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A Multifactorial Intervention to Reduce Weight Bias in Healthcare Providers

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A MULTIFACTORIAL INTERVENTION TO REDUCE WEIGHT BIAS IN HEALTHCARE PROVIDERS

by

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Student	Date	Advisor	Date

DEDICATION

This project is dedicated to my family. First, I would like to recognize my mother, Ruth N. Shuey. Although she is no longer here with me physically, she forever lives in my heart and I know she is watching proudly from above. She graced me with her strength, perseverance, and unending love. Next, I would like to thank my children and grandchildren. You are truly the lights of my life and I am thankful for all the love, support, encouragement and patience you have shown me. I hope the example of me embracing my dream will encourage you to pursue yours. Never give up or think it is too late, because it never is. I am so proud of each and every one of you and my love for you knows no bounds. Lastly, I dedicate this project to my husband and best-friend, Jim. You have been my rock for over forty years, always providing me with support, encouragement, patience and a listening ear. No matter what goals I set for myself, you have been right there with me, cheering me on. I could never have achieved so much in my life without you by my side, sharing with me your unwavering love. You are truly the wind beneath my wings.

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Abstract

Weight bias has been demonstrated among a wide-range of healthcare providers (Puhl, 2018a). Bias and the resulting stigma negatively impact those with overweight and obesity, resulting in increased mortality that cannot be explained by weight alone (Sutin et al., 2015). The purpose of this evidence-based project was to determine the effect of a multifactorial intervention to reduce weight bias in healthcare providers. The Stetler Model for Evidence-Based Practice was used to guide the project. An extensive review of the literature was performed and a plan for implementation was instituted. Forty-one healthcare providers completed the intervention. A pre/post comparison design was applied, utilizing the *Antifat Attitudes Questionnaire* (AFAQ). A brief demographic questionnaire and participant evaluation of the intervention were completed. Data were analyzed using descriptive statistics and a one-way repeated measures analysis of variance (ANOVA), which was calculated comparing the mean Antifat Attitudes (AFA) scores pre-intervention, immediate post-intervention and two-to-three-months post-intervention. Primary outcome: No significant effect was found ($F(2,80) = .209$, $p > .05$). No significant difference exists among pretest ($M = 2.24$, $sd = 1.27$), immediate post-intervention ($M = 1.92$, $sd = 1.13$) and two-to-three- months post-intervention ($M = 2.17$, $sd = 1.21$) means. Secondary outcome: The average of mean participant satisfaction scores ($M = 65.64$) was positive. Internal consistency was strong ($a = .908$) and a strong positive correlation was found among all variables ($r(39) = .732$-$.860$, $p < .001$). Qualitative data reported increased awareness of weight bias in healthcare, identification of personal weight bias and the need for continued weight bias interventions. Despite the non-significant result of the primary outcome, secondary outcomes support the sustainment of interventions to reduce weight bias in health care.

CHAPTER 1

INTRODUCTION

Background

Current State

The World Health Organization (2018) reports that obesity has nearly tripled worldwide since 1975, reaching pandemic proportions. Currently, the prevalence of obesity worldwide is more than half a billion adults (Smigelski-Theiss et al., 2017). Recent statistics place the prevalence of obesity at 42.4% among U.S. adults in 2017–2018 (Hales et al, 2020). With the addition of overweight in adults ages 20 and over to this statistic, the combined percentage of adults with overweight and obesity in the United States (U.S.) rises to over 70% (National Center for Health Statistics, 2020). Indiana's obesity rate is 33.6%, with an overweight rate of 34.4% (Centers for Disease Control and Prevention [CDC], 2017). The county has a reported obesity rate of 37%, higher than the state rate (County Health Rankings and Roadmaps, 2019).

As rates of overweight and obesity have risen, so has weight bias (Fruh et al., 2016). Weight bias is now reported as the fourth most reported form of discrimination in the U.S. after race, sex and age (Smigelski-Theiss et al., 2017) and has increased by 66% over the past decade. Some propose weight bias is now equal to racial discrimination (Fruh et al., 2016). Unlike other stigmas, such as race, which have undergone a decrease in social acceptance, this has not been experienced with weight bias. Many have referred to weight bias as the last socially-acceptable form of social stigma (Tomiyama et al., 2015). Weight bias or stigma is reported by both men and women, with approximately 40% of men reporting experiencing weight bias (Himmelstein et al., 2018) and up to 69% of women (Alberga et al., 2016). Earlier research by Stunkard reported that 78% of severely obese persons reported usually/always experiencing disrespectful treatment by the medical profession due to weight (as cited in Latner & Stefano, 2016, p. 122). Weight bias has been documented across a wide range of healthcare

providers (Puhl, 2018a). Puhl and Brownell indicated that women report physicians as the primary source of bias; men rated physicians as the second most reported source (as cited in Smigelski-Theiss et al., 2017, p. 257). Other health care providers are not immune to weight bias. Puhl and Heuer (2009) reported that in a multidisciplinary group of health care providers, a substantial minority (up to 50% in some studies) held anti-fat attitudes that stereotype persons with obesity and believed that weight is under an individual's personal control, making it blameworthy. These findings have been confirmed in more recent studies (Brown & Flint, 2013). Even obesity experts are not immune from weight bias. A study of participants attending the annual meeting of the North American Association for the Study of Obesity (renamed The Obesity Society) found that obesity specialists, including researchers, clinicians and other obesity-related specialists held anti-fat/pro-thin implicit and explicit bias (Tomiyama et al., 2015).

Defining Obesity, Obesity Bias and Associated Terms

Obesity is defined in several ways, often being denoted by clinical parameters. Body Mass Index (BMI) is frequently used to identify categories of weight. Specifically, a BMI of 25 to < 30 is categorized as overweight, while a BMI of 30 or higher is obese. Subcategories of obesity include Class 1, BMI of 30 to <35; Class 2, BMI of 35 to <40; and Class 3, BMI of 40 or greater (CDC, 2019). While not a direct measure of body fat, BMI is moderately correlated with direct measures of body fat (CDC, 2019). Waist circumference has also been noted to correlate with obesity, with a waist circumference over 40 inches in Caucasian males (35 inches in Asian males) and over 35 inches in Caucasian females (31 inches in Asian females) indicative of obesity. Body fat percentage is noted to be the most accurate clinical determination of obesity, with a body fat percentage of 25 or higher in males and 32% in females denoted as obesity (Obesity Medicine Association, 2019). Obesity has also been defined in a more comprehensive manner. The Obesity Medicine Association (2019) defines obesity as “a chronic, relapsing, multifactorial, neurobehavioral disease, wherein an increase in body fat promotes adipose

tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences." Additionally, obesity has been defined as a disease by the American Medical Association (AMA), the National Institutes of Health (NIH), the Obesity Society and other organizations (Kyle et al., 2016).

Also referred to as obesity bias or anti-fat bias, *weight bias* is defined by Washington as "negative, weight-related attitudes, beliefs, assumptions and judgments toward individuals who are overweight or obese" (as cited in Alberga et al., 2016, p.1). Weight bias can be implicit or explicit. *Implicit weight bias* refers to bias that is automatic, often subconscious and may be in contrast to one's conscious beliefs. *Explicit weight bias* is conscious and reflects a person's attitude or belief toward individuals with overweight or obesity (Phelan et al., 2015). *Stigma* is a manifestation of bias and is defined by Goffman as "the situation of the individual who is disqualified from full social acceptance" (as cited in Elran-Barak & Bar-Anan, 2016, p. 118). In the case of weight stigma, the disqualifying characteristic is weight.

Weight bias internalization (WBI) is the awareness and agreement with the application of negative weight stereotypes to oneself. WBI leads to self-devaluation due to one's social identity as a person with overweight or obesity (Pearl & Puhl, 2018).

Factors Contributing to Weight Bias and Stigmatization

In his classic work, Goffman proposed three contributors to stigmatizing behavior: Having a physical abnormality, possessing a character flaw, or being a member of an out-group (as cited in Elran-Barak & Bar-Anan, 2016, p.118). These characteristics are readily applied to persons with overweight and obesity. Several theoretical models have been postulated to explain the origins of weight bias.

Attribution Theory. This theory provides one commonly cited explanation for weight bias (Elran-Barak & Bar-Anan, 2016). Assuming that individuals have control over their weight, one's overweight or obesity is attributed to a defect in character, such as laziness, or being undisciplined or less competent (Elran-Barak & Bar-Anan, 2016). Controllability is a concept

closely associated with attribution theory. Pearl (2018) notes that research has consistently demonstrated that the public views weight as within an individual's control. A number of studies provide support for attribution theory, particularly in the context of explicit bias; less is known of attribution theory in relation to implicit bias (Elran-Barak & Bar-Anan, 2016).

Evolutionary Theory of Pathogen Avoidance. This theory proposes that overweight and obesity, as observable physical attributes, may be perceived as undesirable and/or to be a sign of physical illness. As such, the evolutionary survival mechanism to avoid pathogens may lead to unconscious, automatic negative reactions to or avoidance of persons observed to have overweight or obesity. Studies examining disgust as an adaptive response to the threat of disease and pathogen avoidance have found associations between disgust and weight-biased attitudes (Pearl, 2018).

Social Identity Theory. Social identity theory proposes that bias arises when persons with perceived membership in one group develop their social identity by comparing their own group in a positive light, while negatively stereotyping another group (Elran-Barak & Bar-Anan, 2016). In terms of weight bias, persons categorize themselves in a specific social group (i.e., persons who do not have overweight or obesity), then compare their group with another group (i.e., persons with overweight and obesity). Elran-Barak and Bar-Anan (2016) report that several studies have provided partial validation of this theory, although conflicting evidence exists.

Socio-Cultural Theory. Also known as social consensus theory, this theory emphasizes the significant influence of society and culture on people's attitudes and beliefs via cultural ideals and norms relating to body appearance and size. These ideals and norms are reinforced by the portrayal of persons with overweight and obesity by the media. Weight bias may occur because persons with overweight and obesity do not fit the cultural norms, which promote thinness, while denigrating overweight and obesity. Two components of social norms include awareness and internalization. Individuals become aware of social norms, then internalize them into their own beliefs and attitudes. While research by Elran-Barak and Bar-Anan (2016) and other

researchers found no relationship between awareness and anti-fat bias, Elran-Barak and Bar-Anan (2018) did find a positive relationship between internalization of social norms and explicit bias, with only a weak relationship with implicit bias.

Consequences of Weight Bias at the Individual Level

Weight bias and the resulting weight stigma have significant adverse effects on the individual with overweight or obesity, including those affecting health. Weight bias has been shown to lead to adverse psychological, social and physical health consequences (Puhl et al., 2016). Stress resulting from experiencing weight stigma may result in negative health behaviors. Negative eating behaviors have been noted, including binge eating, disordered eating, and maladaptive weight control practices; all may result in increased caloric intake. Negative physical activity resulting from weight stigma-induced stress include less motivation for exercise with resulting less physical activity. Physiologic reactivity to stress has been noted to increase levels of cortisol, C-reactive protein, A1c levels and blood pressure. These responses to stress can contribute to weight gain and negative health outcomes, with resulting distress (Puhl et al., 2016). Negative psychological health effects include depression, anxiety, poor body image; these may result in substance use/abuse and increased potential for suicide. Negative physiological health effects include less effective chronic disease self-management and more advanced, less controlled chronic disease, which may manifest as poor glycemic control. Both the psychological and physiological effects contribute to health distress and a lower health quality of life (Puhl et al., 2016).

Obesity itself is associated with increased mortality and is a known risk factor for numerous comorbid conditions, including cardiovascular disease, diabetes, dementia, and cancer (Darling & Atav, 2019). However, Puhl and Heuer (2010) note it has been postulated that weight stigma itself may actually be contributing to some of the negative health outcomes associated with excess weight, rather than the extra weight. Indeed, Sutin et al. (2015) reported that weight discrimination was associated with a nearly 60% increase in mortality that could not

be attributed to common physical and psychological risk factors. Weight discrimination represented a stronger association than that for other types of discrimination. Thus, it was concluded that weight discrimination itself may shorten life expectancy (Sutin et al., 2015).

Weight bias internalization (WBI), wherein negative stereotypes of weight are applied to oneself, represents another means by which weight stigma can impact health. In a systematic review of the health effects of weight bias internalization, strong negative relationships were reported between WBI and mental health outcomes. Specifically, depression, anxiety, poor self-esteem and body image, disordered eating and impaired mental health-related quality of life were noted (Pearl & Puhl, 2018). Fewer studies with less consistent associations between WBI and physical health were reported; however, clear associations were identified between WBI and increased severity of obesity, less motivation to participate in health-promoting behaviors, and reduced dietary adherence (Pearl & Puhl, 2018). Much research is now focused on WBI, its effects on persons with overweight and obesity and how WBI can be avoided or decreased.

Weight stigma also has a negative effect on receipt of health care services (Puhl et al., 2016). This reflects the beliefs and actions of both individuals with overweight and obesity and those of health care providers. Patients report being dissatisfied with their obesity care (Forhan & Ramos Salas, 2013). These reports include feeling disrespected, perceiving they will not be taken seriously due to their weight and believing all their medical problems are attributed to their weight (Puhl & Heuer, 2010). Patients may be reluctant to seek medical help; not only for weight reduction, but also for other health-related problems (Fruh et al., 2016). These persons are aware of clinician attitudes toward them, including weight bias, which lowers trust. Experiences of stigma may prompt frequent changes in providers and increased emergency department utilization. Delay in seeking care may result from concerns regarding disrespectful treatment, embarrassment at being weighed, negative clinician attitudes, unsolicited weight loss advice and inadequate medical equipment (Doshi & Gudzune, 2018). An appointment cancelation rate of over 50% by persons with overweight and obesity has been reported, stemming from these

concerns (Doshi & Gudzune, 2018). Puhl and Heuer (2010) report that 68% of women with the highest levels of obesity acknowledged delayed seeking of health care due to their weight and 83% saw their weight as a barrier to receiving appropriate health care.

Weight bias influences not only the health-related behaviors of persons with overweight or obesity, but also that of providers, who are not consistently trained on best practices for obesity treatment (Forhan & Ramos Salas, 2013). Clinicians have been known to display negative attitudes towards persons with overweight and obesity, attributing a variety of negative traits towards these persons (Doshi & Gudzune, 2018). The negative attitudes are persistent over time and found among various medical disciplines, including physicians, nurses, nutrition professionals and others (Doshi & Gudzune, 2018). Clinician communication behaviors with patients with overweight and obesity are affected and result in less provider-patient rapport (Doshi & Gudzune, 2018). Clinician decision-making may also be impacted; more tests may be ordered, physical examinations may be limited and discussions of weight or referral to weight loss programs may be perceived as futile and thus avoided (Doshi & Gudzune, 2018). Providers provide less health education to these patients (Puhl & Heuer, 2010). Studies show that provider-based weight bias also results in less time spent with these patients, reduced provider-patient engagement, fewer preventative health screenings and less prescribing of evidenced-based interventions (Forhan & Ramos Salas, 2013). This particularly includes the prescribing of/referral for evidence-based treatments for overweight and obesity. Only 2% of persons with overweight and obesity assessed as appropriate for pharmacologic therapy for weight loss are prescribed and take these medications (Xia et al., 2015); only 1% of persons who quality for metabolic and weight loss surgery or related therapies undergo these interventions (Gasovan et al., 2019). The low rates of incorporation of evidence-based treatment of overweight and obesity may stem from the stigma related to weight. Puhl and Heuer (2010, p. 1024) state, "Obesity is dismissed as a personal failing; thus, it is not addressed "on par" with non-stigmatized medical conditions." It is also important to note, however, that stigma exists relating to accessing weight

loss pharmaceuticals and metabolic and weight loss surgeries. These evidence-based interventions for obesity are perceived by many as "taking the easy way" to weight loss, rather than legitimate treatments for a chronic disease. Patient reluctance to access these interventions, due to the associated treatment stigma, may contribute to their limited use (Forhan & Ramos Salas, 2013). Together, these stigma-related factors contribute to a lower health-related quality of life for persons with overweight and obesity (Puhl et al., 2016).

Consequences of Weight Bias at the Societal Level

Obesity is acknowledged as a major public health problem and priority, as it directly impacts the health of the nation (Fruh et al., 2016). Weight bias and stigma have negative impacts on obesity interventions; thus, weight stigma has negative implications for public health. Puhl and Heuer (2010) propose that weight stigma not only negatively impacts individuals with overweight and obesity; it also impacts society. Weight stigma enables the disregarding of societal and environmental contributors to obesity, impedes implementation of interventions for obesity prevention, exacerbates health disparities and leads to social inequalities (Puhl & Heuer, 2010). By assigning accountability for overweight and obesity to the individual, the responsibility of society and its leaders to address issues such as the nation's nutrition, environmental planning of neighborhoods that encourage active lifestyles, etc. is lessened. So too is the responsibility to address obesity prevention. The health disparities that result disproportionately affect low income and minority groups who reside in disadvantaged areas; obesity is prevalent in these populations. These individuals are often already marginalized and may experience multiple stigmas, adding to social inequality (Puhl & Heuer, 2010).

Obesity bias has been declared a social justice issue (Nutter et al., 2016). *Social justice* is described as "a value emphasizing equitable opportunity, action to amend systemic oppression, and participation of all individuals in order to aid them in achieving maximum potential" (Nutter et al., 2016, p. 7). Nutter et al. (2016) defend their position based on the following premises relating to weight bias: Existence of many negative assumptions and

stereotypes, along with increasing bias; systematic occurrence of this bias within various aspects of society; presence of broad social forces reinforcing power and privilege to thinness, denying natural body diversity; significant mental and physical health consequences of bias and discrimination; and its influence on social inequity, with differences in disparity influenced by gender, race, socioeconomic status, and sexual orientation, which may influence access to and quality of health care (p. 6). Latner and Stefano (2016) support this stance, referring to weight bias as "entrenched cultural contempt for the obese and a pervasive preoccupation with thinness" (p. 122).

Obesity is also recognized as a major cost burden to the healthcare system due to higher rates of utilization, which may be perpetuated by bias-related inequities and limited ability of hospitals and tertiary care centers to appropriately care for persons with overweight and obesity (Forhan & Ramos Salas, 2013). Weight bias by providers hinders nation's effort to effectively fight the obesity epidemic, which adds to healthcare costs (Fruh et al., 2016). There are also potential costs associated with the delay or avoidance care, including preventive care, which may result in delayed diagnosis and treatment. Societal beliefs that obesity is the result of willful behavior have resulted in insurance programs' reluctance to reimburse patients and their care providers for obesity treatment, as well as penalizing patients with overweight and obesity with higher premiums, based on the assumption that all these patients are high risk (Latner & Stefano, 2016). These interventions have been declared discriminatory and may increase health inequities for persons with overweight and obesity (Latner & Stefano, 2016).

Data from the Literature Supporting Need for the Project

Overweight and obesity have reached pandemic proportions worldwide (WHO, 2018). In the U.S., the combined percentage of adults with overweight and obesity is 70.7% (National Center for Health Statistics, 2017). Local rates for obesity are above the national average (County Health Rankings and Roadmaps, 2019). With the rise of overweight and obesity, the occurrence of weight bias has increased 66% over the past decade (Fruh et al., 2016). This is of

serious concern, as weight bias inflicts significant stress-related negative effects on both the psychological and physical health of the person with overweight and obesity (Puhl et al., 2016). Increases in mortality have also been reported (Sutin et al., 2015). While numerous resources for the management of obesity, including clinical practice guidelines, treatment models and classification systems exist; weight bias is not addressed within the content. Over several decades, an extensive body of literature has been developed regarding the problem of weight bias; however, research targeting interventions for reducing weight bias is limited (Alberga et al., 2016). Currently, no clinical practice guidelines exist specific to weight bias. Despite this, resources are available and offer direction for addressing weight bias. Professional organizations and societies, researchers and expert opinion leaders provide direction for addressing weight bias and stigma.

Alberga et al. (2016) make a strong argument in support of the need for action to address weight bias and stigma; several of their points are directly applicable to and provide support for the need of this project: Weight bias is common, with adverse health effects; weight shaming (common in health care) does not lead to positive behavior changes; and weight bias is a social justice issue. The Rudd Center for Food Policy and Obesity (n.d.) has a major focus on weight bias and supports stigma research, education and advocacy. It also supports the research of a number of nationally-known experts in the field of weight bias and provides an evidence-based toolkit for educating health care providers on the subject. Another resource providing direction is a summary of findings from a critical review and environmental scan aimed at reducing weight bias and stigma in British Columbia's health care system (MacKean & GermAnn, 2013). A third resource providing direction for development of a weight bias intervention is a summary of the third Canadian Weight Bias Summit, which aimed to move towards consensus on key weight bias and discrimination reduction strategies (Ramos Salas et al., 2017).

