

Discussion

Awareness of implicit bias is not enough to mitigate the damaging effects it has on a patient population. Simulation is an effective educational tool to teach about bias and how to care for patients with obesity. This quality improvement project aimed to use simulation along with educational tools to

teach the students about these concepts. Through the implementation of this quality improvement project several key findings were identified.

The first key finding is that 97% of the students reported encountering patients with obesity while in the clinical setting. Secondly, 91% of the students were aware that bias existed in the simulation, however only 66% of the students identified it as weight bias. Third, 90% of students were able to identify how weight bias can affect the quality of care a patient receives. However, only 85% were able to identify interventions that improve patient outcomes and a mere 72% were able to identify interventions that improve patient experience. Lastly, from the standardized patient's perspective, the students were focused more on completing the simulation tasks than on the patient themselves. Furthermore, it was reported that even though the standardized patient was wearing the bariatric simulation suit they did not think the students treated them differently.

Each of these key findings are important on their own, but when combined tell a very compelling story. At a novice level, although students understand how weight bias affects the quality of care for the patient, they are not always able to recognize or respond to the bias when encountered. This lack of awareness may translate to a reluctance to intervene to improve the healthcare outcomes and experience for the patient. By teaching students about weight bias, and empowering them as leaders and patient advocates, they will be more likely to respond with compassion and evidence-based strategies to promote both safety and patient-centeredness. One student explained:

> I thought the SIM was very eye opening. I see overweight patients in the hospital all the time. It's hard to think they care about their health but it's obvious they do care and sometimes obesity is due to a lot of other things going on.

It's important to teach the student to not only identify when others display weight bias but also be able to identify if they too have weight bias. Part of education should include teaching students that

everyone holds implicit bias and being aware of our own bias is the first step in making changes (Sabin, 2022). One student explained:

> I have encountered several obese patients in the hospital and there was one in particular where I remember reflecting back on the bias, I didn't realize I had. The patient was a nurse who had a background similar to Homers in the sense that she was diabetic and had a foot ulcer that led to amputation. In my head I caught myself thinking, she knows all the education, how could she let herself get like this? It affected the way I thought about her which inadvertently affects my care. That was a learning experience for me to really take a step back and have grace and empathy for the person who is struggling. It has inspired me to take those situations as opportunities to have more therapeutic conversation with the patient and see what's really going on and how we can best support them.

While another student explained:

> I work in a hospital and have encountered MANY obese patients, who I and my other coworkers unfortunately had some biased opinion too. The lady was over 600lbs and was very difficult to move; therefore, we often put her care last on our list because of how difficult rolling her was and the amount of help we would need. I have sensed learned to make them a priority because of the increased risks there are at and to better improve their patient experience and outcomes. Once the student understands weight bias it's important to teach them what effects it has on the patient.

Another student reflected:

> In my own experience, I have experienced a bias towards these patients. After this simulation I realized how much this bias really affected [sic] these patients' outcome. This could be just for their likelihood to seek treatment or getting the best care when they are being treated.

Teaching students' strategies to mitigate the effects of weight bias is also an important part of the learning process. This entails teaching them interventions to provide the patient with a better healthcare experience and better outcomes. One student reflected:

> In the hospital, many of my patients have been overweight. I noticed that several of them prefer to just leave their gown off, but I never thought about the fact that it could have been due to the hospital's inability to meet their comfort and dignity needs by providing a gown that is the correct size. I also noticed that some of my patients expressed embarrassment about having to have a bed bath or expose themselves for their care. It makes me so sad to know that they may have felt judgment from the care team that is supposed to be making them feel safe and cared for. I think that having exposure to these patient scenarios can better prepare us to confront our own implicit bias, as well as improving our ability to advocate for these patients in the hospital setting.

From the perspective of the standardized patient the students did not have trouble assessing their bodies and as one standardize patient commented:

> All the students treated me no different from a regular sized patient. Didn't address overweight condition directly. did not treat them differently despite them wearing the bariatric suit.
>
> The standardized patients reported that the students introduced themselves and made eye contact. However, as expected with novice nurses the standardized patients reported the students being focused mostly on their tasks instead of the patient.

When compared to literature this quality improvement project aligned with several current strategies and requirements in nursing curriculum. Current literature illustrates that simulation is an effective tool when teaching students about weight bias and how to care for patients with obesity (Llewellyn et al., 2022; Mangold & Markiewicz, 2014). Kolb's ELT has also been shown to be an effective

model when developing simulation (Poore et al, 2014). AACN (2021) *The Essentials* lists education on bias as a crucial part of nursing curriculum and simulation as an effective tool to be utilized.

