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Competency in obesity management: An educational intervention study with nurse practitioner students

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Abstract

Background: The National Center for Health Statistics reported that obesity is at epidemic levels in the United States, with an estimated 70.7% of adults affected by overweight and obesity. The disease state of obesity affects all generations and is pervasive among all socioeconomic groups.

Purpose: This study was designed to examine the impact of implementing educational modules to determine if the intervention improved knowledge and comfort levels for Nurse Practitioner students when managing patients with obesity.

Methods: Nurse Practitioner students completed a survey regarding knowledge and comfort level in managing patients with obesity. Students then completed modules designed to train health care providers on the management of obesity. A postmodule assessment was administered to determine if the obesity management modules improved competency and perceived skills when treating patients with overweight and obesity.

Results: Participants' mean score on the knowledge test represented a significant improvement following training. Their comfort level in managing patients with obesity increased.

Implications for practice: Implementing these modules in graduate education may be a helpful avenue to improve competency in obesity management. Acknowledging that obesity is a disease and requires a multifaceted approach improves the health of patients. This change in perception may lead to better goal-setting with the patient, empathetic understanding, and broader patient involvement in the treatment.

Keywords

Obesity; obesity management; overweight; nurse practitioner students; patient education; nursing faculty

The National Center for Health Statistics (Centers for Disease Control and Prevention, 2017a) reported obesity as an epidemic in the United States, with an estimated 70.7% of adults meeting the clinical criteria for a diagnosis in overweight, obesity, or extreme obesity. Obesity affects all generations and is pervasive among all socioeconomic groups (Centers for Disease Control and Prevention [CDC], 2017b; Commodore-Mensha et al., 2018). Ludwig (2018) cautioned that children ages 2–19 years are not immune from this epidemic as the prevalence continues to rise, particularly among members of racial and ethnic minority groups (Skinner, Ravanbakht, Skelton, Perrin, & Armstrong, 2018).

Further, researchers predict that if this trend continues, today's 2-year-olds have an increased risk of being diagnosed with obesity by the age of 35 (Ward et al., 2017). The lowest self-reported obesity rates are noted in adults ages 18–24 and individuals who receive a college education. A higher prevalence of obesity has been noted in adults ages 45–54, a group at higher risk for other comorbid conditions related to aging (CDC, 2017b). The prevalence of obesity is higher in the southeastern U.S. with over 32% of adults having obesity in this region and more than 35% having obesity in the states of Alabama, Mississippi, and Louisiana (CDC, 2017b; Robert Wood Johnson Foundation, 2018).

Obesity is often viewed as a person-related issue rather than a health-related issue; a bias which has also become a nationwide problem (Fruh et al., 2016). Obesity bias, also known as weight stigma, is a term used to describe negative attitudes toward persons with obesity that includes actions by health care professionals and results in care discrimination (Obesity Society, 2018; Phelan et al., 2014, 2016). Vandenbroeck, Goossens, Clemens, and Foresight (2007) described obesity as a complex system of factors that include genetics, individual psychological functioning, food intake, physical and cultural environments, and chronic medical conditions. Understanding the multiple complexities of health that may result in obesity is critical to counteract obesity bias so providers can adequately care for patients (Seymour, Barnes, Schumacher, & Vollmer, 2018).

When health care providers hold negative attitudes or biases against people with obesity, effective treatment is impacted (Phelan et al., 2014; Phelan et al., 2016). Management of obesity is necessary to create a healthier nation (Terry, 2018). Considering obesity as a chronic disease rather than a concept related to patients' inability to control diet or exercise effectively is important to instill in future nurse practitioners (NPs) as they will become front-line managers of patient health (Davis, 2017). Perfectly aligned to counteract obesity's devastating effects through effective assessment, counseling, and treatment, NPs are in an ideal position to be leaders in obesity management and prevention (Bowen et al., 2018). Equally, NPs often perceive self-efficacy, skills training, and attitudes toward patients with obesity as direct influencers of obesity management effectiveness (Zhu, Norman, & While, 2013).