Consensus exists among these sources and other evidential research regarding the need for a multifactorial intervention to reduce weight bias (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; Mac Kean & GermAnn, 2013; Poustchi et al., 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Fruh et al., 2016; Hilbert, 2016; Puhl et al, 2016; Puhl et al., 2017; Ramos Salas et al., 2017; Doshi & Gudzune, 2018; Pearl, 2018; Fitzgerald et al., 2019). A major needed component of the intervention is education to address the knowledge deficit relating to obesity (MacKean & GermAnn, 2013). This is in response to an identified void in the education and preparation of health care providers regarding the care of persons with overweight and obesity. Health care providers themselves report inadequate preparation in the care of persons with overweight and obesity (Fruh et al., 2016). This is supported by Teixeira et al. (2011), who note, "The data indicate a lack of appropriate understanding and adequate competence regarding obesity, which likely contributes to ambivalent belief development and negative attitudes toward obese individuals" (p. 254).

In response to this identified void in the education and preparation of health care providers, each of the three afore-mentioned resources for weight bias include education regarding weight bias (Rudd Center for Food Policy and Obesity, n.d.; MacKean & GermAnn, 2013; Ramos Salas et al., 2017). The use of media, including film, has been investigated as an educational methodology; several studies have reported positive results. An intervention study incorporating anti-stigma films has shown significant main effects with the Fat Phobia Scale (F-Scale) scores ($p \leq 0.001$); Beliefs About Obese Persons (BAOP Scale) ($p \leq 0.001$); Anti-Fat Attitudes (AFA) "Willpower" Subscale ($p = 0.02$); and AFA "Dislike" Subscale ($p < 0.05$) (Swift et al., 2013). Use of a brief documentary film was also found to reduce obesity stigma. Using the Universal Measure of Bias - Fat (UMB) tool, there was a significant effect on participants' negative judgments ($p = .001$); social distance ($p = .045$); and equal rights ($p = .001$) (Burmeister et al., 2017). A brief, interactive stigma reduction intervention also reported positive results, which indicated significantly less explicit stigmatizing attitudes (AFAT; $p < .01$; medium

effect); less controllability beliefs (BAOP) and greater knowledge of obesity were found (both $p > .05$) (Hilbert, 2016).

A second identified need noted throughout the literature search which supports the need for this project is the need for self-awareness of weight bias among health care providers (MacKean & GermAnn, 2013). Health care providers are often unaware of their own attitudes and biases regarding weight. Engaging in a self-awareness activity increases knowledge of one's own attitudes and biases and realization that these may affect interactions with patients with overweight and obesity (MacKean & GermAnn, 2013). The Rudd Center provides access to a number of tools for this purpose (Rudd Center for Food Policy and Obesity, n.d.). This need will be addressed as a component of the multifactorial intervention.

A third identified need in support of this project and an additional component of the intervention to reduce weight bias is the need for a strong opinion leader/ exemplar to raise weight bias as an important issue. MacKean and GermAnn (2013) report that key informants and social influence theories support this practice. A respected opinion leader who denounces weight bias and promotes acceptance of persons with overweight and obesity may contribute to changing the social norm of the hospital and result in a positive change in health care provider bias and stigma.

Data from the Clinical Agency Supporting Need for the Project

The mission of the hospital is "To improve the health of our patients and community." The vision is "We will be in the top 10 healthiest communities in Indiana by 2030." Values espoused by the organization are integrity, compassion, efficiency, patient-centered care, accountability and quality. Five pillars that guide performance are people, safety/quality, service, growth and finance. The mission, vision, values and pillars all support the need for this project. Reducing weight bias and stigma will serve to improve the health of patients and move towards the vision of being among the healthiest communities in Indiana. The values of compassion,

quality and patient-centered care also provide support for this intervention, as do the pillars focusing on people, quality/safety and service. Although less directly associated, the pillars of growth and finance also provide support for this intervention, as the addition of metabolic and bariatric surgical services represents growth in services provided, with potential positive impact on revenue.

The hospital's statistics for 2018 reported total acute hospital admissions of 4,507 with total patient days of 17,841. Total outpatient registered visits numbered 107,589. Emergency Department visits were reported to be 24,892. Combined inpatient and outpatient surgeries numbered 5,708 (A. Leffler, personal communication, July 3, 2019). A one-day, prevalence survey conducted by the DNP student project director revealed that 50% of the inpatient population was overweight or obese. This illustrates that a significant number of individuals are potential targets of weight bias and stigma by health care providers at this hospital.

Personal communication with the Chief Nursing Officer (CNO) informed this DNP student project director that in response to the high prevalence of obesity in the community, the hospital is planning to provide metabolic and weight loss surgery within the next year (A. Jones, personal communication, May 1, 2019). Based on the aforementioned wide spread presence of weight bias among healthcare providers, as well as instances of explicit bias and stigma observed in the clinical setting, it is reasonable to conclude that weight bias exists at this hospital. Persons with overweight and obesity are, therefore, potential victims of bias-driven behaviors.

At the present time, none of the components of the planned multifactorial intervention are in place at the hospital. Education of weight stigma has not been formally undertaken. While there is a continuing education program available on the Advanced Learning Center (ALC) for colleagues, entitled *Sensitive and Dignified Care for the Bariatric Patient,* it is not routinely assigned. Estimated time for completion is 1 hour, 13 minutes, not including the self-test for weight bias. While the content is based on reputable resources, the module itself does

not use person-first language, which is an important component of sensitive, respectful communication. This omission, along with the prolonged completion time, limits the feasibility of this program's use in addressing the clinical problem of weight bias among colleagues. The opportunity for health care providers to perform a self-assessment of their own weight bias has not been offered. To date, there has not been a formal hospital initiative employing a leadership exemplar to emphasize importance of reducing weight bias. Personal communication with the Clinical Nurse Specialist (CNS) whose job responsibilities include policy oversight revealed that currently no policy, protocol or guideline exists to provide colleagues with direction for providing appropriate care to the person with overweight and obesity (P. Larson, personal communication, June 12, 2019). The only related policy is one entitled *Bariatric Equipment Policy,* which, as the name implies, focuses on equipment use. References for this policy are dated 2004 and 2001 and colleagues validate that this policy is in need of revision. Review of the data determined that none of the components identified as best evidence for reducing weight bias among health care providers are currently in place at the hospital. The opportunity exists to address this void, in preparation for the implementation of metabolic and weight loss surgery, as well as to enhance the provision of sensitive care for all persons with overweight and obesity.

Purpose of the Evidence-Based Practice Project

The purpose of this EBP project is to increase awareness and decrease levels of weight bias among health care providers. By allowing the opportunity for colleagues to assess their personal level of weight bias and providing evidence-based education on this topic, the level of weight bias among colleagues should decrease, along with occurrences of weight stigma. This represents an improvement in patient-centered care and may result in improved patient satisfaction.

PICOT Question

Specifically, this project will address the following PICOT question: "Among health care professionals employed at a small Midwestern hospital, does the introduction of a multi-factorial intervention versus current practice of no intervention reduce weight bias immediately and at two-three months post-intervention?"

Significance of the EBP Project

The combined prevalence of adult overweight and obesity at 70.7% nationally (National Center for Health Statistics, 2017). This coupled with the rate of weight bias and stigma reported to affect 40% of men (Himmelstein et al., 2018) and up to 69% of women with overweight and obesity (Alberga et al., 2016), validate the significant health concerns resulting from weight bias and stigma. The psychological, physical, health-related quality-of life ramifications to the person experiencing weight bias and stigma are well documented (Puhl et al., 2016). At the same time, a systematic review of beliefs and practices of health care providers regarding obesity found that health care professionals generally feel underprepared and lacking in sufficient knowledge regarding obesity (Teixeira et al., 2011). There are also potential negative financial impacts for the hospital. Documented receipt of poorer care and worse outcomes for these patients has been reported (Tomiyama et al., 2018), which could result in complications and/or increased length-of-stays. Singh et al. (2019) propose that some costs currently attributed to obesity may actually be attributed wholly or in part to weight bias. Furthermore, as health care reimbursement continues to move toward pay-for-performance and value-based purchasing, it is general knowledge that patient satisfaction scores will play an even greater role in reimbursement. Patients' experiences of weight bias and stigma have the potential to negatively impact these scores and, ultimately, reimbursement. Finally, the success of the future metabolic and weight loss surgery program may potentially be impacted by the occurrence of weight bias and stigma. Review of the literature resulted in research findings, as

well as expert opinions that, when synthesized, provided the best available evidence for interventions to reduce weight bias among health care providers.

The planned multifactorial intervention addressed the problem of weight bias by better preparing health care providers for interaction with persons with overweight and obesity. This was accomplished through colleague self-awareness, education, incorporation of a leadership exemplar and development of a guideline to serve as a resource for patient care. These components were intended to reduce weight bias, resulting in less weight stigma being experienced by persons with overweight and obesity, improved patient care and increased patient satisfaction. This multifactorial intervention directly addressed the clinical problem of weight bias among health care providers.

CHAPTER 2

EBP MODEL AND REVIEW OF LITERATURE

Evidence-based Practice Model

Utilization of an EBP model facilitates project design and implementation processes by employing a systematic, evidence-based methodology. The EBP model provides guidance from the initial inquiry and preparation phases to final evaluation of the project's implementation and outcomes. Effective application of an EBP model increases the probability of a successful project implementation and meaningful outcomes.

Overview of EBP Model

Currently referred to as the *Stetler Model for Evidence-Based Practice*, this model was originally developed in 1976 as the *Stetler/Marran Model for Research Utilization*. Revisions to the model took place in 1994 and 2001, strengthening the model by incorporating advances in research on knowledge utilization, integrating the emerging concept of EBP and clarifying and emphasizing critical concepts of the model (Stetler, 2001). A modification in 2009 to the model's narrative provided better clarification of the role of supplemental evidence and highlighted implementation tools (Melnyk & Fineout-Overholt, 2015). The model was developed in response to an identified void regarding the realistic application of research findings to practice. Critical thinking and research utilization are central to this model (Melnyk & Fineout-Overholt, 2015), which focuses on the product and process of research. Product is the research findings, while process involves how to solve the problem (Schmidt & Brown, 2019). The model has been considered a practitioner-oriented model, due in part to its appropriateness for use by individual practitioners (Melnyk & Fineout-Overholt, 2015); however, the model is equally applicable for use by groups or teams.

The model delineates evidence as external versus internal. *External evidence* is that which is generated from research; however, if research is lacking, external evidence may be

derived from a consensus of expert opinion. In contrast, *internal evidence* is that which is systematically obtained from local facts and information, including data from quality, performance, evaluation, or data amassed while assessing the current state of the clinical problem during the EBP model implementation (Melnyk & Fineout-Overholt, 2015).

The model consists of five phases; each phase is designed to facilitate critical thinking regarding the practical application of research findings, result in the use of evidence in the context of daily practice, and mitigate human errors that occur with intuitive decision making (National Collaborating Centre for Methods and Tools, 2011). Detailed step-by-step instructions in each phase facilitate the model's clear understanding and implementation. Phase I is Preparation, in which the purpose of the project is defined, the problem is examined and prioritized, and influential factors are considered. Review of the literature begins at this phase, with the search for relevant articles with the highest levels of evidence, including systematic reviews, guidelines and randomized controlled trials. Determination of sufficient evidence dictates whether the project is feasible for continuation or should be abandoned. Phase II is Validation, in which a critical appraisal of the evidence amassed in phase I occurs, with consideration of utilization in mind. Each article is validated in terms of its strength or level, quality, and support of the topic, with findings displayed within a constructed table of evidence. This provides transition to the next phase. Phase III is Comparative Evaluation/Decision Making. Findings are now synthesized and evaluated for themes pertinent to the problem. The synthesized evidence is assessed for fit and qualifiers, feasibility, current practice, and substantiating evidence. This process enables the determination of whether ample credible evidence exists, resulting in the decision to use, consider using, or to not use findings. Phase IV is Translation/Application. The type, level and method of application of findings are confirmed. The decision to use an existing evidence-based plan or to design such a plan is made. Components of the plan include the processes of dissemination, implementation and evaluation. Targeted practice information is obtained and evaluated; alternatively, a pilot project with

evaluation is undertaken. Based on the results, the project may be accepted, extended with or without modification; or, if rejected, stopped. The final phase, Phase V, is Evaluation. Dynamic evaluation occurs, which includes identifying goals and obtaining evidence regarding the implementation approach, targeted changes, and end results or outcomes. Evidence from the evaluations is then utilized to achieve goals and is included as part of routine practice (Melnyk & Fineout-Overholt, 2015).

Application of EBP Model to EBP Project

The Stetler Model was selected as the framework for implementing this EBP practice project for several reasons. First, the model has decades of documented successful employment for the implementation of various evidence-based projects for. Next, the model is well-suited for implementation by an individual and does not rely on a team approach. This current EBP project is planned for design, completion and implementation by the DNP student project director. While many individuals will contribute information and data, the research, implementation, and application will be an individual effort by the student DNP project director. Additionally, the model is intuitive and readily applicable to any environment, situation, or project. It also allows for the incorporation of both internal and external evidence, which may impact the project's applicability and feasibility. While it provides specific direction for implementing an EBP project, it is easily able to be generalized to this specific project.

Phase I of the model involved identifying the problem. In this EBP project, the problem of interest was weight bias among healthcare providers, manifested as behaviors indicative of weight stigma, targeting patients with overweight and obesity. Phase I commenced with identification of the prevalence of weight bias in health care providers nationally, with affirmation of the priority of this problem with the CNO. The current estimation of combined overweight and obesity nationally is 70.7% (National Center for Health Statistics, 2017). With the county obesity rate currently above state and national averages (County Health Rankings and Roadmaps, 2019), the hospital serves a significant number of persons with overweight and obesity.

Furthermore, studies show that up to 69% of women and approximately 40% of men with overweight and obesity report experiencing weight bias from health care providers (Alberga et al., 2014; Himmelstein et al., 2918). Thus, a significant number of the hospital's patients are potential targets of weight bias. Inappropriate words and behaviors by colleagues, signage displayed, and other exemplars indicative of weight bias and stigma have been observed on multiple occasions, validating the presence of weight bias in health care, as noted in the literature. Furthermore, expansion of services for persons with overweight and obesity substantiate the need for this project. The hospital is planning to begin offering metabolic and bariatric surgeries within the next year, as a surgeon with these skills has recently joined the staff. In addition, a hospital-affiliated internal medicine physician has obtained specialized training and certification as a bariatrician. Together, the bariatrician and surgeon, along with ancillary staff, will form a new service for persons with overweight and obesity. Preparing hospital colleagues to provide appropriate, sensitive care to these persons is a priority, which is strongly endorsed by the CNO.

A systematic search of the literature for the best evidence for interventions to decrease providers' weight bias and stigmatizing behaviors was undertaken. Stakeholders were identified to include the CNO; directors and managers of Surgical Services, Nursing Services, Diagnostics, Food and Nutrition; nurses, technicians and ancillary colleagues in patient care areas; the surgeon and bariatrician and the DNP student project director. The hospital is part of a large, for-profit corporation of hospitals and is located in a Midwestern state. It is strongly committed to providing patient-centered, safe care to all patients; therefore, providing sensitive, psychologically and physically safe care to this population is essential and is a priority for this organization.

Phase II involved critically appraising the amassed evidence using the appropriate sections of the *Johns Hopkins Nursing Evidence-Based Practice Model* appraisal tool. A table summarizing the findings was included in this chapter. The level and quality of the evidence was

rated; poor-quality evidence was eliminated. Based on the need for decreasing weight bias among healthcare providers and future plans to add metabolic and weight loss surgery services at this organization, and after assessing the evidence and making the determination of the existence of sufficient evidence for best practice for this project, decision to proceed was made and plans were formulated.

Phase III encompassed comparative evaluation and decision-making regarding findings from the literature search. Evidence was further evaluated for feasibility; fit and other qualifiers, such as cost; and current practice. Evidence not meeting criteria were eliminated. Feasibility was assessed by evaluating risk, available resources, readiness and administrative support. With the educational nature of this EBP project, the risk to the majority of stakeholders was determined to be minimal; however, there is some financial risk for managers, in terms of the cost of providing colleagues with the additional education. This cost must be weighed against the benefit of potential improvements in patient-centered care and patient satisfaction scores. There appeared to be appropriate readiness for the project, as evidenced by the CNO's affirmative response to the proposal for this EBP project. The body of evidence was synthesized during this phase, looking for commonalities, themes and disparities in bias-reducing interventions utilized, as well their respective outcomes.

Phase IV involved the translation and application of the plan. The type, level and method of application was determined. Based on evidence including research findings and consensus identified among experts in the literature, a multifactorial intervention was designed. Based on the synthesis of findings from the literature, the intervention was designed to include three main components: A validated instrument to measure pre/post intervention levels of weight bias, an educational intervention targeting health care providers and a guideline for providing sensitive care to patients with overweight and obesity. Dissemination of the weight bias assessment tool(s), educational intervention, and guideline was planned and implemented.

Phase V was Evaluation, which represented the final phase of the project. The Stetler Model indicates that evaluation of the project should include both formative and summative data. Obtainment and appraisal of formative data provide integrity to the project and contribute to its successful development and implementation; while summative data provide information relating to outcome achievement (Stetler, 2001). For this project, methods of evaluation included both formative evaluation, which was performed by the EBP student project director throughout the EBP process; and two methods of summative evaluation, including changes in pre/post bias scores and a formal summative evaluation, completed by the subjects at completion of the education module and at two-to-three-months post-intervention. After consideration of costs, outcomes, credibility, benefits, and goal achievement, the final decision on whether the intervention was valid and should be continued was made.

Strengths and Limitations of EBP Model for EBP Project

The Stetler Model has been shown to be an appropriate model for use in many EBP projects and was especially so for this project. The model easily implemented by the individual EBP project director, as it is suited for use by individuals as well as teams. Upon reviewing other EBP models, many were found inappropriate for this project, specifically due to their emphasis on teams. In addition, the model incorporates the use of both internal and external evidence, allowing incorporation of data specific to the hospital. The emphasis on feasibility lent a pragmatic approach to the EBP process. Lastly, the model provided clear direction from identification of the clinical problem, through appraisal and validation of the evidence, to translation/application, and finally, to evaluation of outcomes. Each phase provided clear instruction on tasks to be completed prior to moving to the next phase, thus creating a logical progression through the EBP process. Limitations to this model were not noted during its application to this EBP project.

Literature Search

Sources Examined for Relevant Evidence

A comprehensive, systematic search of the literature was performed in the following databases: Cochrane, Joanna Briggs Institute, MEDLINE with Full text, CINAHL, PsycARTICLES, and PsycINFO. Words and phrases, Boolean operators and truncation included "weight bias" OR "obes*bias" OR "anti-fat bias" OR "weight stigma" OR "obes* stigma" OR "anti-fat stigma" OR "weight discrim*" OR "obes* discrim*" OR "anti-fat discrim*" AND interven* OR reduc* OR chang* OR alter. In addition, utilizing MeSH added (MM "Attitude to Obesity"). In addition to these databases, a thorough hand search and citation chasing were performed in order to identify appropriate articles for inclusion that were not identified by search results. Table 2.1 provides a summary of the databases, keywords, and the number of results obtained. The limits for the search were January 2009 to June 2019 or current, English language, scholarly and peer-reviewed. The date of 2009 was chosen based on the fact that recent research on this subject is somewhat limited and many of the sentinel studies and articles on this topic were conducted outside the preferred five-year limit. A phone meeting with university professors regarding this project included discussion of available research on this topic, which resulted in approval to expand the search limits to incorporate the significant evidence submitted earlier. The systematic reviews and meta-analyses had varying literature search dates. The oldest systematic review reported dates ranging from 1980 - 2008 (Danielsdottir et al., 2010). The most recent reported a search date range of 2005- 2015 (Fitzgerald et al., 2019).