The importance of teaching these elements to undergraduate nursing students is also demonstrated in the literature. Extensive literature shows that obesity rates are increasing, and that bias directly impacts the care of this population (CDC, 2022a; Fouad et al, 2022; Fruh et al., 2016). All these elements were captured in this project. However, there is some literature that suggests a change in the project's structure would be beneficial.

Limitations

Limitations for this quality improvement project included changing team members during the planning phase. This change influenced the flow and structure of the project. The project was designed around the ELT model. Due to the ELT model being a circular model it allows for some flexibility when using it to design a project. For this project the simulation took place during the concrete experience stage. The pre-recorded lecture then took place during the reflective observation stage and the reflection completed by the students happened during the abstract conceptualization phase. When the active experimentation stage is left out of the simulation experience the belief is that the student will use the concepts learned during the simulation in a future real-life encounter either through work or clinical experience (Aebersold, 2018; Davitadze et al., 2022; Krol & Adimando, 2021; Maguire & White, 2021; Wijnen-Meijer et al., 2022; Zulkosky et al., 2021).

However, Kolb et al. (2001) created ELT with the philosophy that all four states would be included in the learning experience. Therefore, some researchers aim to include all four stages in the simulation. This can be done in several ways that include having the students reflect on their past experiences prior to participating in the simulation, have students repeat the simulation after they have learned the concepts, or by having faculty debrief the students about their experience and explore what they have learned (Aebersold, 2018; Davitadze et al., 2022; Krol & Adimando, 2021; Maguire & White,

2021; Zulkosky et al., 2021; Wijnen-Meijer et al., 2022). For this project to follow these examples the lecture content would need to be held prior to the students participating in the simulation. This affords them the opportunity to practice what they have learned during the simulation experience. The simulation experience would be followed by a debrief to allow the students to reflect. Then the student can determine what skills and knowledge they would retain in their practice and what they would change in the future. By changing the flow of the project, the students would have a stronger baseline knowledge when they do encounter patients with obesity in the clinical setting.

Conclusion

Registered nurses and undergraduate nursing students encounter patients with obesity daily. Understanding how weight bias affects this population and learning strategies to mitigate this affect are an important part of preparing undergraduate nursing students to start their nursing careers. Almost all the students who participated in this project report having had experience with this patient population. They also reported that learning this content will benefit them in the future. Therefore, continuing this content in the nursing curriculum is important to better prepare the students for their future careers. This project was created by embedding most of the content into the existing simulation allowing for the sustainability of the content. It is recommended to continue the content in future semesters and to possibly implement future improvements as suggested for a more robust learning environment. Some research suggests that adding content related to weight bias throughout the student's curriculum further reduces this bias (Gayer et al., 2016). Therefore, it is recommended to expand this content on weight bias throughout the nursing curriculum. Obesity rates are increasing, and students interact with patients with obesity throughout their nursing program. By expanding this content to other classes, the students will have ample opportunities to practice, re-evaluate, and implement what they have learned before they start their nursing careers.

It is also recommended that the simulation center provide more bariatric simulation suits and adequate training for staff members on proper use of the suit. By having more suits available the standardized patient in any simulation can better represent the real-life patient experience for these students. When nursing curriculum focuses on obesity as a co-morbidity or risk factor, they are missing the opportunity to best prepare their students. By including content related to weight bias and health disparities the undergraduate nursing student will be prepared to improve health outcomes and navigate the ever-evolving healthcare system.

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Figure 1

Kolb's Experiential Learning Theory (Kolb et al., 2001) and how it relates to this project