Providers and obesity management

Ravussin and Ryan (2018) suggest that changing the trajectory of obesity, which has been increasing for the last 40 years, requires safe and effective medical approaches that can be used by all health care providers. The key to the successful management of obesity is a positive attitude toward patients with obesity and the clinical expertise to develop a treatment plan (Ritten & LaManna, 2017). Clinical expertise requires adequate education and training. The need for improved education and training of health care professionals in obesity management has been identified (Briscoe & Berry, 2009; Dietz et al., 2015; Ritten & LaManna, 2017). Inadequate education and obesity bias among clinicians are commonly problematic to obesity management among both NPs and physicians, a barrier second only to lack of time (Briscoe & Berry, 2009; Dietz et al., 2015). A cross-sectional survey of physicians revealed that more than 40% had a negative reaction toward patients with obesity, 56% felt qualified to treat obesity, and 46% acknowledged success in treating patients with obesity (Jay et al., 2009). The authors concluded that physician attitudes toward obesity are positively associated with increased perceived competence. However, Dietz et al. (2015) concluded that medical training programs do not adequately prepare providers to effectively treat, counsel, and manage patients diagnosed with obesity. A lack of nutrition instruction in medical school curricula and a lack of confidence in the management of patients were noted by researchers (Dietz et al., 2015). Physicians have identified the same problems that NPs face regarding inadequate preparation and education related to obesity management. Adequate educational preparation should include obesity bias awareness, behavior change strategies, guidelines for identification and treatment of obesity, and strategies for

interprofessional collaboration (Briscoe & Berry, 2009; Dietz et al., 2015; Phelan et al., 2014; Phelan et al., 2016; Ritten & LaManna, 2017; Obesity Society, 2018).

Nurse Practitioner faculty and obesity education

Rogge and Merrill (2013) reported the results of a nationwide survey designed to assess graduate schools' preparation of NP students to care for patients with obesity. The survey revealed that the topics faculty focused on included comorbidities of obesity, benefits of physical activity, control of food portion size, and importance of 5%–10% weight loss to reduce health risks. The genetics of obesity (e.g., hypothalamic regulation of hunger, satiety, and weight; indications for bariatric surgery consultation; and nondietary stimuli for adipogenesis) received less emphasis by faculty. Participants acknowledged the existence of obesity bias among both faculty and students, as well as frustration with the lack of practical recommendations for managing obesity. Personal experience(s) with obesity increased faculty sensitivity to the underlying physiological and psychological components of obesity. Furthermore, faculty with limited personal experience acknowledged a lack of sensitivity and empathy for individuals with obesity (Rogge & Merrill, 2013).

Faculty cited the lack of time, knowledge, and practical guidelines for obesity management as barriers to obesity education for NP students (Rogge & Merrill, 2013). Emphasis on the genetic and neuroendocrine regulation of body weight in the NP curriculum could prepare the NPs to give patients realistic expectations about weight control and sustained weight loss (Rogge & Merrill, 2013). Sabol, Hammersla, and Idzik (2012) advocated for national guidelines and competencies to guide faculty in curriculum development. Recommendations included a curriculum recognizing obesity as a disease and not only as a risk factor or comorbidity of other chronic disease states. Therefore, the research question for this study was: Does obesity management training in a primary care module improve NPs' perception of self-efficacy, skills training, and attitudes toward patients with obesity? The hypothesis was that obesity management training in a primary care module would improve NPs' perception of self-efficacy, skills training, and attitudes toward patients with obesity.

Methods

This research was designed as an educational intervention study. The NP students completed a survey assessing their comfort in managing obesity and knowledge about managing patients with overweight or obesity before studying modules designed to train health care providers on the management of obesity (American Association of Nurse Practitioners [AANP], 2018). A postmodule assessment was administered to determine if the obesity management curriculum improved competency and perceived skills when treating patients who have overweight or obesity.

Participants

Participants were students enrolled in a Women's Health NP concentration in a College of Nursing, and all students enrolled in the concentration at the time of the study were female. Forty-five students participated in the pretest and 43 in the posttest. The racial composition of the sample was 53% White/Caucasian American, 40% Black/African American, and 2%

Asian American. Four percent of the sample had Hispanic/Latino ethnicity. Ages ranged from 25 to 57 years ($M = 34$; $SD = 7.9$). Approximately 76% of participants were enrolled in the Master of Science in Nursing degree program, 20% were enrolled in the Doctor of Nursing Practice program, and 4% were enrolled in the postgraduate certificate program. The majority (84%) reported that they would complete their degree programs within seven months of the obesity management training. Self-reported body mass index (BMI) of participants ranged from 18 to 43 ($M = 27.5$; $SD = 5.9$).