2.1

LITERATURE SEARCH RESULTS

DATABASE	SEARCH TERMS	LIMITERS	ARTICLES YEILDED	DUPLICATES	ABSTRACTS REVIEWED	ARTICLES USED
Cochrane Library	"weight bias" OR "obes* bias" OR "anti-fat bias" OR "weight stigma" OR "obes* stigma" OR "anti-fat stigma" OR "weight Discrim*" OR "obes* discrim*" OR "anti-fat discrim*"	2009 to 2019 Cochrane Reviews Cochrane Protocols Trials Clinical Answers	61	8	7	2
Joanna Briggs Institute	"weight bias" OR "obes* bias" OR "anti-fat bias" OR "weight stigma" OR "obes* stigma" OR "anti-fat stigma" AND interven* OR reduc*	2009 to current Systematic Reviews	1	0	0	0
CINAHL	(MM "Attitude to Obesity") AND "interven* OR reduc*	2009 to 2019 Peer Reviewed Research Academic Journals	53	4	8	0
Medline (via PubMed)	“weight bias” OR “obes* bias” OR "anti-fat bias” OR "weight stigma" OR "obes* stigma" OR "anti-fat stigma" OR "weight discrim*" OR "obes* discrim*" OR "anti-fat discrim*"	2009 to 2019 Review articles Academic Journals English	56	1	10	2

PsycARTICLES	“weight bias” OR “obes* bias” OR “anti-fat bias” OR “weight stigma” OR “obes* stigma” OR “anti-fat stigma” OR “weight discrim*” OR “obes* discrim*” OR “anti-fat discrim*” AND interven* OR reduc*	2009 to 2019 Scholarly Journal Peer reviewed English Apply Related Words Search within Full Text	153	15	7	1
PsycINFO	“weight bias” OR “obes* bias” OR “anti-fat bias” OR “weight stigma” OR “obes* stigma” OR “anti-fat stigma” OR “weight discrim*” OR “obes discrim*” OR anti-fat discrim*” AND interven* OR reduc*	2009 to 2019 Scholarly Journal Peer Reviewed English Apply Related Words Search within Full Text	172	28	21	4
Gray Data Searching	NA	NA	8	0	8	1
Citation Chasing	NA	NA	71	9	18	6
Handsearching	NA	NA	24	4	2	2
TOTAL	NA	NA	599	69	81	18

Levels of Evidence

The resource utilized to level evidence retrieved during the systematic literature search was the *Johns Hopkins Nursing Evidence-Based Practice Model* (JHNEBPM). The highest level of evidence, level I, is comprised of experimental studies that include randomized controlled trials (RCTs), explanatory mixed method designs that include only a level I quantitative study and systematic reviews of RCTs, with or without meta-analysis (Dang & Dearholt, 2017). Level II evidence is composed of quasi-experimental studies; explanatory mixed method designs that include only a level II quantitative study; and systematic reviews of a combination of RTCs and quasi-experimental studies, and quasi-experimental studies only, with or without meta-analysis (Dang & Dearholt, 2017). Level III includes nonexperimental studies, systemic reviews of a combination of RTCs, quasi-experimental and nonexperimental studies, and nonexperimental studies only, with or without meta-analysis; exploratory, convergent, or multiphasic mixed method studies; explanatory mixed method designs that include only a level III quantitative study; qualitative studies; and meta-synthesis (Dang & Dearholt, 2017). Level IV is comprised of clinical practice guidelines and consensus statements. These represent opinions of respected authorities and/or nationally recognized expert committees or consensus panels based on scientific evidence (Dang & Dearholt, 2017). Level V includes literature based on experimental and non-research evidence, including integrative reviews; literature reviews; quality improvement, program or financial evaluations; case reports; and opinions of nationally-recognized experts based on experiential evidence (Dang & Dearholt, 2017).

Appraisal of Relevant Evidence

Critical appraisal of the quality of each piece of evidence was accomplished using the Johns Hopkins Nursing Evidence-Based Practice Evidence Level and Quality Guide (JHNEBPELQG). For quantitative studies, this guide allows the rating of evidence as high (A), good (B), or low or major flaw (C). Grade A represents consistent, generalizable results, a sufficient sample size, adequate controls, definite conclusions, and consistent recommendations

based on a comprehensive literature review of scientific evidence (Dang & Dearholt, 2018 Grade B represents reasonably consistent results, sufficient sample size, some control, fairy definitive conclusions, and reasonably consistent recommendations based on comprehensive literature review with some reference to scientific evidence (Dang & Dearholt, 2018). Grade C represents little evidence with inconsistent results, insufficient sample size and no ability to draw conclusions (Dang & Dearholt, 2018).

According to Dang and Dearholt (2018), there is no commonly agreed upon criteria for judging the quality of qualitative studies. This tool does provide a rating of high/good (A/B) and lower quality (C) for single studies and meta-syntheses. "A/B" quality is denoted by evidence that enhances or evaluates the data, including transparency, diligence, verification, self-reflection and scrutiny, participant-driven inquiry, and insightful interpretation. "C" quality studies are those that contribute little to overall findings and have few or any of the aforementioned qualities.

Level IV evidence is also evaluated with an "A," "B," or "C" quality rating. An "A" rating indicates the evidence is sponsored by an official organization or agency, utilized a systematic research strategy, reports consistent results with a sufficient number of well-designed studies, includes evaluation of included studies' strength and quality, reaches definite conclusions and was developed or revised within the past five years (Dang & Dearholt, 2018). A "B" rating indicates reasonable or fair attainment of the same criteria. A "C" rating indicates low or inconsistent attainment of these criteria and/or has not been revised within the past five years (Dang & Dearholt, 2018). Level V evidence follows the same rating scheme of "A," "B," or "C." High quality (A) rated evidence presents clear aims and objectives, consistency, formal evaluation methods, definitive conclusions and consistent recommendations with thorough referencing to scientific literature.

"B" rated evidence meets these criteria with a reasonable degree of consistency; "C" level evidence is unclear or inconsistent, with poorly-defined evaluation methods, and recommendations cannot be made (Dang & Dearholt, 2018). Of note is the Stetler Model's opinion that even methodologically weak studies, which were found in this search, may provide useful information when combined with other sources of evidence during later synthesis (National Collaborating Centre for Methods and Tools, 2011).

Level I evidence.

Luck-Sikorski et al. (2017) conducted a Level I, A-rated randomized controlled trial which compared attitudes towards obesity after exposure to three different causal explanations for obesity: Individual behavior, environmental factors, and genetic factors. A total of 550 subjects over age 18, recruited to be representative of the U.S. population living in households with telephone access, were randomized to the obesity arm of the study. Of these, 143 participants were randomly assigned to read a neutral vignette, in which no causal attribution for obesity was given; participants were only informed that a new research study on obesity was commencing. A random sample of 407 subjects completed the survey experiment, which focused on vignette manipulation relating to causes of obesity. Two primary independent variables were examined: Cause of obesity as perceived as described in the vignette and cause of obesity as perceived by the participant regardless of vignette. Subjects were randomly assigned to read one of three different explanations for obesity: Social environment, responsibility of the individual, and genetic causes. A manipulation check was included at the end of the questionnaire to evaluate subjects' correct recall of the cause of obesity in their vignette. Subjects were asked which factor they believed to be the most important cause of obesity. Potential confounding and moderating variables were addressed. Three dependent variables were constructed, which represent major areas of stigmatizing attitudes. A negative scale derived from previous stigma research was employed. Chronbach's alpha reliability was $a = 0.88$. A mean score of negative attitudes was calculated. A blame scale was also constructed, incorporating three items on

perceived responsibility and blame. A mean score was again calculated. Chronbach's alpha reliability was *a* = 0.76. The final dependent variable addressed the social distance aspect of stigma. Two items inquired about not wanting to spend time with a person with obesity and not wanting to work with a person with obesity. Chronbach's alpha was *a* = 0.79. Data analysis was performed using STATA 13.1. Chi squared tests assessed differences between frequencies in variables. Differences in means was detected through *t*-tests. Linear regression models and additional analyses compared the causal explanation vignettes to the neutral vignette. Genetic causes were used as the reference category (Luck-Sikorski et al., 2017).

Results showed that 86.2% of subjects correctly recalled the content of their vignette. Subjects who did not recall correctly tended to believe their article focused on individual causation. Perceived inaccuracy regarding the social environmental and genetic vignettes occurred more frequently than with the individual cause vignette. In addition, genetic cause was most often reported by subjects as being overemphasized. Overall, subjects favored individual causes (72.0%); in the individual behavior vignette, this was even higher (80.7%). Negative attitudes ($b = 0.374$, $p < 0.003$) and blame ($b = 0.597$, $p < 0.001$) both increased with the belief that individuals are responsible for their obesity. Causes presented in the vignettes were not associated with these outcomes. Social distance was associated with the cause presented in the vignette but was not associated with personal beliefs about the cause. The individual responsibility vignette was associated with lower levels of social distance ($b = -0.183$, $p = 0.043$). Female respondents reported lower stigmatizing attitudes across all three outcomes and both independent variables. The association of personal belief with individual causes, as compared to genetic causes, resulted in a significant association to negative attitudes ($b = 0.302$, $p = 0.028$). Adding bias and overemphasis as covariates and moderators resulted in only slight variations in the results and did not change results for the outcome negative attitudes. Study results found limited effects of the experimental vignette manipulation and personal beliefs of subjects were associated with higher levels of negative attitudes and blame,

regardless of the vignette experienced. The individual behavior vignette was associated with higher levels of blame. Social distance was slightly lower in subjects experiencing the individual responsibility vignette, but this effect was no longer significant after perceived bias and inaccuracy of the vignette as moderators were removed (Luck-Sikorski et al., 2017).

In summary, the vignette's causal explanations for obesity did not affect attitudes toward persons with obesity, which was contrary to the study's original hypothesis. In contrast, personal beliefs about causation were related to attitudes, with belief in individual causes related to more negative attitudes. In addition, subjects reported more bias and inaccuracy in the vignettes featuring genetic and environmental causes (Luck-Sikorski et al., 2017). The authors surmise this may reflect a degree of reluctance to accept causal explanations for obesity outside of individual responsibility. These findings suggest that messages that focus on or emphasize individual prevention and interventions for obesity may, in fact, enhance beliefs of controllability and responsibility of the person with obesity, contributing to increased weight stigma. Additionally, social environmental and genetic causation messages may need to be strengthened in order to overcome and change attitudes. The authors note there is a need to focus on other strategies to alter causal attribution beliefs regarding obesity, in addition to exploring other approaches. Social consensus theory is one approach that warrants more attention. By challenging the accepted belief that weight stigma is accepted and endorsed by the general public, attitudes may potentially change (Luck-Sikorski et al., 2017).

Burmeister et al. (2016) also conducted a level I, A-quality study. Using a pretest-posttest design, this RCT studied the effects of viewing the weight stigma portion of a documentary film on viewers' attitudes about obesity across several domains, including support for persons with obesity. Subjects included a sample of 109 undergraduate students recruited via the online research participation system from a medium-sized midwestern university. This sample size was determined sufficient to detect small effects between groups, based on a priori power analysis. Subjects completed demographic information and the UMB, which served as a

pretest of obesity stigma. Subjects were then randomized into groups that either viewed a weight stigma reduction video or the control video. After viewing the assigned video, subjects completed a 20-item distraction questionnaire regarding their attitudes towards persons in the video. This questionnaire served as a distraction, to mislead subjects into believing the study was complete. Subjects were then asked to volunteer for a second, unrelated study in which the true measure of the dependent variable (the UMB) was administered.

The UMB consists of a 20-item measure of attitudes towards obese persons, using a 7-point Likert scale which been used to assess attitudes towards various stigmatized groups and can be modified to address the group desired. It has been reported to have excellent psychometric properties (Burmeister, et al., 2016). Four subscales addressed in the UMB included negative judgment, social distance, attraction and equal rights. The subscale Chronbach's *a* = 9.0-9.2 (Burmeister et al., 2016). Subjects in the experimental group viewed the weight stigma section of a documentary film; those in the control group viewed a film which also included emotional interviews but were unrelated to obesity.

Results revealed no differences in demographic variables or in pretest scores of the UMB. Subject BMI was only correlated with pretest ratings on the subscale measuring attraction, suggesting a positive association between subjects' BMIs and their rating of attractiveness of persons with obesity (Burmeister et al., 2016). Four analyses of covariance (ANCOVAs) were conducted to assess the impact of the independent variable, obesity stigma reduction vs. control, on the four subscales, while controlling for pretest scores. BMI was an additional control variable added to the posttest attraction subscale ratings. Subscale results reported a significant effect for video type on subjects' negative judgments toward persons with obesity, for social distance and for equal rights. There was not a significant effect for video type on subjects' ratings of attractiveness (Burmeister et al., 2016). These results suggest that viewing a brief video aimed at reducing weight bias may be an effective intervention. Limitations of the study included subject demographics, as the majority were college age, Caucasian

females; thus, results may not be generalizable to the full population. The intervention's lasting effects were not tested. The authors also surmise that although there were attempts to disguise the assessment of weight bias, subjects' suspicions were not measured. The authors conclude that further research is needed to identify the specific factors that are most effective at reducing weight stigma.

Swift et al. (2013) conducted a level I, A-rated pilot RCT that also assessed the effectiveness of employing a brief anti-stigma film in reducing weight bias. In this study, a pre-post experimental design was utilized, along with a six-week follow-up to assess long-term changes in weight bias. The sample consisted of 19 dietetic students and 24 medical students in the United Kingdom who were recruited for the study. Randomization occurred a block randomization method; 22 students were allocated to the intervention group and 21 to the control group. Two 17-minute films developed by the Rudd Center for Food Policy and Obesity, *Weight Prejudice: Myths and Facts* and *Weight Bias in Healthcare* served as the dependent variables. The films were developed based on empirical evidence and theoretical approaches that have been studied regarding weight bias. Included are several strategies to promote stigma reduction, including attributions of weight controllability, empathy induction, and debunking stereotypes. The control film was a 34-minute section taken from a popular historical documentary series unrelated to body weight or food (Swift et al., 2013).

A baseline questionnaire was completed by the subjects, which collected on six outcome measures. These measures included the F-scale, the BOAP scale, "Dislike" and "Willpower" subscales of the AFAQ and the Bad/Good and Lazy/Motivated Implicit Associations Test (IAT), sociodemographic variables (age/gender), anthropometrics (weight/height/weight perceptions), and personal experience of weight bias/stigma (Swift et al., 2013). Subjects randomized to the intervention group viewed the two films, then completed a 1-5 Likert-scale question, "How useful do you think the films are to your training?" They also answered three questions: "Which of the two films had more impact on your attitude towards obese people?" "Why" What did you like

about the films?" and "Was there anything in particular that you disliked about the films?" Six weeks after the intervention, subjects were asked to complete the F-scale, BOAP scale, AFA "Dislike" subscale and the AFA "Willpower" scale outcome measures (Swift et al., 2013).

Subjects' BMIs averaged (mean (*SD*) = 21.9 (3.4) kg/m2); however, over a third reported experiences of weight-related teasing (*n* = 17; 39.5%) (Swift et al., 2013). Subjects considered themselves to be in an appropriate weight category. There were not significant differences between the intervention group and control group in terms of gender or age. The intervention group was composed of more persons in the dietetics course and they had a higher BMI than the control group. The six-week follow-up was completed by twenty participants, ten from each group, for an attrition rate of 53.5%. No significant differences in gender, course, or BMI were found between those who completed the follow-up and those who did not (Swift et al., 2013).

The F-scale measure reported both groups to have demonstrated above average levels of fat phobia. Post-hoc independent *t*-tests reported significant between-group differences in F-scale score at all three time points. Post-hoc paired samples *t*-tests reported that F-scale scores were significantly reduced between baseline and post-intervention in the intervention group, indicating less weight bias; however, there was no difference in F-scale scores between baseline and six-week follow-up. No significant changes in F-scale scores between time points were noted in the control group (Swift et al., 2013).

Baseline BAOP scale scores suggested subjects held strong beliefs that obesity is under one's control. A repeated measure ANOVA reported significant main effects for BAOP scores over time and group and a significant time-by-group interaction. Post-hoc paired samples *t*-tests indicated the intervention group scores significantly increased between baseline and post intervention (Swift et al., 2013). This suggests that intervention group subjects were significantly less likely to believe that obesity is under that person's control as a result of viewing the films. This finding was sustained between baseline and six-week follow-up. No significant changes were apparent in the control group (Swift et al., 2013). The AFA "Willpower" Subscale scores

indicated no significant difference scores at baseline; however, the intervention had lower scores than the control at both post-intervention and six-week follow-up (Swift et al., 2013). The AFA "Dislike" Subscale scores showed significant scores at the six-week follow-up only, with the intervention group having lower levels of anti-fat bias. Significant changes were found over time in the intervention group, but not the control group. Post-hoc matched-pairs tests indicated significantly reduced scores between baseline and six-week follow-up; no significant changes between time points were observed in the control group (Swift et al., 2013). The "Bad/Good" and "Lazy/Motivated IAT Scores at baseline indicted implicit bias. A repeated measure ANOVA scores over time-by-group showed significant main effects over time, but no group effects or significant time by group interactions, which the authors attributed to possible lack of statistical power as the intervention group did report better scores than the control group (Swift et al., 2013).

This research identified implicit and explicit weight bias among subjects at baseline, along with strong beliefs that obesity is under one's control. These findings are consistent with those of previous studies. However, this study findings reveal that brief, educational films may provide a feasible method of improving healthcare trainees' beliefs and attitudes toward persons with obesity; furthermore, these changes may be sustained for a time after viewing. Explicit anti-fat bias improved transiently; however, this was not sustained, nor was implicit anti-fat bias significantly improved. The researchers note that due to the relative stability of attitudes and prevalence of anti-fat attitudes, it is widely recognized that interventions combining multiple attitude-changing strategies may be required to address the complexities of weight bias; brief educational films may be one component of a needed multi-component intervention (Swift et al., 2013).

Hilbert (2016), further explored the role of interventions impacting beliefs on controllability on weight stigma reduction. Two level I, A-rated independent studies employing randomized designs with delayed-intervention control groups were used to design a brief,

interactive stigma reduction educational intervention and to evaluate the intervention in the general population. In the first study, 128 university students were randomized to either the experimental group or delayed-intervention control group. The control group was offered the opportunity to undergo the intervention after the study had concluded, if desired. The groups did not differ significantly. Baseline assessments included completing the following measures: the Antifat Attitudes Test (AFAT), BAOP, IAT and a constructed 10-item knowledge test regarding knowledge about the etiology of obesity, weight stigma and modifiability of body weight through weight loss interventions. The intervention sought to have subjects reflect about their view on controllability of obesity and the responsibility of persons with obesity regarding their own weight. An interactive audiovisual slide show, lasting approximately 60 minutes delivered the intervention. Psychoeducation, guided discovery and mental imagery techniques were utilized to involve subjects, along with additional tasks. Module 1 provided an overview of obesity, with emphasis on genetic and environmental factors along with the limited modifiability of weight through weight loss attempts. Module 2 address weight stigma and societal pressure for thinness. Module 3 addressed prejudice directed towards persons with obesity, including origins of weight stigma, forms of stigmatization and discrimination, and consequences (Hilbert, 2016).

Post-intervention ANOVAs revealed significantly less explicit stigmatizing attitudes (AFAT) in the intervention vs. the control group ($p < .02$; medium effect (Hilbert, 2016). BOAP scores indicated less controllability beliefs and greater knowledge of obesity (both $p < .001$; large effects) Hilbert (2016). Implicit stigmatizing attitudes (IAT) did not differ between the groups ($p > .05$); thus, implicit bias was not significantly impacted by the interventions Hilbert (2016). Repeated measures ANOVAs revealed significant effects for explicit stigmatizing attitudes ($p < .05$; small effect) and for controllability beliefs a knowledge of obesity (both $p < .001$; medium-to-large effects) (Hilbert, 2016). Post-hoc analyses showed significant decreases in explicit stigmatizing attitudes and significant increases in knowledge in the intervention group (both $p < .01$), while both were unchanged in the control group (both $p > .05$) (Hilbert, 2016).

While both groups evidenced significant decrease in post-intervention controllability beliefs, as compared to baseline, the effect was more than twice as high in the intervention group vs. the control group. Implicit stigmatizing attitudes did not show any significant effect over time. The researcher notes these results confirm previous evidence on the destigmatizing potential of brief, multi-component programs (Hilbert, 2016). These results support the utility of a brief, interactive intervention promoting an interactionist view of obesity to reduce weight stigma at least in the short term.

The second study, which replicated many features of the first, recruited subjects from the community. Subjects were randomized into two groups, which did not differ significantly other that subjects in the intervention group had a lower level of education. As in Study 1, the AFAT, BAOP and IAT were primary outcome measures. An eight-item test on the genetic knowledge of obesity was created. Additional measures were the Causal Attributions of Obesity Questionnaire (CAOQ), an adapted version of the Belief in Genetic Determinism Scale (BGDS) and the Social Desirability Scale - 17 (SDS-17). The procedures and interventions form Study 1 were followed and applied. The data analytic strategy from Study 1 was employed, with some modifications, such as including education added as a covariate and inclusion of the BGDS total score and SDS-17 sum score (Hilbert, 2016).

Results did not show any group difference in post-intervention explicit stigmatizing attitudes (AFAT; $p > .05$), nor were there significant effects for controllability beliefs (BOAP) internal attributions (CAOQ) or implicit stigmatizing attitudes (IAT; all $p > .05$) (Hilbert, 2016). However, genetic knowledge of obesity, genetic causal attribution (CAOQ) and belief in genetic determinism (BGDS) were greater in the intervention vs. the control group ($p < .01$; medium-to-large effects) (Hilbert, 2016). Results revealed decreased internal attributions and increased genetic attributions, knowledge and deterministic beliefs four weeks post-intervention in this population sample. These results support the utility of a brief, interactive intervention promoting an interactionist view of obesity to reduce weight stigma at least in the short term.

Level II evidence.

A level II, B-rated systematic literature of peer-reviewed published studies conducted by Alberga et al., (2016) examined the effectiveness of interventions for reducing weight bias in both students and health care professionals. A pre-tested search strategy, developed by a health sciences librarian, was employed and a total of nine data bases were searched. Search limits included time period of 1990 and 2015, English or French, original primary empirical research focusing on interventions for reducing weight bias (Alberga et al., 2016). The search yielded a total of 1,447 abstracts with 931 duplicates, which underwent review by two authors. Seventeen studies were identified for inclusion via this search, with an additional five studies identified through personal libraries. An updated search performed later did not result identify any new studies. Two reviewers evaluated the 17 studies for methodological quality and descriptive purposes using the Quality Assessment Scale (QAS). All 17 studies were included in the review regardless of the quality rating (Alberga et al., 2016).