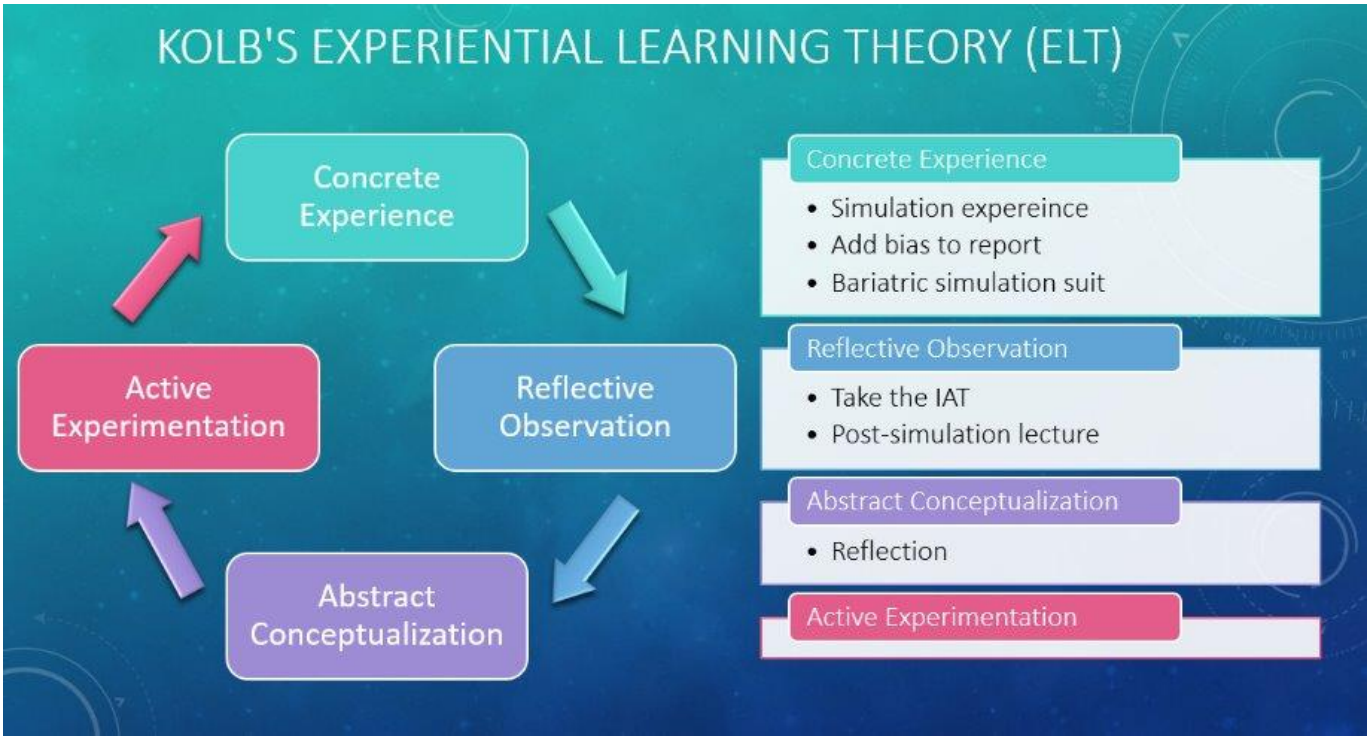


Figure 2

Model for Improvement (Ogrinc et al., 2022)

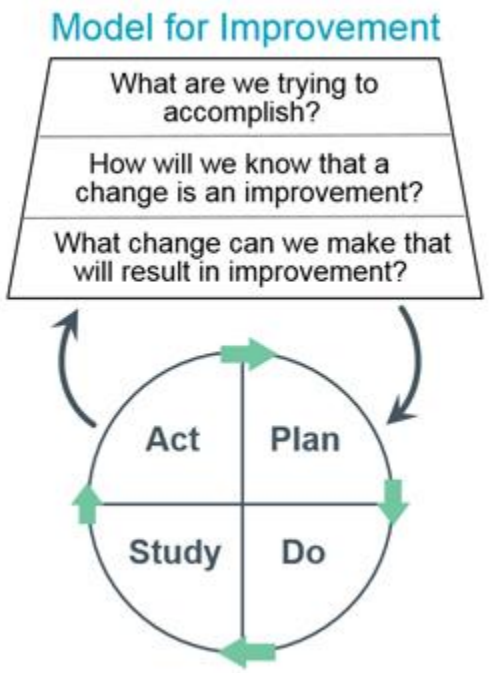


Figure 3

Simulation Implementation Timeline

Figure 4

Homer Skaggs

Situation: Homer Skaggs is an 80-year-old male who was brought in for weakness and a worsening infection on his heel. When his family member went to visit, he was found weak, ill, and unable to get out of bed. But he's gained so much weight since his wife died; so, I'm sure he doesn't move much anyways. They brought him into the ER early this morning.

Background: Homer is a type 2 diabetic treated with metformin and insulin. He also has hypertension and hyperlipidemia. He was diagnosed about 6 months ago. He was healthy, alert, and active until he developed an ulcer on his right heel about 5 weeks ago. He was treated at home with antibiotics and moist saline dressings daily, and his family thought it was improving. They last visited him 5 days ago. Today, his son found him in bed confused. He called Dr. Baker's office and was instructed to call 911. They drove him here instead. His foot is red and edematous and much worse according to his son.