Materials and procedures

Comfort in managing obesity.—Comfort in managing obesity was assessed by an 8-item scale developed for this study. Participants indicated their level of comfort on a five-point rating scale (1 = *Extremely Comfortable*; 5 = *Extremely Uncomfortable*) for a range of behaviors, including prescribing antiobesity medication, initiating conversations about obesity management, educating patients about lifestyle changes, prescribing activity plans or eating plans, and diagnosing obesity-related disorders. Internal consistency was good, as assessed by Cronbach's alpha ($\alpha = 0.83$).

Knowledge.—Knowledge of managing obesity was assessed by an 18-item measure that was developed for this study. Response options included true/false and multiple choice answers. Participants received a score of 1 point per item for which they indicated the correct answer, and percent correct was calculated by adding the points.

Modules in the nurse practitioner course.—Students enrolled in an online NP theory course ($N = 45$) were divided into five groups to facilitate meaningful discussion. This project included two phases. In the first phase, an online obesity bias forum was developed to focus on decreasing health care professionals' biases toward patients with obesity. The course assignment required an initial post describing the students' practice setting and self-reflection of professional and personal bias, if any, focused on patients with obesity. Students also described local, state, and national resources to decrease obesity bias in health care settings. To facilitate a meaningful discussion of obesity bias, the assignment required each student to include a minimum of two substantive responses or cross-posts within the group discussion forum.

In the second phase, students were invited to participate in an Institutional Review Board-approved study to determine NP students' views on obesity management and confidence in practice. Following completion of a premodule survey, students were provided free access to the Introductory Certificate of Obesity Management in Primary Care offered by the AANP (2018), consisting of seven educational modules (Table 1). The modules were created through an educational grant from Novo Nordisk to the AANP; thus, the program is available online to all who choose to access it and is not exclusive to AANP members only. Instructions on accessing and completing the modules and a link to a postmodule survey were provided to the study participants. Pre- and postsurveys included a collection of quantitative and qualitative data (qualitative questions can be reviewed in Table 2). Participating students completing the seven AANP modules received continuing education certificates and course credit.

Results

Training and preparation

Participants reported that their undergraduate training prepared them to manage patients with obesity extremely or very well (13%); moderately well (31%); and slightly well or not well at all (56%). In contrast, participants reported that their graduate training prepared them extremely or very well (58%); moderately well (29%); and slightly well or not well at all (13%).

Knowledge.—Participants' mean score on the knowledge test was 52% correct on the pretest and 67% correct on the posttest, representing a significant improvement following training ($t = -5.97, p < .001$).

Comfort.—The participants' BMIs were not associated with comfort in managing patients with obesity at pretest (Pearson's $r = 0.40, p = .79$). Participants' comfort level in managing patients with obesity increased following training ($t = 3.47, p = .001$).

Changes in attitudes and behaviors.—Contrary to expectations, there were no changes in weight bias from pretest to posttest ($\chi^2[1] = 0.08, p = .78$). There were also no changes in respondents' use of depression screenings from pretest to posttest ($\chi^2[1] = 2.31, p = .13$). Analyses of variance were conducted to assess change in a range of attitudes from pretest to posttest (Table 3). In general, there were few changes in attitudes following the intervention, with three exceptions. Respondents reported increased comfort with documenting obesity management ($F[1,86] = 8.02, p = .006$) and in counseling regarding bariatric surgery ($F[1,86] = 21.77, p < .001$). Their sense of preparedness to discuss obesity with patients and to counsel about lifestyle interventions also increased significantly ($F[1,86] = 12.77, p = .001$).

Additional qualitative findings

Challenges with obesity management.—During both the pretest and posttest, participants were asked to identify what they believed to be their biggest challenges when delivering an obesity management plan. Responses from the pretest indicated that many participants would feel more confident about delivering an obesity management plan if they had more education on application and implementation and more first-hand exposure. Interestingly, after completing the modules, most participants reported feeling moderately to very confident in delivering an effective obesity management plan on the posttest. Thus, it is possible that these modules provided a valuable learning experience, offering NP students much needed educational components to increase confidence in delivering such a program.