The reviewers reported a lack of robust interventions for weight bias reduction in health care students and professionals. Identified methodological concerns among the reviewed studies included of lack of randomization and use of control groups, insufficient follow-up, inconsistent study frameworks, design, outcome variables and lack of studies conducted in the real-world setting (Alberga et al., 2016). The authors were unable to identify definite approaches shown to be effective to reduce weight bias in this population. Some interventions were able to change attitudes toward the controllability by providing facts on the genetics, biology, environment and socio-cultural influences on obesity (Alberga et al., 2016). Conversely, interventions were less successful in affecting attitudes toward the character, attractiveness or negative stereotypes of persons with overweight and obesity (Alberga et al., 2016).

The authors did note that literature and environmental scans have identified four approaches integrated into weight bias reduction efforts: Education related to overweight and obesity, causality, and bias, stigma and discrimination; empathy; self-awareness of one's own

attitudes and biases regarding weight; and the influence of respected and trusted others who can influence attitudes (Alberga et al., 2016). Which intervention(s) is/are most effective remains unknown due to lack of sufficient evidence; however, Alberga et al. (2016) note that previous research supports the need for multifactorial interventions. As such, the authors also emphasize the need for revision of health care provider curriculum to include caring for persons with overweight and obesity, as well as incorporating positive experiences with these persons. Interventions need to move beyond awareness and education to increasing the skill level and competencies, with actual practice changes assessed. Changes in social norms relating to overweight and obesity may be needed (Alberga et al., 2016).

Fitzgerald et al. (2019) conducted a level II, B-rated systematic review of interventions aimed at reducing implicit prejudices and stereotypes in adults, measured by the Implicit Attitude Test (IAT) or a measure derived from the IAT, and held in real-word contexts. The literature searched utilized ERIC, PUBMED, and PsycINFO data bases. Limiters included peer-reviewed, controlled intentional studies that included an outgroup; intervention effect measured by the IAT; human subjects over age 18; English and published between May 2005 and April 2015. Intervention effectiveness had to be measured within one month of the intervention (Fitzgerald et al., 2019). Data base results included 1,931 titles; screening processes resulted 30 articles, one of which incorporated 18 different interventions. In sum, a total of 47 different interventions were tested; these were divided into eight categories: Engaging with others' perspective, consciousness-raising or imagining contact with outgroup; exposure to counter-stereotypical exemplars; appeals to egalitarian values/goals; identification of self with the outgroup; evaluative conditioning; inducing emotion; intentional strategies to overcome biases; drugs (Fitzgerald et al., 2019). Effective interventions were defined as those evoking reduced bias in individuals or in the group following the intervention.

The most effective categories of intervention were intentional strategies to overcome bias, exposure to counterstereotypical exemplars, identification of self with the outgroup,

evaluative conditioning, and inducing emotion (Fitzgerald et al., 2019). Exposure to counterstereotypical exemplars was shown to be the most positive intervention; engaging with others' perspective appeared to be less effective (Fitzgerald et al., 2019). The authors report these results are similar to those from a recent network meta-analysis by Forscher et al. (2019). The authors state that ineffectiveness of interventions over a period of time is to be expected; more in-depth, ongoing interventions may be required (Fitzgerald et al., 2019). They also propose that focusing on the behavior resulting from implicit bias, rather than the implicit bias itself may be effective (Fitzgerald et al., 2019). They conclude that reliable, effective interventions to reduce implicit biases are not supported by current findings; however, they also contend that this does not lessen the need to implement changes that are likely to reduce implicit biases (Fitzgerald et al., 2019).

Forscher et al. (2019) performed a level II, B-rated multivariate meta-analysis of procedures to change implicit measures utilizing a reportedly novel technique termed network meta-analysis. This technique allows synthesis of information simultaneously, where there are many studies comparing distinct interventions (Forscher et al., 2019). Inclusion criteria was limited to studies of between-subject experiments, studies that included an implicit measure administered after onset of the experimental procedure, studies where the implicit measurement assessed a pre-existing association, experimental interventions that fit into a single procedure category and the studies that contained procedures from multiple procedure categories, specific date ranges for each of three study phases and English language (Forscher et al., 2019). Data bases searched included PsycINFO and Web of Science using specific search terms. Results were also supplemented through direct requests for relevant studies via e-mail and the Society for Personality and Social Psychology listserv, as well as 115 articles from an unpublished meta-analysis. This resulted in a reported 4,908 articles (Forscher et al., 2019). Record screening reduced this to 417 articles, 592 studies and 690 independent samples. Further screening and eliminations resulted in a final sample of 342 articles, 492 studies, and 571

independent samples, representing 87,419 participants (Forscher et al., 2019). Article coding was accomplished, with reliability of the coding system tested. Inter-rated reliability was reported, Cohen's *k* = .99. Experimental interventions were placed into 14 various categories and meta-analytic computations were run using the appropriate statistical process (Forscher et al., 2019).

Results found that implicit bias measures can be changed across varying areas of study, populations, implicit tasks and research designs, but weak effects are often encountered (|ds| <.30) (Forscher et al., 2019). The type of approach used to change implicit measures was of great importance; interventions that linked concepts, encouraged goals or motivations, or taxed mental resources changed implicit measures the most. In contrast, those invoked threat, affirmation or specific affect or emotions impacted measures of implicit bias the least (Forscher et al., 2019). This supports the theory that automatically retrieved associations are sensitive to information in the social environment (i.e., Social Contagion Theory). This also highlights the importance of goal-directed motivation and cognitive resources in changing the expression of automatically retrieved associations (Forscher et al., 2019). Explicit measures of bias were modified less consistently and to a lesser degree than measures of implicit bias; changes in behavior were small (Forscher et al., 2019). This suggests that while changes in measures of implicit bias may occur, changes in behavior may not follow.

Level III evidence.

Danielsdottir et al. (2010) conducted a level III, B-rated systematic review of published studies focused on anti-fat prejudice reduction. The systematic search was completed using four databases and one internet search engine. Citation chasing and the contacting of individual researchers known to publish in this area were also employed (Danielsdottir et al., 2010). The authors report not adhering to strict inclusion/exclusion criteria, citing the limited amount of research in this area; however, dissertations and an unpublished intervention were not included. A total of 16 studies, with a total of 21 experiments were reviewed (Danielsdottir et al., 2010).

While noting the lack of research in this subject area, the authors did report that a majority of existing studies were able to produce changes in beliefs, attitudes and attributions believed to underlie and support fat prejudice (Danielsdottir et al., 2010). Evidence for the efficacy of combined or multi-factorial strategies was reported as modest, but encouraging (Danielsdottir et al., 2010). Interestingly, increased sympathy for persons with overweight and obesity was not reported to increase the liking of persons with obesity. In addition, ideological views and personality traits, associated with anti-fat prejudice, appeared relatively stable and less likely to change with the interventions reviewed (Danielsdottir et al., 2010). The authors admit that both of these findings are problematic and warrant further exploration. In addition, the researchers call for more research on this topic and broadening of the research, while emphasizing the need for improved study designs, including randomized or experimental designs with pre/post-test measures. A need for greater consistency in measures used for implicit and explicit bias was suggested, as well as studies held outside the laboratory setting (Danielsdottir et al., 2010).

Lee et al. (2014) conducted a Level III, A/B-rated study to evaluate the impact of weight bias interventions on weight-biased attitude and beliefs, while exploring potential moderators. Based on previous researchers' concerns regarding the lack of dramatic results for weight bias interventions, these researchers hypothesized that weight bias interventions would have a positive but modest effect on weight biased attitudes and beliefs (Lee et al., 2014). Potential moderators for examination included intervention type, publication type and study population. A three-part search strategy was employed to identify manuscripts for potential inclusion. Databases searched included ScienceDirect, PsycINFO, and ProQuest Dissertations, with no starting date through January 2013. One set of search terms included either "fat" OR "weight" OR "obesity" AND "discrimination" OR "prejudice" OR "stereotype." The second set of search terms included "obesity bias" OR "obesity stigma" OR "weight bias" OR "weight stigma" OR "anti-fat" OR "fat phobia." These were pared with an intervention term, such a "reduce" OR

"reduction" OR "modify" OR "intervention" OR "change" OR "alter." In addition to publication date, limiters such as English language; and exclusion terms, including animal, cell, visual perception, neural, lipid, hyperplasia, mice, rats, and imaging (Lee et al., 2014). Three criteria were applied to articles obtained through the database searches: The manuscript had to report on an intervention designed to reduce weight bias, the mean age of participants had to be at least 18 years, and the study had to include a valid measure of weight-based attitudes (Lee et al., 2014). Citation searching was performed. Google Scholar was used to review manuscripts meeting inclusion criteria. This process yielded 29 manuscripts, including 20 journal articles and 9 dissertations, reporting the results of 30 studies (Lee et al., 2014). Coding and data extraction were performed independently by two raters, with agreement for extracted data ranging from 82-100 percent. Statistical analyses utilized a random effects model. Moderator analyses utilized a meta-analytic analog to ANOVA. Moderator analysis included four levels: Controllability, empathy, social consensus and other. Additional moderators included intervention type, publication type and study publication. Publication bias and sensitivity were addressed; no publication bias was revealed (Lee et al., 2014).

Results examining effectiveness by intervention type were reported as not significant ($p = .46$). Publication type also revealed insignificant results ($p = .38$). Effectiveness by study population also rendered an insignificant between-groups difference ($p = .14$). However, weight-biased beliefs results showed that existing interventions had a small-to-medium effect on weight-biased beliefs ($p < .001$) (Lee et al., 2014). The authors note that these results, although not strong, are encouraging and support previous findings of small positive impacts on weight-biased attitudes and beliefs. The authors also report an interesting trend that interventions categorized as "other" performed as well as interventions named in established weight bias reduction paradigms; in fact, several of the larger effects came from this category. These involved interventions related to social consensus, controllability, empathy, and discrediting stereotypes (Lee et al., 2014). This suggests that looking to new strategies may be warranted in

future research. Limitations of the meta-analysis were presented, including the small number of intervention studies, as well as inconsistent methodology and reporting. Additionally, behavioral measures were not included in this meta-analysis, due to a limited number of studies including behavioral measures and inconsistency in measurements (Lee et al., 2014). The authors note that the small, positive impact on weight biased attitudes and beliefs provides encouraging evidence that weight bias interventions should continue. They also declare that "no single intervention will eradicate weight bias" (Lee et al., 2014, p.258).

Puhl et al. (2017) performed a level III, A-rated systematic examination of women with overweight and obesity to assess their perspectives regarding a variety of strategies to reduce weight-based stigma. Study subjects were all members of the Obesity Action Coalition (OAC), a non-profit, national organization who provide education, support and advocacy to individuals affected by overweight and obesity (Puhl et al., 2017). Subjects were recruited to participate in the current study via e-mails, monthly newsletter announcements and social media advertisements. The survey was hosted by Qualtrics.com, whose website provided study information, including its voluntary and anonymous nature. Upon consenting to participate, subjects completed the survey and were given the option of entering a raffle to win $25. A total of 728 subjects entered the survey, with 596 consenting to participate. Certain subjects were excluded from the study. Subjects who did not respond to survey questions or were missing data were excluded. As only 8% of subjects were male, they were excluded due to the low number unable to provide meaningful gender comparisons (Puhl et al., 2017).

Subjects completed demographic information, then completed a 35-item online survey about stigma-reduction strategies. The survey was developed by the authors, utilizing previously tested survey items by the same authors. Stigma-reduction strategies were focused in seven content areas, with the one of interest to this project being health care. Subjects rated the importance of each of the 35 stigma-reduction strategies on a 5-point scale, ranging from 1 (*not at all important*) to 5 (*extremely important*). Scale items were then recoded into three groups to

determine the percent of subjects rating items as being of high, moderate or low importance. Subjects then selected five strategies they believed would have the highest positive effect on reducing weight bias. Subjects then were questioned as to what role they believed different groups, including health care providers, can play in reducing weight-based stigma and discrimination. Response options were major role, minor role, or no role. Personal experience of weight bias was obtained with a yes/no response option. Internalization of weight bias was assessed using a modified 10-item version of the Weight Bias Intervention Scale (WBIS-M), using a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Descriptive statistics were used to examine subject responses, along with multiple linear regression models. Reported level differences were less than $p = 0.05$ (Puhl et al., 2017).

Results provided evidence that women with overweight and obesity and/or a history of weight stigma attribute high importance to a range of different weight bias and discrimination reduction strategies in various settings, including health care (Puhl et al., 2017). Among other specific strategies perceived to be high in both potential impact and feasibility was providing training on respectful and compassionate care for healthcare providers (Puhl et al., 2017). While research has demonstrated mixed results regarding the effectiveness of public education to improve understanding of the complex etiology of obesity, 94% of participants assigned high importance to this intervention (Puhl et al., 2017). The authors note that this raises the question of how to proceed when a stigma reduction strategy has strong public support, but research findings show limited effectiveness. Regardless, the authors stress the need for researchers on weight bias include the views of those targeted, who are most the knowledgeable and affected by weight stigma (Puhl et al., 2017).

Diedrichs and Barlow (2011) conducted a level III, A-rated trial designed to evaluate a brief educational intervention on reducing weight bias among undergraduate health students by targeting beliefs about weight controllability. The convenience sample was comprised of 85 undergraduate students enrolled in three psychology courses at a large Australian university.

Each courses' students were assigned to one of three study conditions: Intervention, *n* = 30; control, *n* = 35; or comparison, *n* = 20. Pre-test measures were completed, followed by the intervention and control groups received lectures on body image, obesity and weight-related health. Post-test measures were administered immediately after. Subjects in the control group also completed a post-test measure one week later. Maintenance of effect in changing controllability beliefs, weight-bias-related attitudes was assessed in the three groups with a follow-up test three weeks post-intervention. A two-hour intervention lecture covering body image, obesity and weight bias was developed and presented to the intervention group. Content emphasized research and empirical evidence on the multiple factors that determine body weight, including those that are not easily modifiable or non-modifiable by individuals. The aim of this intervention was to directly challenge subjects' beliefs regarding individual controllability of weight. Information on and practical strategies to avoid weight bias and promote size acceptance in health care settings and research was also included (Diedrichs & Barlow, 2011). A two-hour comparison lecture presented standard course curriculum, aimed at increasing knowledge of risk factors and treatment of overweight and obesity. Prevalence data and a detailed discussion of lifestyle factors, focusing on sedentary behaviors and calorie dense, nutrient poor diet were emphasized. Interventions for weight loss were overviewed, with a focus on activity and dietary modifications. Emphasis in this group was placed on individual controllability of weight (Diedrichs & Barlow, 2011). Participants in both groups completed demographic information. The measure employed was the Antifat Attitudes Test (AFAT), which consists of 13 items measured on a Likert scale 1-5, (Chronbach's *a* = .95), in addition to measuring attitudes on subscales: Weight Control/Blame (Chronbach's *a* = .84), Romantic/ Physical Unattractiveness (Chronbach's *a* = .80) Social Disparagement (Chronbach's *a* = .89) (Diedrichs & Barlow, 2011).

Results revealed that subjects in the intervention group were less likely to believe that weight is solely within individual control (*p* = .023) and less likely to hold negative findings (*p* =

.003) toward persons with overweight and obesity or to rate them as unattractive (p = <.001) (Diedrichs & Barlow, 2011). Changes were maintained at three weeks post-intervention. Disparagement of overweight and obese persons' social character increased over time in the control condition (p < .005); no changes were detected in the comparison or intervention groups (Diedrichs & Barlow, 2011). The authors concluded that brief, education-based anti-weight bias interventions have shown success in changing weight controllability beliefs and reducing weight bias in health care students.

Poustchi et al. (2013) conducted a level III, A-rated pilot study testing the effectiveness of an educational intervention in reducing bias toward persons with overweight and obesity. A convenience sample of second-and-third-year medical students (n = 64) completed a one-hour intervention consisting of watching a 17-minute video about weight bias and participated in a facilitated interactive discussion about their experiences with patients with overweight and obesity (Poustchi et al., 2013). The video contained informational presentations from obesity experts, as well as dramatic simulations designed to evoke empathy towards these patients. Subjects completed three validated and reliable surveys to measure weight bias pre/post intervention, including the Beliefs About Obese Persons (BAOP) scale (Chronbach's *a* pre-intervention 0.66, post-intervention 0.72); the Attitudes Towards Obese Persons (ATOP) scale (Chronbach's *a* pre-intervention 0.86, post -intervention 0.88) and the Fat Phobia Scale (FPS, Chronbach's *a* pre-intervention 0.83, post-intervention 0.89). Paired sample *t*-tests were used to determine statistical significance at a *p*-value < 0.05 (Poustchi et al., 2013).

The BAOP post-intervention mean score was significantly higher (p = 0.0006), consistent with an increased belief that causality of obesity is related to genetic and environmental factors, as compared to a lack of personal control (Poustchi et al., 2013). ATOP post-intervention mean score revealed no significant change (Poustchi et al., 2013). The post-intervention FPS score was significantly lower (p < 0.0001), revealing a decrease in negative stereotypes (Poustchi et al., 2013). Multivariate analysis indicated no association between subject characteristics and

baseline and post-intervention BAOP and FPS scores or baseline ATOP scores (Poustchi et al., 2013). Significant differences were noted in post-intervention ATOP scores by age (p = 0.001), gender (p = 0.009) and race (p = 0.047), indicating more positive attitudes in younger, male and Caucasian subjects (Poustchi et al., 2013). The authors conclude that this small study was successful in implementing a relatively simple, accessible intervention for reducing weight bias, neither sustainability of the effects nor whether the changes in attitudes results in changes in actual behavior was studied (Poustchi et al., 2013).

Level IV evidence.

Ramos Salas et al. (2017) provided a level IV, A-rated summary of findings from the third Canadian Weight Bias Summit, which was convened to review current evidence and reach a consensus on key weight bias and obesity discrimination reduction messages and strategies. The summit was organized by the Canadian Obesity Network - Reseau canadien en obesite (CON-RCO) staff and the EveryBODY Matters Research Collaborative Core Members (Ramos Salas et al., 2017). Stakeholders (n = 42) including researchers studying weight bias and discrimination, health professionals, policy makers, civil servants, knowledge translation experts, industry and non-profit partners, Canadian Obesity Network (CON) colleagues, graduate student volunteers and persons affected by overweight and obesity utilized a modified brokered dialogue approach to review evidence, move toward consensus on key messages and strategize future interventions (Poustchi et al., 2013). Four general categories of questions were employed to guide the process: What? (Description), Why? (Explanation), So What (Synthesis) and Now What? (Action) (Poustchi et al., 2013). These questions were addressed through activities, including persons with overweight and obesity sharing stories perspective and evidence; a systematic review of the literature; knowledge exchange activities; and others. Consensus was reached on key messages resulting from this congress; key messages/findings of this summit included the need for non-tolerance of weight bias a discrimination in various sectors, including health care; the need for obesity to be recognized and treated as a chronic

disease; and the need for weight and health to be decoupled (Poustchi et al., 2013). Strategies and tactics addressing the key findings were enumerated for various stakeholders. Those relating to health care professionals included: Incorporating changes in the health care curriculum, education for current health care professionals, and peer mentoring, which was explained as finding champions to increase buy-in (Poustchi et al., 2013). Consensus on future strategies included the need to create resources to support policy makers, the need to include narratives from persons living with overweight and obesity to communicate anti-discrimination messages, and the need for a better clinical definition of obesity (Poustchi et al., 2013). In addition, consistency in the use of theoretical frameworks and methodologies in messaging and strategies were noted as additional needs that should be employed and evaluated (Poustchi et al., 2013).

MacKean and GermAnn (2013) authored a level IV, A-rated critical review of the literature and an environmental scan on reducing weight bias and stigma in British Columbia's health care system. Commissioned by the British Columbia Mental Health and Addiction Services (BCMHAS), its purpose was to conduct a literature review and environmental scan of promising practices to guide the development of a weight bias reduction resource for use by health care providers. The report was comprised of seven main sections, including introduction, background information, methods, overview of potential components of a weight-related bias reduction resource, key resource materials, questions for consideration for resource development and concluding thoughts (MacKean & GermAnn, 2013). A mixed-methods approach was employed, with key questions and data sources identified. A search of peer-reviewed literature of published literature was undertaken by accessing MEDLINE, PubMed, CINAHL, PsycINFO, SocINDEX, Social Services Abstracts and Social Work Abstracts. A combination of keywords was used across four main themes: Health care professionals and health care delivery, obesity/overweight, stigma/bias and evidenced-based practices to reduce stigma/bias. Limiters included English language and date range 2002-2012. Exclusions included

comments, editorials and letters. Search of the databased yielded 2,440 results; a review of titles and abstracts, as well as screening for relevance, narrowed this to 35 full text articles; a scan of gray literature, citation chasing and key informant interviews identified additional articles (MacKean & GermAnn, 2013). The environmental scan was accomplished through project team compilation of a list of key informants (*n* = 22), who were then interviewed following one of two interview guides: One for researchers and persons employed in this area; the other for citizens, representing the perspective of the population with overweight and obesity (MacKean & GermAnn, 2013). The report included a detailed discussion of various approaches to weight bias reduction noted in the literature.