Assessment: The folks in the emergency room started an IV in his right forearm, with Lactated Ringers. It is running at 125 mL/hour. He has received 3 units of insulin and his latest blood glucose was 250. You will NOT have to recheck blood glucose for another hour. But I bet when you do it'll be high again. He eats candy all the time. I haven't had the opportunity to review the rest of his lab work. His last vital signs were HR 85, RR 22, BP 124/66, sats 95, temp 100. F. We couldn't get a weight on him. The scales don't fit.

Dr. Baker called in some orders and said he will be in soon.

Recommendation: Please do a focused assessment and update Dr. Baker.

Pearl Baker

Situation: Pearl is a 74-year-old female was sent to the med-surg unit 2 days ago, from an assisted living facility, for evaluation of increasing confusion. In addition to getting progressively more confused, she has been going into other patients' rooms, stealing items, and looking for her husband, who died a few weeks before she came here. Staff is finding food stashed under her mattress and she recently began striking out at staff, especially at bath time. This morning she was particularly combative. We called Dr. Rivers, and she prescribed haloperidol, but it has not helped. Her hospital workup revealed no infection or stroke, and she is going to be discharged soon. We think we need to move her to the behavioral health unit rather than back to the assisted living facility. We have discussed it with her family who agree with this plan.

Background: Pearl was diagnosed with major neurocognitive disorder with likely Alzheimer's etiology about 2½ years ago. She came the assisted living 6 months ago, a few weeks after her husband Henry died. She is in good health but has had to deal with many changes in this last year.

Assessment: Pearl's aggressive behavior began getting considerably worse a few days ago. We are really afraid she could hurt someone. She has been taking two antidepressant medications for the past 6 months, but there has been little to no improvement. This past week she has been walking more slowly and her appetite has not been good, which is unusual for her.

Recommendation: Please assess Pearl and see if you can do a Mini-Cog. One of the aides suggested that Pearl may be having some pain. Use the tool for assessing pain in patients with dementia and see what you think. She does have an order for acetaminophen. Talk to the physician and social worker about a possible move from the nursing home. There is a transfer form on the chart if needed.

Figure 5

Standardized Patient Survey

Below are several statements pertaining to your experience as the standardized patient, Homer, and your interaction with each group of nursing students. Please rate each statement using the scale provided.

	Strongly Agree	Somewhat Agree	Neither agree nor disagree	Somewhat Disagree	Strongly disagree
The students made eye contact when talking to me.	5	4	3	2	1
The students introduced themselves.	5	4	3	2	1
The students were attentive to my dignity and privacy (eg. offered to get me a larger gown, covered my body etc)	5	4	3	2	1
The students were attentive to my physical comfort.	5	4	3	2	1
I felt that the students struggled to assess my body because of my weight.	5	4	3	2	1
In addition to looking at the sore on my foot, the students looked at the rest of my body, including my sacral area.	5	4	3	2	1
In teaching me about my diabetes, the students discussed the importance of diet and exercise.	5	4	3	2	1
In teaching me about my diabetes, the students shared some practical strategies that would help me improve my diet and exercise.	5	4	3	2	1
The students acknowledged the candy in my bed.	5	4	3	2	1
The students mentioned weight loss as important to managing my diabetes.	5	4	3	2	1

Please provide any additional comments about the interaction with the nursing students:

Please provide any comments about your experience wearing the bariatric suit:

Figure 6

Student Reflection Questions

1. Describe one way the bias portrayed during the report at the beginning of simulation could have influenced the healthcare environment for Homer.