Participants indicated challenges trying to educate patients about obesity management when there is a lack of motivation and pushback from the patient. Many expressed concerns knowing how to keep patients committed to their plans, how to educate patients so that they understand that this endeavor is important to their health, and how to personalize plans when so little time is allotted for patient–practitioner interaction. Participants also noted on both the pre- and posttests that a significant challenge in delivering an obesity management plan

is starting a conversation. Not only is the initiation of conversation regarding weight difficult, but professionals also feel lost on how to not be offensive to the patients, how to be sensitive toward patients, and how to use appropriate language when discussing overweight and obesity. Although these challenges may be present, the modules provided helpful information on how to address these difficulties, and overall, participants reported feeling more confident in initiating the conversation after module completion.

Increased awareness.—After completing the obesity management modules, participants reported feeling more aware of their own perceptions regarding weight bias, acknowledging that weight bias does exist in their places of employment. Participants also stated that the modules made them more aware of the negative effects weight bias has on the patient, specifically in regard to their physical work environments and the language used in their workplace. Some participants noted that they are now more attentive to what kind of language is used around patients (e.g., saying a patient's weight out loud or commenting to another employee about a patient's weight) as well as the types of equipment that are offered for patient care. By acknowledging their own biases and the biases some of their colleagues might hold, participants believed that increasing awareness changes perception and encourages them to be more inclusive to patients with overweight or obesity.

Destigmatize physical environments.—During posttesting, participants were asked to identify specific elements in their work environments that were stigmatizing toward patients with overweight or obesity. The overwhelming majority of participants stated physical spaces and equipment increased weight bias in the workplace. Many participants expressed the following: scales do not accommodate weights over 350 lbs.; chairs in the waiting room typically have arms and do not have a broad base; furniture in the waiting room is close together, making maneuvering more difficult; equipment (e.g., blood pressure cuffs, examination tables, and gowns) does not accommodate larger bodies sizes; and much of the reading material in the waiting room areas consist of thin-ideal images on magazines covers. After completing the modules, participants expressed that they were more easily able to identify how these elements in their physical environments might be stigmatizing and increase weight bias in the workplace.

Increased education on obesity management.—One goal of the obesity management modules was to help practicing NPs recognize how to best approach and treat a patient with overweight or obesity. Participants expressed a wish that obesity management modules could be incorporated into the curriculum at the undergraduate or graduate level. Specifically, they identified that the modules should be offered early in their education, provide more content and detail about how to create strong obesity management plans, include a counseling portion to address how to start conversations regarding weight with patients, and increase the amount of pharmacological information they were receiving in order to be better versed in discussing this method of obesity treatment.

During the posttest, participants were asked to discuss what changes they could make to their work environments to decrease weight bias and the changes they will personally make to better their practice. Many participants suggested education to increase awareness for all employees regarding weight bias. Specifically, participants would like employees to

complete training on weight bias and on sensitivity to teach employees how to talk to individuals with larger body sizes. The students acknowledged that an empathetic, considerate approach was imperative to engage the patients and increase their health care literacy on the disease of obesity.

Discussion

The results of this pilot study provide emerging evidence that a brief online curriculum can improve NP students' competence in managing obesity. Based on recommendations from Sabol et al. (2012) and baseline feedback from NP students, this study adapted an obesity management certificate program to increase competency when the students and future NPs approach patients with obesity. Specifically, there were significant effects of the program on participants' knowledge of obesity management, comfort in managing obesity, and comfort in documenting obesity management interventions. Participants also gained confidence in the ability to counsel their patients regarding specific interventions including bariatric surgery and lifestyle changes. Given the current and growing epidemic of obesity in the United States, this type of training is necessary for providers and is a cost-effective, feasible, sustainable intervention that was considered acceptable and useful based on qualitative feedback.

Although the posttest data indicated that there was no change in weight bias, the qualitative data suggested that participants became more aware of their biases and were planning behavior change to reduce the discriminatory or stigmatizing behavior. In regard to personal practice, participants stated that they would start asking the patient's permission before weighing them or talking about weight, as they believed that this would be an effective way to build rapport and decrease bias. Educational training to enhance unbiased language and increase respectful interactions when talking about weight could create a more effective delivery of an obesity management program. Participants also suggested during the posttest the need to help professionals as a whole in understanding obesity as a chronic disease and not a personal choice. Understanding obesity as a disease, like diabetes or cancer, will help professionals engage in better practice by increasing their empathy for patients and improving rapport.