Among the literature review findings relating to broad principles for stigma reduction are that a multi-faceted and multi-level approach must be employed and that any approach must address the fundamental underpinnings of stigma (MacKean &GermAnn, 2013). Key informant interviews concluded that the following concepts should be considered for inclusion in a stigma-reduction resource for health professional. This included self-awareness, information on causality and controllability of weight, the relationship between weight and health, information about the health consequences of weight stigma, exposure to persons with overweight and obesity and the experience of being overweight and obese and incorporation of opinion leaders to raise weight stigma as an important issue (MacKean & GermAnn, 2013). In addition, the need to increase provider competency and its components were proposed. Promising stigma reduction resources and/or initiatives were identified, including the Rudd Center for Food Policy and Obesity, Health at Every Size (HAES), the Canadian Obesity Society's 5 A's, Leveraging Equitable Non-Stigmatizing health promotion delivery (LENS) and others (MacKean & GermAnn, 2013). Potential approaches and methods for health care provider education included making the experience interesting; incorporating interactive and enjoyable through videos, etc.; being strategic regarding the portrayals used in the videos; being purposeful and creating a psychologically-safe learning environment; creating opportunities for social learning;

incorporating the use of narrative; putting attention on how learning can be translated into practice (MacKean & GermAnn, 2013). Another theme reported was that bias reduction interventions must occur at multiple levels, including the intrapersonal, interpersonal, organizational/institutional, community and governmental/structural levels; training programs for health care professionals at the organizational level are only one component (MacKean & GermAnn, 2013, p. 58).

Level V evidence.

Pearl (2018) published a level V, A-rated integrative review of weight bias and stigma, emphasizing public health implications and offering structural solutions to address these phenomena. The author provided a brief overview of obesity, noting its negative health outcomes. The nature and extent of weight stigma was presented, including stigma encountered in health care. Various psychological theories providing explanations for weight bias and stigma were reviewed. These included attribution theory, with the concepts of controllability and physical attractiveness; evolutionary theory of pathogen avoidance; and social consensus theory. Research findings related to each theory were cited (Pearl**,** 2018). Mental and physical health consequences of weight stigma were presented; biosocial models of health consequences, including the concepts of social identity threat, stereotype threat, and internalization of weight bias were detailed (Pearl**,** 2018). Proposed polices to prevent and limit weight bias and stigma were described, included legislation to prohibit discrimination and/or bullying, anti-bullying policies calling for weight bias training for educators and employers, training for health care professionals and regulations for the physical environment of health care, and a media pledge to avoid using weight-stigmatizing images, news content and public health messages (Pearl, 2018, p.162). Evidence of the effectiveness was admitted to being limited; however, the author asserted that there exists high public support for legislation prohibiting weight discrimination and bullying (Pearl**,** 2018). Examples of health care initiatives to reduce weight stigma and discrimination were noted to include education and training,

incorporating content on attributions, language and communication; and physical environment requirements (Pearl**,** 2018). Concluding statements called for the implementation of policies to reduce discrimination, teasing/bullying, stigmatizing messages and discriminatory treatment and stereotypical portrayals in the media, followed by studies evaluating their effects on preventing and limiting weight stigma and resulting health consequences (Pearl**,** 2018).

Puhl et al. (2016) produced a level V, A-rated review and opinion piece on overcoming weight bias in the management of patients with diabetes and obesity. In addition to providing an overview of the prevalence of obesity and weight bias, as well as the associated adverse consequences on health and the provision of health care, this publication also provided a review of strategies noted in the literature to reduce weight bias in clinical practice. The authors note that interventions reducing explicit weight bias have included education that highlights the complex causality of obesity, including genetic, metabolic and social factors; in contrast, many providers focus almost exclusively on the energy balance model of weight gain, which may reinforce the belief that obesity is mainly an issue of personal responsibility (Puhl et al., 2016). Providing information to medical trainees with information on biological and genetic causes of obesity have reduced negative weight bias. This has been accomplished through a variety of delivery formats, including educational films, lectures, handouts and simulated interactions, making this a feasible intervention in health curriculums and clinical training settings (Puhl et al., 2016). Interventions to reduce implicit bias have included informing providers of the effect their bias has on the quality of care delivered, thus motivating providers to change (Puhl et al., 2016). Exposure to exemplars of persons with overweight and obesity who run counter to stereotypical images and portrayals can reduce implicit bias (Puhl et al., 2016). Implicit biases are more likely to influence behavior when providers are mentally taxed and lacking in time or energy to consciously process patient information. Strategies to reduce implicit bias by emotion regulation and stress-reducing techniques may assist providers to approach persons with overweight and obesity as individuals, rather than employing stereotypes (Puhl et al., 2016). Interventions that

may impact both implicit and explicit bias include having positive experiences, wherein information, thoughts and shared goals are exchanged with persons who are overweight and obese. This is partially mediated by empathy, which has been linked to bias reduction. Empathy-focused interventions have produced limited and mixed results, requiring more study (Puhl et al., 2016). Instituting policies that emphasize respectful language and treatment and have zero-tolerating policies for derogatory language and behaviors is another option that has been implemented. Incorporation of person-first language represents an effort to treat persons with overweight and obesity as individuals, rather than labeling them by their weight. Training in patient-centered communication, such as motivational interviewing, may reduce the impact of implicit bias (Puhl et al., 2016). Finally, the authors report that preliminary evidence supports training providers in communication skills that allow discussion of obesity, while avoiding stigma and increasing empathy, in order to improve counseling skills Puhl et al., 2016).

Doshi and Gudzune (2018) also produced a level V, A-rated review of how attitudes, communication and behaviors of health care providers differ towards persons with obesity and examined interventions to reduce weight bias among current and future health care professionals. After providing evidence for health inequality for persons with overweight and obesity, citing both clinician-decision making concerns and patient factors influencing patient-clinician relationships, the authors provided a review of interventions enacted to mitigate weight bias. They then briefly summarize results from a systematic review and a meta-analysis. While acknowledging limiting factors in these articles, the authors report findings of the systematic review that weight bias may persist in the face of bias-reduction interventions; however, the meta-analysis concluded that weight bias interventions have had small, significant ameliorating effects on anti-fat attitudes and beliefs (Doshi & Gudzune, 2018). The authors next provide reviews of studies focusing on traditional instruction, media-based instruction and experimental learning regarding the topic of obesity. Outcomes for traditional classroom instruction and educational modules suggested these interventions might be effective for short-term

improvement in explicit and implicit attitudes of students (Doshi & Gudzune, 2018). Some limited evidence indicated possible long-term effects in some dimensions for students, suggesting the potential benefit of introducing obesity content during training; however, there was insufficient evidence for determining effects in professionals (Doshi & Gudzune, 2018). Media-based interventions demonstrated promise in reducing explicit bias, but did not impact implicit bias, with mixed, insufficient evidence reported for long-term effects (Doshi & Gudzune, 2018). The authors proposed that it might be helpful to incorporate multimedia into traditional curriculum to reduce weight bias. Experiential learning results showed preliminary evidence that this mode provided a critical intervention for reducing weight bias (Doshi & Gudzune, 2018). Exposing students to obesity treatments might decrease negative attitudes. Conversely, limited contact and negative role modeling appeared to increase weight bias. Thus, it may be beneficial for health care students to have prolonged, positive exposure to patients with overweight and obesity and corresponding treatment modalities. The authors note that much of the research subject pool has been students; thus, additional research is needed using practicing heath care providers (Doshi & Gudzune, 2018). However, the authors conclude the examined research had made it apparent that interventions utilizing traditional classroom and media-based instruction, as well as experiential learning, were most successful, with multi-faceted content reported as most effective in reducing weight bias (Doshi & Gudzune, 2018). Specifically, content should include causality of overweight and obesity, clinician training focused on weight bias awareness, the opportunity to assess their own explicit and implicit attitudes, perspective-taking exercises and the need to focus on improved health and well-being, instead of solely focusing on weight. Attempts to reduce stigmatizing items, processes and aspects in the health care environment should be undertaken (Doshi & Gudzune, 2018).

Fruh et al. (2016) authored a level I, A-rated continuing education article targeting nurse practitioners on obesity stigma and bias. The article introduces weight bias and its consequences, the perpetuation by mass media, health care provider bias, patients' perceptions

of biased care, the impact on health care services, and a review of resources. Specific strategies for providers to consider for reducing weight stigma were detailed, including considering patients' past experiences with weight bias; recognizing the complex etiology of obesity; exploring all causes of any presenting problems, not just focusing on weight; recognizing that many patients have had repeated weight loss attempts; emphasizing behavior change over the scale; offering concrete advise, acknowledging difficulty in making lifestyle changes; recognizing the significant health gains of small weight loss; and creating a supportive health care environment (Fruh et al., 2016). They denoted the importance of identifying one's own bias and specified strategies for addressing obesity bias, including self-refection, supportive communication and language, people-first language, creative office environments, sensitive weighing procedures and necessary equipment. The authors propose that addressing and eliminating and stigma are initial steps in ensuring quality care and effective weight treatment and management (Fruh et al., 2016).

Although not included in the evidence table, the literature search also revealed a number of resources on this topic. The Rudd Center for Food Policy and Obesity at the University of Connecticut is a non-profit research and public policy organization devoted to promoting solutions to, among other issues, weight bias through research and policy. The Rudd Center serves as a leading research institution and clearinghouse for resources relating to the complex forces impacting how weight bias and stigma, as well as interventions for impacting these issues. Obesity Canada (formerly the Canadian Obesity Network) is that nation’s leading obesity association, which works toward reducing weight bias and the social stigma associated with obesity through research, education and action. The Obesity Action Coalition is a national non-profit organization which has, as part of its focus, to fight to eliminate weight bias and discrimination, elevate the conversation of weight and its impact on health and offer a community of support for the individual affected. The STOP Obesity Alliance is a collaboration of over 80 consumer, provider, government, business and health insurance organizations which

focuses on the development of evidence-based reports, policy recommendations and tools to assist health care providers to communicate and provide appropriate care to persons with overweight and obesity. The Obesity Society offers tools and resources to educate policymakers and support health care providers. These organizations listed are among many who provide additional valuable resources on the subject of obesity and the provision of respectful and appropriate care to persons with overweight and obesity.

Phase II of the model guided the literature search for this EBP project and yielded high level evidence: Four level I, high-quality randomized controlled trials; three level II, good quality systematic reviews and a meta-analysis of good quality; five level III systematic reviews, meta-analyses, and non-randomized studies of good quality; one level IV, high quality summary of summit proceedings; and five level V pieces of evidence of high and good quality, including literature reviews, an environmental scan and opinion pieces by internationally-known research experts in the field. The determination of evidence level and quality, along with a critique and synopsis of each piece of evidence which focused on applicability and potential utilization in development of the intervention prepared the project to move into phase III of the Stetler Model.

Construction of Evidence-based Practice

Synthesis of Critically Appraised Literature

Obesity prevalence in the U.S. is currently approaching nearly 40% of the adult population (Warren et al., 2018), with 78% of those with severe obesity reporting usually or always experiencing disrespectful treatment by the medical profession due to their weight (Latner & Stefano, 2016). Pearl (2018) notes that the stigma of obesity is a major factor that potentially contributes to or exacerbates some of the mental and physical health problems associated with obesity. Weight bias and stigma have been shown to have negative impacts on persons with overweight and obesity seeking of health care, as well as the care offered by health care providers. Ultimately, the mental and physical health, as well as quality of life of persons experiencing weight bias and stigma can be significantly impacted (Pearl, 2018).

Identifying high level, high quality evidence on which to base this EBP project aimed at reducing weight bias and stigma was paramount, as was synthesizing the evidence. After identification and retrieval of the best available evidence, along with determination of evidence level and appraisal of evidence quality, the project moved into phase III of the Stetler Model, which focused on synthesis of the evidence. Similarities and differences across the evidence were noted and major trends identified. Evidence was evaluated for substantiating evidence, feasibility, fit and qualifiers and current practice. Determination of evidence for inclusion and exclusion was completed, followed by synthesis of the findings, which was integral to the development of the project's multifactorial intervention.

Several themes emerged from the literature search and review of the available evidence on interventions to reduce weight bias in health care providers. First, there was wide consensus that along with a limited number of studies in this area, many studies that have been conducted demonstrated significant methodological problems (Danielsdottir et al., 2010; Lee et al., 2014; Alberga et al., 2016; Ramos Salas et al., 2019; Fitzgerald et al., 2019). Numbers of subjects were often low, with many of the studies occurring in the laboratory setting and not representative of the general population. A wide variety of designs and outcome measures were employed, thus hindering the ability to perform meta-analysis. In response to these observations, there existed significant consensus in what is needed in future research on this topic, including more high-quality, well-designed randomized controlled trials incorporating appropriate methodology and larger numbers of practicing health care providers representative of the general population. In addition, clear definitions and cut-off points for clinically significant bias change; consistency in methods, outcome measures and reporting; and follow-up measurement to measure sustainability of results were identified as needs (Danielsdottir et al., 2010; Lee et al., 2014; Alberga et al., 2016; Ramos Salas et al., 2017; Fitzgerald et al., 2019).

Despite these shortcomings, several identifiable themes were noted among the findings that provide support for development of a multi-factorial intervention. First, there was

overwhelming agreement that weight bias and stigma represent serious health issues that require intervention (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; Mac Kean & GermAnn, 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Hilbert, 2016; Puhl et al, 2016; Burmeister et al., 2017; Luck-Sikorski et al., 2017; Puhl et al., 2017; Ramos Salas et al., 2017; Pearl, 2018). Most interventions resulted in small-to-moderate effects on bias (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; MacKean & GermAnn, 2013; Poustchi et al., 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Hilbert, 2016; Burmeister et al., 2017; Luck-Sikorski et al., 2017; Ramos Salas et al., 2017; Doshi & Gudzune, 2018; Pearl, 2018; Fitzgerald, 2019; Forscher et al., 2019). These small-to-moderate positive reductions in weight bias were seen as encouraging, not a reason to abandon implementing studied interventions, as evidenced by the conclusions among all authors that the issue of weight bias requires more study and intervention. There was also consensus that no one single intervention has yet to be identified as the best way to reduce weight stigma. Researchers have therefore concluded that a multifactorial approach is warranted (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; Mac Kean & GermAnn, 2013; Poustchi et al., 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Fruh et al., 2016; Hilbert, 2016; Puhl et al, 2016; Puhl et al., 2017; Ramos Salas et al., 2017; Doshi & Gudzune, 2018; Pearl, 2018; Fitzgerald et al., 2019). There was also considerable agreement regarding potential contributors of weight bias and stigma, particularly in regard to attribution, controllability and social consensus (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; MacKean & GermAnn, 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Hilbert, 2016; Burmeister et al., 2017; Luck-Sikorski et al., 2017; Pearl, 2018). These concepts provided a basis for identifying and guiding potential interventions. The importance of assessing one's own bias was noted to be integral by a number of authors (MacKean & GermAnn, 2013; Alberga et al., 2016; Fruh et al., 2016; Doshi & Gudzune, 2018). An educational component to provide the foundation for weight bias interventions received unanimous support in the evidence (Danielsdottir et al., 2010; Diedrichs

& Barlow, 2011; Mac Kean & GermAnn, 2013; Poustchi et al., 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Fruh et al., 2016; Hilbert, 2016; Puhl et al, 2016; Burmeister et al., 2017; Luck-Sikorski et al., 2017; Puhl et al., 2017; Ramos Salas et al., 2017; Doshi & Gudzune, 2018; Pearl, 2018; Forscher, et al., 2019). Suggested content generally included the definition and prevalence of weight bias and stigma; manifestations; mental, emotional, and physical effects; awareness of one's own bias; communication skills and environmental considerations. Concepts such as influencing controllability, inducing empathy, discrediting stereotypes, using counterstereotypical and opinion-leader exemplars, social consensus manipulation, invoking sets of concepts, goals or motivations or taxing mental resources, and use of a strong exemplar to change social norms received support among the research (Danielsdottir et al., 2010; Diedrichs & Barlow, 2011; Mac Kean & GermAnn, 2013; Poustchi et al., 2013; Swift et al., 2013; Lee et al., 2014; Alberga et al., 2016; Fruh et al., 2016; Hilbert, 2016; Puhl et al, 2016; Burmeister et al., 2017; Luck-Sikorski et al., 2017; Puhl et al., 2017; Ramos Salas et al., 2017; Doshi & Gudzune, 2018; Pearl, 2018; Forscher, et al., 2019). Media such as film was identified as an effective means to impart this education (Danielsdottir et al., 2010; Swift et al., 2013; Lee et al., 2014; MacKean & GermAnn, 2013; Poustchi et al., 2013; Alberga et al., 2016; Puhl et al., 2016; Burmeister et al., 2017; Doshi et al., 2018; Pearl, 2018).

The evidence provided mixed or negative results in several areas. These included the concepts of controllability (Lee et al., 2014), engaging others' perspectives (Fitzgerald et al., 2011), invoking empathy (MacKean & GermAnn, 2013; Lee et al., 2014; Alberga et al., 2016; Puhl, 2018b), social consensus (Lee et al., 2014), and the use of affirmations, moods, emotions, and threats (Forscher, 2019).

Following careful appraisal and synthesis of the best available evidence, development of an evidence-based, multifactorial intervention was required. This led to phase IV of the Stetler Model, which focused on translation and implementation.

Best Practice Model Recommendation

Phase IV of the Stetler Model instructed the project director to begin by confirming the type, level and method of application of evidence chosen for inclusion in phase III. With this accomplished, evidence-based documents and additional resources were identified or designed, as needed. Plans for disseminating the multifactorial intervention were completed, as were methods of evaluation. Sustainability of the intervention was considered during its design.

Despite the robust evidence highlighting the damaging effects of bias and stigma, strong evidence for a specific, single intervention to reduce weight bias and stigma does not exist. Researchers and experts in this field therefore recommend a multifactorial-based intervention. This EBP project thus sought to determine the best strategy for implementing a multifactorial intervention to decrease weight bias among health care providers. The intervention was based upon the synthesis of levels I - V, high-and-good quality-rated evidence obtained through an exhaustive, systematic search, review and appraisal of the literature, and synthesis of the evidence. A multifactorial intervention consisting of four key components was determined to represent the best practice to address weight bias among health care providers: Self-awareness of weight bias, education on weight bias and stigma, incorporation of a strong leader exemplar, and guideline development. Development of each component was directed by evidentiary support. The first component consisted of a valid, reliable instrument for measuring weight bias, which provided the self-awareness component of the intervention. The instrument was administered pre-intervention and allowed subjects to assess and be made cognizant of their own weight bias. It also served as an outcome measure, providing baseline, immediate post-intervention and approximately two-to-three-month post-intervention outcome data for the intervention's effectiveness. Upon completing the initial weight bias instrument, subjects viewed a brief video, providing the second component of the intervention; education. Topics addressed in the video included an overview of weight bias and its frequency, contributing factors, manifestation, potential harmful effects and combatting weight bias. The third component of the

multifactorial intervention was incorporation of a strong leader exemplar. This was accomplished by inclusion of a brief video statement by the CNO, which provided support for the concepts presented in the preceding video and emphasized the priority and expectation for reducing weight bias in order to improve patient care for those with overweight and obesity. This was intended to change the social acceptability of weight bias and stigma within the organization. This video statement was shared with the subjects immediately following the first video. The fourth component of the intervention was the development of an evidence-based guideline for providing care for patients with overweight and obesity. The guideline was made available to subjects at the time of the video viewing. Immediately after exposure to the video, leader exemplar video and guideline, subjects again completed the instrument for measuring weight bias. This was done to note any immediate change in bias resulting from the multifactorial intervention. To measure sustainability of the intervention's effect on weight bias, the instrument was also completed at approximately two-to-three-months post-intervention.

How the Best Practice Model Will Answer the Clinical Question

The evidence supported this DNP project to reduce weight bias among health care providers. Stetler's Model of EBP provided direction for the well-planned and implemented DNP project that would impact interactions with and care provided to patients with overweight and obesity.

The clinical question was "'Among health care professionals employed at a small Midwestern hospital, does the introduction of a multi-factorial intervention versus current practice of no intervention reduce weight bias immediately and at two-to-three-months post-intervention?" Baseline bias data were collected pre-intervention, with post-outcome measures assessed immediate post-intervention to assess for immediate change in bias and at two-to-three-months post-intervention, to assess sustainability of bias changes. If the intervention were to decrease the levels of bias post-intervention, there would be a statistically significant measure noted ($p < .05$) for these measures. If found to be the case, this intervention would be

deemed as successful in decreasing weight bias among health care providers. Hospital leadership may then consider continuation of this intervention on an ongoing basis.