2. Summarize one-way poor-quality healthcare could affect the health outcomes for Homer.

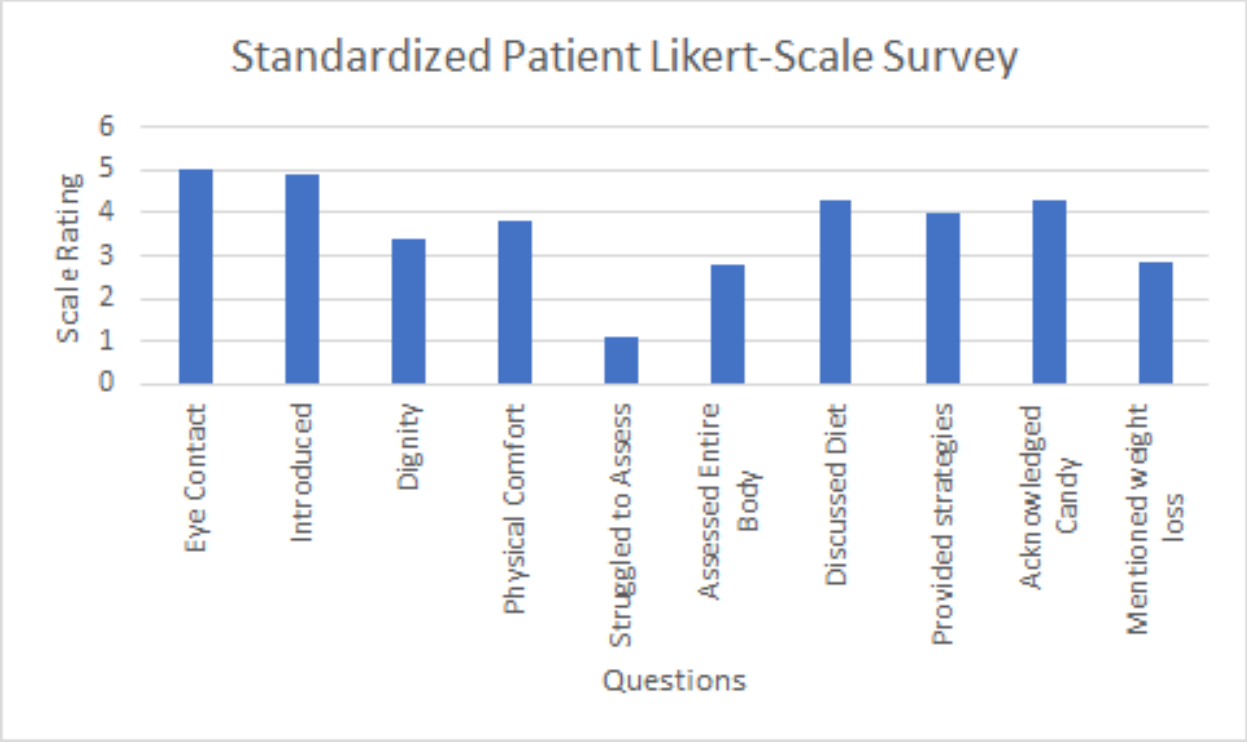
3. Recall one nursing intervention you can implement at the bedside to improve Homer's healthcare experience.

4. State one nursing intervention you can implement at the bedside that could have improved Homer's outcome.

5. In 1-3 sentences write about your own experience in either simulation or hospital where you have encountered an obese patient.

Table 1

Standardized Patient Survey Results



Note: 1= Strongly Disagree, 5= Strongly Agree

Table 2

Response from the Standardize Patient Survey

	Strongly Agree *n* (%)	Somewhat Agree *n* (%)	Neither agree nor disagree *n* (%)	Somewhat Disagree *n* (%)	Strongly disagree. *n* (%)	Average response
The students made eye contact when talking to me.	18 (100%)	-	-	-	-	5
The students introduced themselves.	16 (89%)	2 (11%)	-	-	-	4.89
The students were attentive to my dignity and privacy (e.g. offered to get me a larger gown, covered my body etc.)	9 (50%)	-	1 (6%)	5 (28%)	3 (17%)	3.39
The students were attentive to my physical comfort.	9 (50%)	2 (11%)	3 (17%)	3 (17%)	1 (6%)	3.83
I felt that the students struggled to assess my body because of my weight.	-	-	-	2 (11%)	16 (89%)	1.11
In addition to looking at the sore on my foot, the students looked at the rest of my body, including my sacral area.	2 (11%)	5 (28%)	2 (11%)	5 (28%)	4 (22%)	2.78
In teaching me about my diabetes, the students discussed the importance of diet and exercise.	11 (61%)	2 (11%)	4 (22%)	1 (6%)	-	4.28
In teaching me about my diabetes, the students shared some practical strategies that would help me improve my diet and exercise.	11 (61%)	1 (6%)	2 (11%)	3 (11%)	1 (6%)	4
The students acknowledged the candy in my bed.	12 (67%)	2 (11%)	2 (11%)	1 (6%)	1 (6%)	4.28
The students mentioned weight loss as important to managing my diabetes.	7 (39%)	-	1 (6%)	1 (6%)	8 (44%)	2.82

Note: (N=18). Dashes represent no responses.

Table 3

Reflection Question analysis of accurate/inaccurate responses

	Reflection Question	Total	Identified		Did not identify	
		n	***n***	**%**	***n***	**%**
1	Bias portrayed in report*	101	92	91%	9	9%
2	Poor quality affect outcomes	101	91	90%	10	10%
3	Nursing intervention improve experience	101	72	71%	29	29%
4	Nursing intervention improve outcomes	100	85	85%	15	15%

* 60% directly mentioned weight bias, 31% mentioned bias without specifying weight bias