Before completing the modules, participants expressed that one successful strategy they have engaged in when managing a patient with obesity was collaborative treatment planning regarding health improvement that was not focusing solely on weight loss. With obesity, there is a critical need to address not just the body, but the biological, sociological, and psychological factors that make obesity a complex disease and not a personal choice. The online intervention program (AANP, 2018) introduced techniques to increase patients' health literacy by providing details on the science and pathophysiology of the disease of obesity in the first module.

Limitations

Due to the type of program selected for administration of this study, a Women's Health NP course, the study was limited in its ability to gather data and obesity management perspectives from men. In the United States, 88% of NPs are female, 8% are male, and 4%

do not specify gender (Kaiser Family Foundation, 2018). It is possible that the program may not be equally effective across male and female participants, so the generalizability of the findings is limited to female NP students. Second, although participants in this study were from across the United States, they were all NP students at one College of Nursing in the Southeastern United States. Therefore, these results cannot be generalized to the broader population of other NP students. Third, the issue of overweight and obesity is a present condition in children and adolescents (Ogden et al., 2016), and many NP students may choose to enter the pediatrics practice. However, this study focused on the treatment of obesity in adult populations. Prior research has suggested that the topic of weight loss and obesity management in children and adolescents be addressed with a family-systems approach (e.g., home-based behavioral strategies and addressing family conflict). Schools of nursing that focus on treatment across the lifespan and wish to use the AANP certificate program should also include a youth-specific section for NPs entering clinical practice with or inclusive of the pediatrics population. A final limitation was the primary outcome focus on perceived comprehension versus skills. The study did not assess for measurements demonstrating the application of techniques; thus, a follow-up assessment may be warranted to determine the rate at which these NP students used the knowledge gained from the modules.

Implications for practice

Acknowledging that obesity is a disease requiring overall health improvement, not solely weight loss, is imperative when delivering an effective obesity management plan. This change in perception may lead to better goal-setting with the patient, empathetic understanding, and broader patient involvement in the treatment plan, all of which are strategies that participants in this study identified as successful elements during obesity management planning. The Obesity Management in Primary Care modules (AANP, 2018) were beneficial for NP students, who intended to implement the evidence-based techniques to improve their roles in the prevention and treatment of obesity.

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Table 1.

Modules for “Obesity Management in Primary Care” introductory certificate

Module 1	New Approaches to Adult Obesity and Overweight
Module 2	Evaluating the patient who has overweight or obesity
Module 3	Partnering with patients for behavior change
Module 4	Comprehensive lifestyle intervention
Module 5	Pharmacologic therapy
Module 6	Bariatric surgery and devices
Module 7	Implementing practice change to support effective management

Note: Provided by the American Association of Nurse Practitioners

Table 2.

Post-assessment discussion questions

1. What has been your greatest challenge in delivering an obesity management plan?
2. Describe at least one successful strategy that you have identified with managing a patient with obesity?
3. What could be included in the curriculum to increase your expertise and confidence with obesity management?
4. Share about your confidence level in managing patients with obesity?
5. Discuss how the obesity bias threaded discussion impacted how you view and treat patients with obesity.
6. How has your perception related to weight bias changed since completing these modules?
7. Do you believe that your current workplace engages in weight bias? Please explain why/how.
8. What are some things you are aware of in your workplace environment that is stigmatizing towards individuals with overweight or obesity?
9. What are some changes you could make in your workplace environment that are conducive towards decreasing weight bias when working with patients?
10. Since you have completed the modules, what changes will you make to your professional practice?
11. What did you find most helpful about the seven modules?

Table 3.Changes in attitudes and behavior from pretest to posttest ($N = 87$)

Item	<i>F</i> (df)
Attitudes	
Comfort working with people of all shapes and sizes	.47(1, 86)
Comfort with documenting obesity management	8.02(1, 86) **
Confidence in counseling regarding bariatric surgery	21.77(1, 86) ***
Preparation to discuss obesity with patients and counsel about lifestyle interventions	12.77(1, 86) ***
The belief that lifestyle interventions improve obesity management and promote health	.66(1, 86)
Behavior	
Provide appropriate feedback to encourage behavior change	.90(1, 86)

Note: Pretest and posttest combined.

**
 $p < .01$;***
 $p < .001$.