Table 2.2

Evidence Summary

Citation (APA)	Purpose	Design/Level/ Quality Rating	Sample	Measurement/ Outcomes	Results/Findings
Luck-Sikorski et al. (2017)	To compare attitudes towards obesity following three causal explanations for obesity using vignettes	• Randomized Controlled Trial • Level I • Quality A High	407 adult subjects from a large, on-line sample; part of the American National Election Studies (ANES)	3 constructed dependent variables scales -Negative Attitudes Scale -Blame Scale -Social Distance Scale	Participants preferred individual causes (76.2%) Negative attitudes ($p = 0.003$) and blame ($p < 0.001$) were associated with individual responsibility for obesity Individual responsibility vignette associated with lower levels of social distance ($p = 0.043$) and higher levels of blame (emphasis: $p = 0.101$; bias: $p = 0.001$)
Burmeister et al. (2016)	To examine the effects of viewing a weight stigma video on attitudes toward obesity across several domains	• Randomized Controlled Trial • Level I • Quality A High	109 under-graduates at a Midwestern university	Universal Measure of Bias (UMB) - Fat; Attitudes Toward Obese Persons (ATOP) scale, looking at negative judgments, social distance and attraction.	Significant decrease on negative judgments about persons with obesity ($p = .001$) Significant decrease on desire for social distance ($p = .045$) No significant effect on attraction ratings ($p = .082$) Significant effect on desire for equal rights ($p = .001$)

Swift et al. (2013)	To examine the effects of/ feasibility of using educational films on reducing weight stigma among trainee dietitians and physicians	• Randomized Controlled Trial (Pilot) • Level I • Quality A High	43 dietitian and physician trainees	F-scale measurement of fat phobia Beliefs About Obese People (BAOP) scale Anti-Fat Attitude (AFA) Willpower Subscale AFA Dislike Subscale Implicit Attitude Test (IAT) Scores	Intervention films significantly improved explicit attitudes and beliefs towards persons with obesity (F-scale $p \leq 0.0001$; BOAP $p \leq 0.0001$) IAT showed significant main effects over time ($p < 0.05$), but was not sustained Participant evaluation was noted as very positive Intervention may be effective in reducing stigmatizing attitudes; feasible for use
Hilbert (2016)	To develop and pilot a brief, interactive stigma reduction to 1) educate university students on gene X environment interactions 2) evaluate this intervention in the general population and determine mechanisms of change	• Randomized Controlled Trial (Pilot) • Level I • Quality A High	128 university students and 128 adults in the general population	Study 1: Antifat Attitudes Test (AFAT) Beliefs About Obese Persons Scale (BAOP) Implicit Attitudes Test (IAT) Study 2: AFAT Causal Attributions of Obesity Questionnaire (CAOQ) Belief in Genetic Determinism (BGD-adapted version) Social Desirability Scale (SDS) IAT	Decreased weight stigma in the short-term in persons with high educational level Study 1: AFAT results significantly less explicit stigmatizing attitudes in the experimental than in the control group ($p < .01$; medium effect) BAOP results showed less controllability beliefs and greater knowledge of obesity (both $p < .001$; large effects) IAT did not differ between groups ($p > .05$) Study 2: AFAT, BAOP, CAOQ internal attributions, IAT: No significant difference ($p > .05$) CAOQ genetic knowledge of obesity, genetic causal attributions and BGDS:

					medium-to-large effects; $p <$ .01)
Alberga et al. (2016)	To assess the impact of interventions designed to reduce weight bias in students or professionals in a health-related field	• Systematic Review • Level II • Quality: B Good	17 intervention studies	Evaluation of study quality Changes in beliefs/knowledge of obesity; reduction in weight bias	Various bias reduction strategies utilized; many had methodological weaknesses. Study quality ranged from 0.45-1.0, with a mean of 0.71). Many studies reported changes in health professionals' beliefs and knowledge of obesity etiology, but effectiveness of interventions is poor, with unknown long-term effects. Health professionals must be aware of own attitudes and behaviors and how negative stereotypes impact patient care and engagement in the healthcare system. Pre-professional education and professional curriculum revisions are required to raise skills and competencies. Changes in practice will likely require multiple strategies
Fitzgerald et al. (2019)	To review peer-reviewed studies conducted on adults between May 2005 and April 2015, testing interventions designed to reduce implicit bias, using	• Systematic Review • Level II • Quality B Good	• 30 studies from peer-reviewed journals	Reduction in implicit bias, denoted as reduction in bias, measured by the IAT or sufficiently similar method, in the same individuals in a pre/post- test design or	Most effective interventions included intentional strategies to overcome biases, exposure to counter-stereotypical exemplars, identifying oneself with the "outgroup," evaluative conditioning and inducing emotion.

	validated testing methods			in the group that underwent the intervention in a control group design.	Engaging with others' perspectives not shown as effective
Forscher et al. (2019)	To synthesize evidence from studies to investigate the effectiveness of procedures in changing implicit measures and effects on explicit and behavioral measures	• Meta-analysis • Level II • Quality B Good	• 492 studies	Multivariate implementation of network meta-analysis to identify changes in implicit measures of bias, effects on explicit bias and behavioral measures	Changes in implicit measures are possible across many areas of study, populations, implicit tasks and research designs; the most successful approaches directly or directly target associations, depleted mental resources, or induced goals; those that induced threat, affirmation or affective states had small or inconsistent effects. Changes in implicit bias do not necessarily translate into changes in explicit measures or behaviors.
Lee et al. (2014)	To evaluate the impact of weight bias interventions on weight-biased attitudes and beliefs and explore potential moderators	• Meta-analysis • Level III • Quality A High	• 30 studies from 29 articles	Use of a validated weight bias measure; random effects model used to determine main effect of weight bias interventions on weight-biased attitudes and beliefs. Intervention moderator analyses conducted on 4 levels: Controllability, empathy, social consensus and other;	Small-to-medium effect on weight-biased attitudes ($p <$ .001, CI 95%). Differences in effectiveness between intervention type, publication type and study population were not significant, but there were some trends. No publication bias revealed. Conclusion that no single intervention will eradicate weight bias

				population moderator analysis also included. Publication bias and sensitivity assessed	
Danielsdottir et al. (2010)	To identify and describe published research on interventions to reduce anti-fat prejudice	• Systematic Review • Level III • Quality B Good	• 16 published studies	Quality of studies; reduction of anti-fat prejudice	Lack of research on interventions; methodological problems present. Results indicate mixed evidence for effectiveness; some report changes in belief and knowledge, but without accompanying reduction in anti-fat prejudice. Interventions including social norm- and social consciousness are more encouraging.
Puhl et al. (2017)	To systematically assess the perspectives of women with high body weight about their perspectives of strategies to reduce weight stigma	• Systematic Survey • Level III • Quality A High	• 461 women with over-weight or obesity	Online survey evaluating the importance, feasibility and potential impact on 35 stigma-reduction strategies in diverse settings	95.1% of subjects reported experiencing weight stigma Majority of subjects assigned high importance to all stigma-reduction interventions Weight stigma training rated as most impactful and feasible strategy
Diedrichs et al. (2011)	To evaluate a brief educational intervention to reduce weight bias in student health providers by challenging beliefs about weight controllability	• Non-equivalent group comparison trial • Level III	• Under-graduate psychology students • N = 85	AFAT administered pre-intervention, immediately post-intervention and 3-weeks post-intervention	Intervention group subjects were less likely to attribute weight solely within individual control (p = .003); less likely to hold negative attitudes toward persons with overweight or obesity; less likely to rate as unattractive (p = .003). Results maintained at 3

		• Quality B Good			weeks. No significant changes in control or comparison groups. Brief education-based anti-weight bias interventions show positive effects in changing weight controllability beliefs and reducing weight bias.
Poustchi et al. (2013)	To test the effectiveness of an educational intervention in reducing bias towards obese patients	• Non-randomized intervention study • Level III • Quality A High	• Second- and third-year medical students • N = 64	Beliefs About Obese People (BAOP) Attitudes Toward Obese Persons (ATOP) Fat Phobia Scales (FPS)	Belief in genetic and environmental causality increased significantly (BOAP; $p = .0006$). Negative stereotypes decreased (FPS; $p < 0.0001$). ATOP scores showed independent associations with post-interventions. Intervention is accessible and easily-replicated.
Ramos Salas et al. (2017)	To provide a review of the third Canadian Weight Bias Summit, which reviewed current evidence and moved towards consensus on key weight bias reduction messages and strategies for future interventions	• Review of summit proceedings • Level IV • Quality A High	• NA	Development of a consensus on key weight bias and obesity discrimination reduction messages and strategies	Successful strategies exist; use in combination: Educate on the uncontrollable, non-modifiable causes of obesity to evoke empathy through positive contact with persons with obesity, peer modeling and shadowing with empathetic experts, repeated exposure to persons with obesity, and raising provider skills/ competencies Key messages: Need for no tolerance policy; recognize and treat obesity as a chronic

					disease, decouple weight and health, create resources to support policy makers, use personal narratives to engage audiences and communicate anti-discrimination messages; develop a better clinical definition for obesity. Implement messages/ strategies; evaluate using consistent theoretical frameworks/methodologies
MacKean et al. (2013)	To develop a resource to reduce weight-related bias and stigma in the health care system	• Critical Review of Literature And Environ-mental Scan • Level V • Quality A High	• 35 full-text articles and book chapters from electronic search, plus additional articles from hand-search; 22 interviews of researchers, experts and persons with over-weight and obesity	Increased awareness of prevalence of weight bias and stigma in health care and its impact; change in health professionals' interactions with those with overweight/obesity	Value of using multiple approaches, including EBP information and strategies to evoke emotion. 5 key components for inclusion: Providing evidence about weight, weight bias and health; self-awareness; exposure to persons with overweight and the experience of being heavy; influence of opinion leaders in the professions/society; and competency development. List of resources provided
Pearl (2018)	To review weight bias and stigma, noting public health implications and structural solutions	• Integrative Review • Level V	• N/A	Identification of public health implications of and structural solutions for reducing weight bias and stigma	>90% of women with obesity rated strategies focused on reducing weight bias in health care settings as being of high importance

		• Quality A High			Proposed solutions include enhancing obesity-related education/training, creating an appropriate physical environment and expanding insurance coverage of obesity-related treatments
Puhl et al. (2016)	To review weight bias in persons with diabetes and obesity, its adverse consequences and strategies to reduce weight bias in clinical practice	• Review and Expert Opinion • Level V • Quality A High	• N/A	Outcomes indicating reduction in weight bias and related behaviors	Weight bias is increasing Healthcare providers consistently express weight bias Weight bias impairs quality of care; leads to numerous adverse health consequences and unhealthy behaviors, impairing quality of life Weight bias is frequently implicit and explicit Interventions including weight bias include education, counterstereotypical exemplars, positive contact, building empathy, altering a clinic's normative belief about/expectations of behavior toward persons with obesity, including policy development, people-first language and training in patient-centered communication strategies
Doshi et al. (2018)	To review the evidence on how the attitudes,	• Literature Review	• Number, level, quality	Quality of studies; applicability of study support of framework	Findings from a systematic review show weight bias may persist after interventions and

	communication and behaviors of clinicians differ towards patients with obesity and examine interventions to reduce weight bias among current and future healthcare professionals. To review evidence supporting application of a framework for patients with obesity.	• Level V • Quality B Good	of studies not provided		a meta-analysis that weight bias interventions have a small, significant effect in reducing anti-fat attitudes and beliefs. Traditional instruction/educational modules might be effective in the short-term for improving explicit and implicit attitudes of students; long-term evidence is limited. Inclusion of traditional instruction in healthcare professional training might be prudent. Media-based interventions show promise in reducing explicit bias; do not appear to affect implicit bias. Mixed evidence regarding long-term effectiveness. Propose incorporating multi-media into traditional curriculum
Fruh et al. (2016)	To provide a continuing education piece for NPs on obesity stigma and bias	• Integrative Review • Level V • Quality A High	NA	NA	Provided an encompassing review of weight bias in health care including research findings, resources and strategies for the NP

CHAPTER 3

IMPLEMENTATION OF PRACTICE CHANGE

This EBP project sought to answer the question as to whether a multifactorial intervention targeted at hospital colleagues can reduce weight bias at the time of intervention and whether the effect is sustained at two-to-three-months. Despite evidence that obesity is a disease with a complex, multifactorial etiology, persons with overweight and obesity are often a target for weight bias and stigma (Alberga et al., 2016). The health care environment and its providers are often a source of this bias and stigma (Alberga et al., 2016). A multifactorial intervention to reduce weight bias among health care providers was implemented and outcomes evaluated, providing an answer to this clinical question.

Participants and Setting

Participants who took part in this practice change were health care providers employed at a small, Midwestern hospital. The hospital serves as one of only two hospitals in the county and draws patients from three surrounding counties in Indiana, as well as one county in Michigan. It is a for-profit, acute care hospital which is part of a large nation-wide group of for-profit hospitals. The hospital is licensed for 227 beds; 129 of these are listed as in operation. As noted previously, 2018 hospital data reported 4,527 acute care admissions with a total of 17,841 acute care patient days (A. Leffler, personal communication, July 3, 2019). Daily census varies, but often runs 80 to 90 inpatients.

Pre-Intervention Group Characteristics

Individuals eligible for participation in this included health care providers over the age of 18 years currently employed at the hospital; exclusion criteria included those under 18 years of age, health care providers not currently employed at this hospital and employees of the hospital not providing direct patient care. Years in practice ranged from persons just entering practice to those nearing retirement. The majority of the colleagues were Caucasian and female; ages ranged from 18 to 65. All had undergone some type of medical training; many held degrees

and/or were licensed or certified in their respective field. An informal tally of the potential pool of multidisciplinary to participate as subjects to receive this intervention was undertaken by the DNP student project director. The results revealed an approximate total number of registered nurses: 300; nursing assistants, certified nursing assistants and nurse techs: 45; registered dietitians: 3; physical therapists and assistants: 6; occupational therapists and assistants: 6; speech therapists: 3; radiology, ultrasound, computerized axial technology (CT) , Magnetic Resonance Imaging (MRI), and nuclear medicine technologists: 36; surgical assistants/technologists: 14; emergency department (ED) paramedics, emergency medical technicians and ED techs: 10. A total pool of potential subjects for this intervention numbered approximately 433 colleagues.

Intervention

The Stetler Model provided clear direction for the planning and preparation of this EBP project. During Phase I, the DNP student project director considered potential opportunities for practice change, including those to reduce weight bias and stigma. During a meeting with the CNO, potential projects were presented. During the ensuing discussion, it was mutually agreed that the current project represented a high-priority need. This was due, in part, to the hospital's future plans to offer metabolic and weight loss surgery. Thus, strong administrative support for this project was secured. Next, a PICOT question was created. This was followed by initiation of a systematic review of the literature, which was undertaken to determine what evidence existed. Potential key words and search terms were identified. A preliminary search of six appropriate databases yielded a sufficient number of potentially usable articles. A phone meeting with nursing faculty provided opportunity for the DNP student project director to discuss the proposed project, share what evidence had been located at that point and gain input and suggestions from the faculty as to the feasibility of the project. A formal proposal was submitted and subsequently approved. The systematic literature then intensified. An accounting of the search process was shared with the research librarian, followed by an individual meeting.

Keywords, search terms, limiters and results obtained were reviewed and discussed. Minor suggestions were shared, with granting of final approval of the evidence search. The resulting search yielded a total of 599 articles. Phase II directed the performance of a utilization-focused critique of the obtained evidence; 81 articles were deemed as appropriate for abstract review for usefulness. Of this number, 18 articles underwent detailed a critique, including leveling and appraisal of quality. Phase III directed the synthesis of evidence findings and identification of common themes. Evidence was evaluated for fit, feasibility, substantiating evidence for applicability to this project and current practice. Final determination of usable evidence was made, with synthesis of the evidence completed. This resulted in a clear understanding of current evidence for best practice in reducing weight bias. Phase IV included development of the multifactorial intervention based on the best evidence synthesized from the research. Stakeholder input was frequently sought during this design phase. Available resources, including weight bias measurement instruments, videos, hospital resources, etc. were identified and evaluated for use. Once a measurement tool and video were selected for use, permission was sought from the instrument's author and from the organization owning the rights to the video; both sources immediately provided permission to use their property. Next, development of the remaining components of the intervention was undertaken. This included the creation of a brief video depicting an opinion leader exemplar, a guideline for care of the person with overweight and obesity and a participant evaluation of the intervention. Next, consideration of the best plan for implementing the intervention was undertaken, in order to facilitate the process to gain the greatest number of participants. Options were discussed with the CNO and the decision was made to incorporate the intervention into the fall nursing competencies, along with department-based visits for non-nursing potential participants. Additional concerns, including those pertaining to IRB approval, were addressed. Plans for the approximate two-to-three-month follow-up measurement were developed. Phase V, evaluation, was addressed through outcome measurement using the bias measurement tool, as well as the participant evaluation.

Findings were shared with the CNO, to allow for consideration of whether this intervention should be continued as a part of yearly competencies, whether any needed modifications were identified or whether to abandon the intervention.

The multifactorial intervention for reducing weight bias among health care providers at this hospital consisted of four main components: Self-assessment of weight bias, viewing of an anti-weight bias video aimed at health care providers, strong leader exemplar promoting the importance of reducing weight bias and development of a guideline for caring for persons with overweight and obesity.

Participation in the EBP project was voluntary. The opportunity to participate was offered at five offerings of the fall 2019 nursing competencies. Most participants attended on a non-scheduled work day, although they were paid for their time; the remainder were attending on a scheduled work day, placing them under a more restricted time. Potential participants were informed that participation would require approximately twenty-to-twenty-five minutes, along with a five-minute follow-up in approximately two-three months. Some individuals expressed a desire to participate, but were unable to do so due to time constraints. Requests were received to make the EBP project available to them online or at another time. In response, the project was modified to accommodate these requests; specifically, an email was sent to all nurses and potential clinical colleagues house-wide, inviting their participation and providing them with the forms, videos and directions for completing the project. The same items were also made available in the nursing and clinical department breakrooms, along with fliers inviting participation. These efforts took the place of the initially-planned administration in the clinical departments, as it was found to be more time efficient. While the majority of participants were recruited during the nursing competencies, these modifications did result in additional participants.

The intervention began by the participants completing a demographic information questionnaire, developed by the DNP student project director. Questions include those related

to gender, age, race/ethnicity, highest level of education, occupation and years employed in this occupation. Participants were instructed to not add their name and had the option to choose “prefer not to answer” to any question (see Appendix A).

The first component of the intervention was self-assessment, which served to make health care providers more aware of their own bias toward persons with overweight and obesity. This was promoted as an intervention in a number of studies and by numerous opinion experts (Alberga et al., 2016; Doshi & Gudzune, 2018; Fruh et al., 2016; MacKean & GermAnn, 2013). Self-assessment of weight bias was accomplished by participants completing the AFA (see Appendices B-D). The instrument consisted of 13 questions on a 0-9 Likert-type scale, designed to measure specific aspects of weight bias. The questions were divided into three domains: "Dislike," "fear of fat," and "willpower." Permission to use the instrument was sought by the DNP student project director and received from the instrument developer (C. Crandall, personal communication, July 3, 2019) (see Appendix E). Upon completion of the instrument, participants were informed that higher scores indicate more bias among the three domains and overall.

The second component of the intervention consisted of participants viewing a 17-minute evidenced-based video, *Weight Bias in Health Care,* produced by researcher experts in weight bias from the UConn Rudd Center for Food Policy and Obesity. Permission to use the video in this EBP project was sought by the DNP student project director and received from the UConn Rudd Center (M. Schwartz, personal communication, July 3, 2019) (see Appendix F). This video and others similar in length and content have been used in numerous research studies and promoted as a resource for reduction in weight bias (Burmeister et al., 2017; Doshi et al., 2018; Fruh et al., 2016; Latner & Stefano, 2016; Lee et al., 2014; MacKean & GermAnn, 2013; Molloy et al., 2016; Pearl et al., 2018; Poustchi et al., 2013; Puhl et al., 2016; Swift et al., 2013; Wijayatunga et al., 2018). Content included the definition of weight bias and its prevalence; manifestations; contributing factors, including causality and attribution of obesity; negative

effects of bias and stigma; and steps health care providers can implement to reduce weight bias and stigma (Weight Bias in Health Care, n.d.).

The third component of the intervention was participant exposure to an opinion leader exemplar emphasizing the priority of reducing weight bias and stigma at the hospital. It was determined that the CNO fulfills the role of a strong exemplar who could impart the need to address this issue. A script was written by the DNP student project director and videotaping of the CNO relaying this content was undertaken. This two-minute video was shown immediately following the first video. It focused on the expectation that colleagues identify and confront weight bias and stigma and urging participants to seriously consider and apply what they learned in the previous video (see Appendix G).

The fourth component of the intervention was development of a guideline for providing care to persons with overweight and obesity (see Appendix H). A search of current hospital resources on this topic substantiated the need for development of a comprehensive, evidence-based guideline.

Immediately after completing the demographic questionnaire, the pre-intervention AFAQ viewing the two videos and receiving/reviewing the guideline, participants completed the immediate post-intervention AFAQ. Repeated use of the same tool was designed to determine any immediate changes in bias resulting from the multifaceted intervention.

At approximately two-to-three-months post-intervention, participants were again sent the same AFAQ to complete, in order to determine any further change and/or sustainability of bias over time. At this time, a Likert-type participant satisfaction/evaluation tool was also administered, in order to gain additional feedback on their perceptions relating to the multifaceted intervention. Two open-ended questions and an opportunity to comment were also included to allow participants to share their feedback in their own words (see Appendix I).

Comparison

Nationally, combined overweight and obesity rates are reported at 70.7% (National Center for Health Statistics, 2017). An informal prevalence survey of inpatients at the hospital, conducted by the DNP student project director, revealed that 50% of inpatients on a given day in July, 2019 had a BMI indicative of overweight or obesity. A repeat informal prevalence survey performed the next week found 62% of inpatients with a BMI indicative of overweight or obesity. Research findings report that weight bias and stigma are experienced by 69% of women (Alberga et al., 2016) and approximately 40% of men with overweight and obesity (Himmelstein et al., 2018). Weight bias is common among health care providers. Puhl and Heuer (2009) reported that in a multidisciplinary group of health care providers, a substantial (up to 50% in some studies) held anti-fat attitudes that stereotype persons with obesity and believed that weight is under an individual's personal control, making it blameworthy. Multiple instances of weight bias and stigma have been observed and reported at this hospital. Substantial evidence exists to support the claim that weight bias and stigma have serious, negative effects on the psychological, physiological and health-related quality of life of these individuals (Puhl et al., 2016). Increased mortality rates have also been reported (Sutin et al., 2015). The evidence-supported significance of the effects of weight bias and stigma in health care provided the driving force for this EBP project. Results of the pre-intervention AFAQ provided baseline data for comparison with immediate post-intervention and approximately two-to-three-months post-intervention results.

Outcomes

Phase V of the Stetler Model is Evaluation, which takes into account the outcomes achieved. The primary outcome of this project was to determine if the multifactorial intervention, consisting of self-assessment of bias, education, opinion leader exemplar and a guideline for care of persons with overweight and obesity, would decrease weight bias immediately after the intervention and at approximately two-to-three-months post-intervention, to determine if any

change in weight bias was sustained. A secondary outcome focused on whether participants judged the intervention to be useful; this was evaluated by participants completing a brief evaluation form developed by the DNP student project director.

The measure used to assess the outcome was the afore-mentioned AFAQ by Crandall (as cited by Lacroix et al., 2017, p. 7). Two major factors drove this decision. First, the tool measured the intended purpose of the intervention. Next, it received among the highest rating (7 out of 8) on an evidence checklist developed to evaluate the psychometric quality of weight bias questionnaires (Lacroix et al., 2017). Criteria evaluated included internal consistency, test-retest reliability, theoretical clarity, content validity, structural validity, convergent validity, discriminant validity and sensitivity to change. The only criterion on which the instrument did not receive an affirmative rating was test-retest reliability (Lacroix et al., 2017). It is worthy to note that this was only met by three of the 40 instruments included in this study (Lacroix et al., 2017); none of these was determined appropriate for inclusion in this project. In addition, the brevity of the questionnaire (13 questions) provided a pragmatic reason to choose this tool, over another similarly-rated tool with over three times as many questions. Lastly, the tool was easy to administer and score; data analysis was also easily accomplished.

The data was collected by the participants' submissions of their pre-intervention responses immediately after completing a brief demographic form, viewing the educational component and opinion leader exemplar videos and reviewing the guideline. Participants were administered a repeat of the same instrument at approximately two-to-three-months post-intervention. Data was managed according to approved procedures, maintaining anonymity, and underwent analysis by employing the appropriate statistical methods. Post-intervention scores of weight bias, both immediate and at approximately two-to-three-months post-intervention were compared to the pre-intervention scores to determine the intervention's effect.

In addition to this outcome measure, a brief participant evaluation seeking participants' feedback on the multifactorial intervention was administered, with findings collated and

summarized. Both the AFAQ instrument outcome data and participant feedback were utilized in determining whether results justify sustainment of this intervention and/or if modifications will be needed.

Time

The projected timeline of this project extended from August, 2019 through mid-February, 2020. Implementation of the project was planned to commence in mid-to-late August, beginning with the DNP student project director introducing the upcoming project to potential participants and their managers, in order to stimulate interest and encourage participation in the intervention. Tasks that needed to be completed in the planning included determination of the best way to structure administration of the intervention. Due to time constraints related to placing this content on the ALC online educational platform and assigning it as an educational requirement for the targeted colleagues, it was decided that this was not feasible at this time. This possibility may, however, be revisited in the future. It was decided that the intervention would be better administered during the planned fall nursing competency days, which were required attendance for the nurses and nursing assistants/techs. For non-nursing staff, the intervention was planned to be provided within the various departments. Both of these options were anticipated to result in a much larger number of participants than a more unstructured, volunteer-based approach.

Introduction/promotion of the project was slated to begin in mid-to-late August, continuing into early September. Implementation of the intervention itself was scheduled to occur in late August/early September, 2019 to coincide with the predetermined nursing competency dates. Follow-up re-administration of the AFAQ began in late November/early December 2019 and extended into January/early February 2020. This was accomplished by the DNP student project director placing the AFAQ follow-up instrument, participant evaluation and self-addressed return envelope in each participants' mailboxes in the departments for colleagues to complete anonymously. The DNP student project director made frequent rounds

to these areas, reminding and encouraging colleagues to complete the instrument. Email reminders were also sent to participants.

Protection of Human Subjects

The DNP student project director completed the Collaborative Institutional Training Initiative (CITI) program on April 14, 2019 (see Appendix J). Approval for the EBP project was sought from the Valparaiso University Institutional Review Board (IRB) when required. Approval from the hospital's IRB was not required, as this EBP project was not a research study; the inclusion of the AFAQ instrument was only to determine the effectiveness of the multifactorial intervention. No patients were included in this project; thus, no maintaining or storing patient medical record numbers was required. Collection of participants' demographic data and use of the tool does present the need for protecting participants' anonymity. This was accomplished using appropriate methodology which anonymized participant responses. Identifiers such as name and colleague identification number were not included on the demographic form, the AFAQ instrument response form, nor the participants' evaluation form. Neither the DNP student project director nor anyone else were able to link these forms to individual participants. The DNP student project director individually examined, aggregated and summarized the non-identified demographic, AFAQ response data and participants' evaluation forms in a closed office to ensure added security. Participant demographic information, AFAQ instrument scores and summaries of participants' evaluations were stored only on the DNP student project director's laptop, which is secured and backed up on a removable drive. Once these processes were completed, hard copies of all participant documents were shredded.

CHAPTER 4

FINDINGS

This EBP project was completed to determine the effects of a multifactorial intervention to reduce weight bias in healthcare professionals. The primary objective was to compare changes in the primary outcome measure of antifat attitudes. The PICOT question was: "Among health care professionals employed at a small Midwestern hospital, does the introduction of a multi-factorial intervention versus current practice of no intervention reduce weight bias immediately and at two-to-three months post-intervention?" The secondary objective was to determine participants' reaction to the multifactorial intervention. The project took place in a small, rural, for-profit hospital in the Midwest. The multifactorial intervention consisted of a brief demographic survey, followed by administration of the AFAQ; viewing of a 17-minute video, *Weight Bias in Healthcare*; viewing of a brief strong leader/exemplar video and review of a guideline for the care of patients with overweight and obesity. Immediately following this, participants retook the AFAQ. At two-to-three-months post-intervention, participants one again took the AFAQ and completed a participant evaluation of the project. Data from the pre-, immediate-post and two-to-three-months post intervention were entered into the *Statistical Package for the Social Services (SPSS)* program. Secondary outcome findings of participants' reaction to the intervention were also entered into SPSS. Qualitative data, consisting of participant written comments, were compiled and reviewed for recurring themes.

Participants

This EBP project enrolled a total of sixty-three participants who voluntarily completed the pre-intervention component of the project; sixty completed both the pre-and immediate post-intervention components of the project. Of those sixty participants, forty-one completed the two-to-three months post-intervention survey. Data from the twenty-one participants who did not complete the follow-up component of the intervention were not included in the analysis; consequently, the total number of participants was forty-one.

Differences in the demographic characteristics of completers versus non-completers of the project were examined. The gender and race of both groups was similar, with non-completers 95.2% female and 76.2% Caucasian; completers were 97.6% female and 87.8% Caucasian. The largest age group of the non-completers was the 40-50 years age group; the largest group in the completers was the 20-30 years age group. Highest level of education differed between the two groups. Non-completers had lower percentages than completers at the baccalaureate level (38.1% vs. 61.0%, respectively) and master's level (4.8% vs. 12.2%, respectively). In addition, the non-completer group included less registered nurses than the completer group (52.4 vs. 85.4). The non-completer group included more nursing assistants/patient care techs (23.8% vs. 2.4%)and diagnostic technicians (14.3% vs. 2.4%) than the completer group. Finally, the highest number of completers were participants with tenure of 11-20 years (29.3%) and over 20 years (34.1%). Highest rates for non-completers were in the less than 5 years (23.8%) and over 20 years (38.1%) tenure categories.

A statistical analysis of demographic information of those who completed all components of the intervention to those who did not was performed to ascertain any statistically-significant differences in the two populations. An independent-samples *t*-test was calculated comparing the mean score of the six demographic variables of participants who completed the project to the mean score of participants who did not complete the project. Testing for equal variances assumed or not assumed was conducted. The largest standard deviation (SD = 1.54844) was more than two times the smallest deviation (SD = .15614); thus, equal variances were not assumed. No significant difference was found for gender ($t(26.02) = -.49$, $p > .05$). The mean of the completers ($M = 1.02$, $sd = .16$) was not significantly different from the mean of non-completers ($M = 1.05$, $sd = .23$). No significant difference was found for age ($t(29.11) = .26$, $p > .05$). The mean of the completers ($M = 2.89$, $sd = 1.23$) was not significantly different from the mean of non-completers ($M = 2.78$, $sd = 1.40$). No significant difference was found for race/ethnicity ($t(56.38) = .97$, $p > .05$). The mean of the completers ($M = 1.37$, $sd = 1.07$) was

not significantly different from the mean of non-completers (*M* = 1.17, *sd* = .51). No significant difference was found for highest education (*t*(29.24) = 2.02, *p* > .05). The mean of the completers (*M* = 3.76, *sd* = .83) was not significantly different from the mean of non-completers (*M* = 3.21, *sd* = 1.03). No significant difference was found for occupation (*t*(33.16) = -.60, *p* > .05. The mean of completers (*M* = 1.54, *sd* = 1.45) was not significantly different from the mean of non-completers (*M* = 1.79, *sd* = 1.55). No significant difference was found for length of employment (*t*(30.10) = .41, *p* > .05). The mean of the completers (*M* = 2.75, *sd* = 1.13) was not significantly different from the mean of non-completers (*M* = 2.61, *sd* = 1.24). In conclusion, no statistical differences were identified between the completers versus non-completers among the six demographic variables.

Analyses of participant demographic data revealed that of the forty-one individuals who completed the project, forty were female, with a mean age range of 40-49 years (*SD* =1.23, range 18-29 to 60+ years). The majority (*n*=36) were Caucasian (87.8%). Thirty-five were registered nurses (85.4%). Level of education evidenced eight participants with associate degrees (19.5%), twenty-five with bachelor's degrees (61%) and five with master's degrees (12.2%). Mean number of years in the role was the five-to-ten years group (*SD* = 1.11, range under five years to over 20 years). Participation in the EBP project was voluntary. Table 4.1 summarizes participants' demographic data.

Table 4.1

Characteristics of the Participants

N = 41

Characteristic	*n*	%
Gender		
Male	1	2.4
Female	40	97.6
Prefer not to answer	0	0.0
Age (in years)		
18 – 29	4	9.8
30 – 39	13	31.7
40 – 49	10	24.4
50 – 59	8	19.5
60+	6	14.6
Prefer not to answer	0	0.0
Ethnicity/Race		
White/Caucasian	36	87.8
Black/African American	1	2.4
Hispanic	0	0.0
Other	2	4.9
Asian	1	2.4
Native American	1	2.4
Prefer not to answer	2	4.9
Highest Level of Education		
High School	1	2.4
Certification/Career Training	2	4.9
Associate Degree	8	19.5
Bachelor’s Degree	25	61.0
Master’s Degree	5	12.2
Doctorate	0	0.0
Prefer not to answer	0	0.0
Occupation		
Registered Nurse	35	85.4
Nursing Assistant/Patient Care Tech	1	2.4
Diagnostic Technician/Technologist	1	2.4
Therapist (PT/OT/Speech)	1	2.4
Therapist (Respiratory)	0	0.0
Other	3	7.3
Prefer not to answer	0	0.0
Time Employed in Occupation (in years)		
Under 5 years	7	17.1
5 – 10 years	7	17.1
11 – 20 years	12	30.0
Over 20 years	14	35.0
Prefer not to answer	0	0.0

Changes in Outcomes

The main objective of this project was to determine the effect of the project's multifactorial intervention's effect on antifat attitudes immediately post-intervention and whether any resulting change is sustained at two-to-three months post-intervention. The secondary objective was to ascertain participants' reactions to the multifactorial intervention.

Statistical Testing and Significance

The AFAQ was utilized to assess participants' antifat bias. This instrument has been utilized in a number of studies and is acknowledged by a number of researchers to have good validity and reliability. In designing the instrument, its author, Crandall (1994) states, "Items were selected for inclusion on the basis of loading substantially on any factor with an eigenvalue greater than 1.0." In a personal communication with the DNP student project director, Crandall noted, "Much of the work that shows validity of the scale isn't labeled 'validity,' such as correlations with ideology variables, which is concurrent validity. We don't call it that, but simply take it for granted readers understand it accrues validity in this research" (Crandall, 2020). Trembly et al., (2016) agreed, writing, "This instrument was validated by Crandall and showed good psychometric properties with reliability coefficients of 0.84, 0.79 and 0.66, respectively…" Moody et al. (2009) also acknowledged that this instrument "has previous evidence of construct validity and internal consistency." Finally, Lacroix et al. (2017) rated the instrument among the highest in a systematic review of characteristics and psychometric properties of forty self-report questionnaires. Thus, this was determined to be a valid and reliable scale to be used in this project.

To test for the primary outcome of the multifactorial intervention's effect on antifat attitudes, *SPSS Version 22* was used to perform a one-way repeated-measures ANOVA. This was determined to be the appropriate test to analyze this data, which required the ability to analyze a within-subjects independent variable when more than two levels of an independent variable were being compared. The one-way repeated-measures ANOVA was calculated by

comparing the mean antifat attitudes scores of participants at three different times: Pre-intervention, immediate post-intervention and two-to-three-months post-intervention. A $p < .05$ for all data analyzed was used to demonstrate statistical significance.

The participant evaluation of the project consisted of two parts: Seven questions on a five-point Likert scale and a qualitative section composed of four open-ended questions. To test for the secondary outcome, differential statistics were employed to analyze participant responses to the scale questions. A Pearson correlation coefficient was calculated for the relationship between participants' immediate and two-to-three months antifat attitude average score and gender, age, race/ethnicity, level of education, work category and years in the role. Cronbach's alpha was calculated to determine internal consistency. A $p < .05$ for all data analyzed was used to demonstrate statistical significance. Qualitative data consisted of participant written responses on the evaluation, which were recorded and reviewed for common themes. The four open-ended questions included: "What did you find most beneficial?" "What did you find least beneficial?" "Suggestions for improvement" and "Comments."

Findings

Primary Outcome. A one-way repeated-measures ANOVA was calculated comparing the antifat attitudes scores at three different times: Pre-intervention, immediate post-intervention and at two-to-three months post-intervention. No significant effect was found ($F(2,80) = .209$, $p > .05$). No significant difference exists among pretest ($M = 2.24$, $sd = 1.27$), immediate post-intervention ($M = 1.92$, $sd = 1.13$), and at two-to-three-months post-intervention ($M = 2.17$, $sd = 1.21$) means. Mauchley's Test of Sphericity reported significance of .000; the Null hypothesis was not rejected. Tests of within-subjects effects reported the level of significance as $p = .209$, indicating no significant difference. Table 4.2 provides detailed information on the descriptive statistics. Table 4.3 provide additional detail regarding results of Mauchley's Test of Sphericity; Table 4.4 details results of tests of within-subjects effects. Table 4.5 provides results of

between-subjects testing. Finally, Table 4.6 details between-subject effects, with average mean as the transformed variable.

Table 4.2

Mean Antifat Attitudes

Descriptive Statistics	Mean	Standard Deviation	*n*
Pre-intervention Average	2.24	1.27	41
Immediate Post-intervention Average	1.93	1.13	41
2-3 Months Post-intervention Average	2.17	1.21	41

Table 4.3

Mauchley's Test of Sphericity[a]

Within Subject's Effects	Mauchley's W	Approximate Chi-square	*df*	Significance *p*	Epsilon[b] Greenhouse -Geisser	Huynh-Feldt	Lower-bound
Time	.372	38.539	2	.000	.614	.624	.500

a Design: Intercept
Within Subjects Design: Time

b May be used to adjust the degrees of freedom for the averaged tests of significance. Corrected tests are displayed in the Tests of Within Subjects Effects table

Table 4.4

Tests of Within-Subjects Effects

Source		Type III Sum of Squares	*df*	Mean Square	*F*	Significance *p*
Time	Sphericity Assumed	2.321	2.000	1.161	1.596	.209
	Greenhouse-Geisser	2.321	1.228	1.890	1.596	.215
	Huynh-Feldt	2.321	1.247	1.861	1.596	.215
	Lower-bound	2.321	1.000	2.321	1.596	.214
Error	Sphericity Assumed	58.197	80.000	.727		
(Time)	Greenhouse-Geisser	58.197	49.132	1.815		
	Huynh-Feldt	58.197	49.893	1.166		
	Lower-bound	58.197	40.000	1.455		

Table 4.5

Tests of Within-Subjects Contrasts

Source	Time	Type III Sum of Squares	*df*	Mean Squares	*F*	Significance *p*
Time	Linear	.111	1	.111	.100	.574
	Quadratic	2.211	1	2.211	6.409	.015
Error (Time)	Linear	44.400	40	1.110		
	Quadratic	13.797	40	.345		

Table 4.6

Tests of Between-Subjects Effects

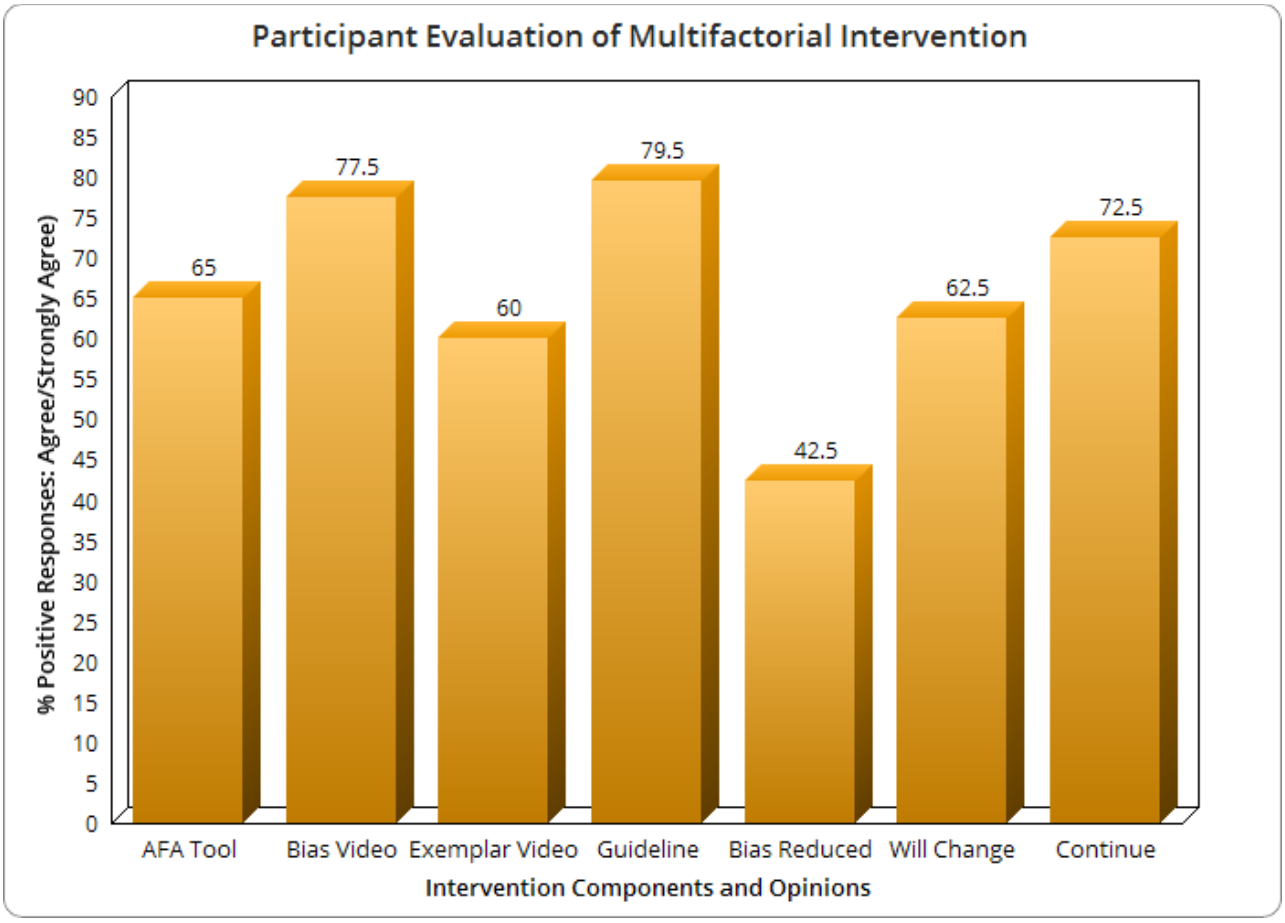
Transformed Variable: Average

Source	Type III Sum of Squares	*df*	Mean Squares	*F*	Significance *p*
Intercept	548.997	1	548.997	190.006	.000
Error	115.575	40	2.889		

Secondary outcome. The first portion of the participant evaluation, comprised of seven questions on a five-point Likert scale were analyzed using descriptive statistics. The average of mean participant satisfaction scores, as evidenced by agree/strongly agree responses to positively-worded measures was positive (*M* = 65.64). Chart 4.1 depicts the averages of participant responses of strongly agree or agree to positively-worded questions on the evaluation.

Figure 4.1

Percent of Strongly Agree/Agree Responses – Participant Evaluation



Internal consistency was strong among the seven variables (*a* =.908). High reliability was evidenced with a strong positive correlation was found among all variables (r(39) = .732-*.860, p* < .001). Table 4.8 reports Pearson correlations scores and significance for seven variables included in the participant evaluation.

Table 4.7

Pearson Correlations

Variable	Score Total
AFA Heightened Awareness	.816*
Significance	.000
Video Increased Awareness	.835*
Significance	.000
Video Importance	.738*
Significance	.000
Guideline Will Assist	.860*
Significance	.000
Attitudes Lessened	.832*
Significance	.000
Will Make Changes	.732*
Significance	.000
Reinforcement Beneficial	.832*
Significance	.000

*Correlation is significant at .001 level

Qualitative data was comprised of participant comments to the four open-ended questions on the participant evaluation. Participant responses were collated, reviewed and analyzed for major themes.

Question one. ***"What did you find most beneficial?"*** Thirty-one participants responded to this question. Themes noted in participant responses included No. One participant wrote, *"Being overweight myself—I thought I did not judge others—but was made aware that I do at times and this has helped me become aware of my own attitude."* Inclusion of the video *Weight Bias in Healthcare* was an additional positive theme.

Question two. ***"What did you find least beneficial?"*** Fourteen participants responded to this question; the recurring theme was that all components of the intervention were beneficial. One participant stated that the opinion leader/exemplar video was the least beneficial component. The only other response included, *"Facility does not always have resources to implement these measures."*

Question three. ***"Suggestions for improvement."*** Ten participants responded to this question. Themes included *"no suggestions"* and expanding the intervention to all colleagues. One participant wrote, *"Would like more on communication and ways to discuss health problems associated with weight without giving offense."*

Question four. ***"Comments."*** Five comments were received; no common theme was identified. One participant wrote, *"There are many reasons people become obese, some nurses never choose to address issues/reasons why & act on it (make better choices)."* Another participant commented, *"I was reminded my equipment may not be up to higher weight standards. When I requested purchasing equipment for higher weight, I was told to ask people their weight before service, weight them first and my job was threatened."*

CHAPTER 5

DISCUSSION

The purpose of this EBP project was to determine the answer to the following PICOT question: "Among health care professionals employed at a small midwestern hospital, does the introduction of a multifactorial intervention versus current practice of no intervention reduce weight bias immediately and at two-to-three-months post-intervention?" The multifactorial intervention included participant self-evaluation of weight bias, education on weight bias in health care, strong leader/exemplar support for weight bias intervention and care guidelines for persons with overweight or obesity. The intervention was introduced at a small midwestern rural hospital. Primary outcome data were reviewed pre-, immediate-post and at two-to-three months post-intervention to determine if the intervention resulted in a reduction in weight bias and, if so, was the reduction sustained. The secondary outcome of interest focused on participants' evaluation of the multifactorial intervention. This chapter will provide a critical analysis and explanation of the project. Findings will be explained and factors influencing the outcomes will be identified and discussed. Project strengths and limitations will be addressed and the EBP framework selected to guide the development and implementation of the project will be evaluated. Finally, implications for the future of weight bias research and EBP projects will be discussed.

Explanation of Findings

The primary outcome of this EBP project was addressed by the PICOT question, which asked whether the multifactorial intervention would result in a reduction in weight bias among health care providers and if so, would it be sustained at two-to-three months. To determine this, the appropriate statistical test, a one-way repeated-measures ANOVA, was calculated. Antifat attitudes scores were compared pre-intervention, immediate post-intervention and at two-to-three-months post-intervention. Statistical results of this EPB project were non-significant

($F(2,80) = .209$, $p > .05$). The multifactorial intervention did not result in a statistically-significant reduction in weight bias immediately or at two-to-three months post-intervention.

The possibility that the EBP project would not yield statistically-significant results was not totally unanticipated. The systematic review of the literature evidenced mixed results and only moderate support for a multifactorial intervention for reducing weight bias (Doshi & Gudzune, 2018). Researchers have employed a number of various interventions, including self-assessment of weight bias, traditional classroom instruction, media-based instruction/ educational videos, publicized interventions, strong leader/exemplar supporting the reduction of weight bias, provision of care guidelines, experiential learning, and employment of a "fat suit" to enable subjects to undergo simulation of the experience of obesity. To date no one, specific intervention for reducing weight bias has been identified (Alberga et al., 2016).

Other factors may have impacted participants' responses to the AFAQ. Although this instrument has been shown to be valid and reliable (Trembly et al., 2016; Moody et al., 2009), it was created in 1994. The use of the term "fat," while possibly acceptable at that time, did prompt some of the participants in this project to criticize the instrument upon taking the survey pre-intervention. Participants voiced that they found the use of the term "fat" offensive. Their negative reaction to the terminology may have impacted their responses to the questionnaire; specifically, they may have reacted by rating their bias lower than they might have without the use of "fat" in the questionnaire. In addition, while taking the pre-intervention questionnaire, some participants made it a point to verbally inform the DNP student project director that they do not have weight bias; that this would be unacceptable in their roles as nursing assistants. Thus, their pre-intervention responses may have been influenced by what they perceived as the "correct" response and not truly reflective of their thoughts and opinions. This is reflective of the *Hawthorne Effect,* in which participants in studies have been noted to temporarily change their behavior in response to being observed (Wikipedia, n.d.). In this case, participants' completion of the questionnaire was not under direct observation and participants were assured that

anonymity of responses would be maintained throughout the project. However, the fact that some participants felt the need to make their lack of weight bias known to the DNP student project director may indicate the presence of role expectation influence on their responses. As a result, participants may have rated their bias lower pre-intervention, contributing to the statistically non-significant results when compared to the immediate post-intervention and two-to-three-months post-intervention results.

The secondary outcome focused on participants' evaluation of the multifactorial intervention. The first portion of the participant evaluation consisted of seven questions on a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Descriptive statistics were employed to determine the average of mean participant scores. Overall, the results (M = 65.64), evidenced by agree/strongly agree responses to positive-worded measures, indicated a positive participant response to this EBP project.

A review of participants' evaluation of the specific components of the multifactorial intervention was performed. Sixty-five percent of participants agreed/strongly agreed that the AFAQ heightened awareness of their own potential weight biases; several also commented on this. Over 75% agreed/strongly agreed that the video, *Weight Bias in Heath Care,* increased their awareness of the problem of weight bias in health care. Again, several participants commented that they were previously unaware of this issue. The top-rated component of the multifactorial intervention was the guideline, created by the DNP student project director, which received a 79.5% agree/strongly agree rating. The high rating of this component may be a reflection of the need for evidence-based guidance for health care providers to apply when caring for persons with overweight and obesity. The lowest-scoring component of the intervention, at 60%, was the strong opinion leader/exemplar video. Review of participant evaluations of the specific components of the multifactorial intervention provided insight into which parts of the intervention the participants found most beneficial. This information will be utilized when planning for the sustainment of the intervention.

Participant perceptions regarding change in their own antifat attitudes, along with the likelihood of making changes in communication and care provided to patients with overweight and obesity, were also sought. In contrast to the positive responses received upon evaluation of the intervention components, only 42.5% of participants reported a belief that their own antifat attitudes lessened after participating in the intervention. This could be a reflection of the fact that the pre-intervention average mean AFAQ was low (*M* = 2.24). Participants rated their own weight bias relatively low prior to the intervention, in contrast to the literature that consistently reports significant weight bias among health care providers (Rubino, et al., 2020). The self-reported low incidence of weight bias may have reduced the perceived need for a lessening of antifat attitudes. Despite this, 62.5% reported a likelihood to make changes in their communication with and care rendered to persons with overweight and obesity as a result of this intervention. This may be explained by the fact that although participants assessed their own weight bias as low, they believe knowledge was obtained that they can incorporate to improve their communication and care practices. Finally, 72.5% agreed/strongly agreed that ongoing reinforcement of weight bias reduction efforts would be beneficial to improving the care of patients with overweight and obesity. This was also echoed in the participants' comments.

The final section of the participant evaluation continued to provide information on the project's secondary outcomes. This section included three open-ended questions, along with an opportunity for participants to provide additional comments. First, participants shared what they found most beneficial about the intervention. A surprising number of participant responses were received, which provided a significant amount of information. Several themes among the comments were identified. The major theme noted was that participants were made more aware of manifestations of weight bias in healthcare. A number of participants expressed being previously unaware of this issue and its impact on persons with overweight and obesity. The need for increased awareness of weight bias in health care has been supported in the literature (Rubino et al., 2020). Several participants specifically listed the video, *Weight Bias in Health*

Care, as the most beneficial component of the intervention for increasing awareness. This positive feedback is supported by the literature. This video has been employed in previous research studies focused on decreasing weight bias, receiving participant ratings of 35% for useful or very useful, with another 55% for a little useful or neutral (Swift et al., 2013). Assessing one's own level of "antifat" bias was also noted to be among the most beneficial components of the intervention. This, too, is supported in the literature (Fruh et al., 2016). Another major beneficial component of the intervention was noted to be identification of methods for reducing bias in communication and actions. The literature also supports the need for education regarding the provision of sensitive communication and other safe, positive interactions. These include obtaining the individual's permission to broach the subject of weight, then proceeding in a sensitive, supportive manner; inquiring as to preferred weight-related terminology; asking the patient's permission prior to weighing him or her; utilizing weight-appropriate, safe equipment and supplies; and more (Puhl, R., 2020; Puhl, R. & Suh, Y., n.d.). In summary, there is strong concordance with the literature regarding the factors identified by participants as the most beneficial components of the multifactorial intervention.

Participants then identified what they found least beneficial. Of participants who responded, the one recurring theme identified was that all components were beneficial. This was not surprising; all components of the intervention were identified in the literature as having demonstrated positive results for reducing weight bias. One participant did note the opinion leader/exemplar as beings the least beneficial component. This could be due to a number of reasons. First, the video was created by the DNP student project director and was less than three minutes in duration. Due to the nature of a strong opinion leader/exemplar component, site-specific speaker and content was utilized; no validated/reliable example was available to follow. The brevity and content of this video may have contributed to the perception that it was not as beneficial as other components. In addition, it included the CNO of the hospital. It is possible that, for any number of reasons, the CNO was not well-regarded by the participant.

Finally, one participant made the observation, *"Facility does not always have resources to implement these measures."* It is understandable that a participant would consider component(s) to not be beneficial if the resources to implement them are not available for use. This will be discussed further in the Implications for the Future – Practice section of this paper. In summary, overall participant results revealed that all components of the multifactorial intervention were beneficial.

Participants were next asked to share any suggestions for improving the intervention. The majority of respondents indicated "no suggestions." Of those who did provide a suggestion, the recurring theme was to make this intervention available to additional staff. Suggestions included placing this intervention on the organization's ALC online educational platform system, as a mandatory assignment for all staff to complete. This need to expand the weight bias interventions among health care providers is supported by the literature (Rubino et al., 2020).

Lastly, participants were encouraged to add any additional comments regarding the intervention. Of the few comments provided, there were no common themes. However, one participant wrote, *"I was reminded my equipment may not be up to higher weight standards. When I requested purchasing equipment for higher weight, I was told to ask people their weight before service, weigh them first and my job was threatened."* Unfortunately, the literature supports the fact that not all health care organizations have the necessary equipment to provide safe, appropriate care to persons with overweight and obesity (Rubino et al., 2020). Also unfortunate is the fact that employees who act as whistleblowers to report unsafe practices have been subjected to intimidation in the form of threats (Philipsen & Soeken, 2011). It is unknown when this incident occurred or if the manager involved in this situation remains with the organization. However, it is essential that safe, appropriate equipment is available. If not, the organization will need to take steps to obtain the necessary equipment and supplies to provide safe care. In addition, the administration needs to ensure that colleagues can report safety concerns without fear of retribution.

In summary, data analysis of this EBP project's primary outcome of the effect of a multifactorial intervention to reduce weight bias in health care providers yielded non-significant results. Specifically, no significant difference among average means was found among pretest, immediate post-intervention and at two-to-three-months post-intervention. However, secondary outcome results were positive, as evidenced by mean participant satisfaction scores and positive participant comments. Participants felt the intervention's components were beneficial and expressed that the weight bias intervention should be continued and expanded to include all staff.

Strengths and Limitations of the DNP Project

Strengths

This project evidenced a number of strengths, beginning with strong administrative support for the project. The student project director was afforded a high degree of autonomy to design and implement the EBP project. Resources, including access to potential project participants were made readily available. A number of the hospital's health care providers proved to be willing participants and enthusiastically participated in the project. The CNO, who functioned in the role of site facilitator, also played an active role in the intervention by serving as the strong leader/exemplar. As such, she was videotaped presenting strong leadership support for the project, one of the multifactorial interventions. The CMO has requested that the topic of weight bias in health care be introduced to the medical staff at an upcoming full-medical staff meeting. Thus, strong administrative support by the CNO, along with strong support of staff participants and the CMO, contributed to the success of project implementation and its post-project expansion to include the medical staff.

Another strength of the project resulted from the selection and utilization of the *Stetler Model for Evidence-Based Practice*, which provided the methodological framework for the project design and implementation. The Stetler Model was selected for this project for several reasons. First, it is able to accommodate a lone project director. It also has proven to be

applicable to a wide variety of clinical problems. In addition to research findings, the model also incorporates both external evidence and internal evidence. It also considers internal and external factors that may influence evidence application. These were important considerations when designing the intervention that could best address the organization's needs (Stetler, 2001).

The model consists of five phases: Preparation, Validation, Comparative Evaluation/Decision Making, Translation/Application and Evaluation (Stetler, 2001). Phase I of the project, Preparation, commenced in the spring of 2019. Several potential project ideas were considered during this period. Ultimately, the problem of interest for this project was identified, with its priority affirmed by the CNO. Initial research seeking the best available evidence was undertaken; this process continued into the summer of 2019 with the development of the PICOT question and the formal search strategy.

Phase II, Validation, occurred during the early summer of 2019. The formal literature review and the critique and synthesis of the evidence occurred during this period. Moderate support for a multifactorial intervention to reduce weight bias in health care providers was noted. Based on these results, the decision to continue to Phase III was made.

Phase III also took place during the summer of 2019. This phase focused on comparative evaluation and decision making. Specifically, the substantiating evidence for the multifactorial intervention was evaluated in terms of its fit and feasibility for implementation in the current practice setting. Of the multifactorial interventions identified during the systematic literature search, the decision was made to include the components of participant self-evaluation of weight bias; education on weight bias in healthcare; a strong opinion leader/exemplar and creation of a guideline. However, some identified components, proposed by the literature, were not included. For example, one which consisted of a positive exposure/experience to a person with overweight or obesity, was not included. Another

proposed intervention not included was that of utilization of a “fat” suit experience. These components were determined to be not feasible during the project’s timeframe.

Phase IV began with Translation, which commenced in mid-to-late summer, 2019. The Stetler Model allows for multiple strategies for implementing change, such as the incorporation of interactive education and opinion leaders, as well as the identification or design of evidence-based instruments and/or documents. These suggested strategies were translated and incorporated into this multifactorial intervention. Specifically, the AFAQ and the video *Weight Bias in Health Care,* both utilized in previous studies of weight bias, were included. Additionally, a guideline for the care of persons with overweight and obesity was created, along with a video to provide a strong opinion leader/exemplar experience. Application of the EBP project began with the first participants in late August, 2019 and continued through mid-February, 2020.

Phase V, Evaluation, is the final phase of the Stetler Model. The Stetler Model compels evaluation of the formative and summative data. Formative data provides information on the integrity of the intervention (Stetler, 2009). Formative evaluation took place during Phase IV. In this EBP project, the intervention was maintained and provided equally to all subjects. All participants completed the same intervention components in the same order. Formative evaluation identified two process change needs; both were addressed to facilitate participation. First, it was noted that the availability of two laptops would reduce participant waiting time. The second deviation in the process occurred at the suggestion of a participant, who asked that intervention components, as well as instructions, be placed online so that the intervention could be completed at home. Both adaptations were incorporated in an attempt to increase participation and completion. Formal summative evaluation took place in mid-February, 2020 at the completion of data collection. Mixed results were obtained. Data analysis yielded non-significant results for the multifactorial intervention. However, participant evaluations of the intervention and its components revealed positive responses for all but one component, the strong opinion leader/exemplar component. Qualitative data revealed that many participants felt

their awareness of weight bias in health care was increased; several commented that this intervention should be continued and be made available to all colleagues. Thus, despite the non-significant results of the multifactorial intervention to reduce weight bias, participants' feedback supported continuation of components of the intervention. Results and findings from this project were used to answer the PICOT question and will guide future continuation and/or modification of this intervention.

The overall design of the project contributed to its strengths. The pre-, immediate-post and two-to-three-months post-intervention design allowed for the determination of baseline "antifat" attitudes, immediate "antifat" attitude changes and whether any immediate changes were sustained. In addition, examination of the effects of multiple interventions identified for reducing weight bias, rather than focusing on a single intervention, increased the potential breadth of findings. Furthermore, incorporating both quantitative and qualitative questions in the participant evaluations provided valuable information and additional insight. Thus, the project's design added to its strengths.

The incorporation of several available resources also strengthened the design and implementation of the EBP project. One such resource was the website of the University of Connecticut's *Rudd Center for Food Policy & Obesity.* This website provided access to high-quality articles; valid and reliable instruments; expert, professionally-produced videos and other sources of weight bias information. These included the AFAQ and *Weight Bias in Health Care* video, used with permission, in this project. Miscellaneous resources were provided by the project site, such as use of the organization's email system, phone system and mail system.

Time and scheduling flexibility, as approved by the site facilitator, were additional strengths of the project. The student project director was allowed to access participants during group activities, such as nursing competencies, where large numbers of nurses were available to approach. In addition, the student project director was able to vary clinical hours to

accommodate day and night shifts, as well as weekend shifts. This encouraged inclusion of participants who might otherwise have not participated.

Participants were overall very supportive of the project and willing to participate as their time allowed. This was found to be particularly true of the nursing staff and other colleagues who have had significant contact with the student project director. The support and encouragement expressed by staff toward the DNP student project director was very heartening and evidenced these health care provider's support of not only EBP initiatives, but also of student project director's educational advancement.

Limitations

This EBP project did encounter several limitations. First, no single intervention has been identified as the most effective for reducing weight bias in health care. The literature provides mixed and only moderate support for currently-identified, multifactorial weight bias reduction interventions (Doshi & Gudzune, 2018). The lack of strong research support for a specific intervention to reduce weight bias may have limited the potential strength and significance of this intervention's outcomes.

A second limitation was that participants were self-selected, which might have resulted in bias. These individuals may have possessed a higher interest in the topic, been more receptive to increasing their professional knowledge and/or been more inclined to change their attitudes or professional practice. The population was also quite homogenous, with the vast majority being Caucasian, female and registered nurses.

Although a highly-rated instrument, the AFAQ (Lacroix et al., 2017) presented an unexpected confounding factor that may have impacted results. Created in 1994, the AFAQ used the term "fat" instead of overweight or obesity. This terminology may have been more politically-correct at that time than it is currently. Several participants complained about the term, stating that they found it offensive. Their emotional reaction to use of this term may have had an impact on their responses to the AFAQ's questions, thus affecting the project's outcome.

Another limitation of the project is the self-report nature of the AFAQ. Social desirability bias, a form of self-report bias, may have impacted the primary outcome. Participants may have altered AFAQ responses to reflect what they considered acceptable for someone in their role. Self-report is a significant limitation noted in the literature (Althubaiti, 2016).

A further limitation noted was that of participants' time constraints. It was hoped that by approaching potential participants during nursing competencies, when many nurses are attending on their day off (albeit being paid for their time), more nurses would be able to complete the approximate twenty-to-twenty-five-minute intervention. This proved true for some participants; however, others expressed the inability to complete the intervention at that time, due to other time constraints. For nurses attending on work time, the need to return to the nursing unit, where other nurses were covering for them, precluded their participation. For non-nursing participants, the initial plan was for the DNP student project director to administer the intervention in the various clinical departments; however, due to the time requirements, this was not feasible. Thus, time constraints potentially limited additional participants. This limitation was addressed in part by modifying the intervention to be completed individually, using online access to the videos and forms.

A final limitation of the project was the significant number of participants who completed the initial part of the intervention, but did not complete the two-to-three-months post-intervention. Nearly one-third of initial participants did not return the post-intervention form and participant evaluation, which may have impacted the significance of the results. However, the literature indicates that this return rate is not unexpected. To illustrate, Fincham (2008) states that response rates of approximately 60% should be the goal of most researchers.

In summary, this multifactorial intervention evidenced both strengths and limitations. Administrative support, utilization of the Stetler Model, project design, available resources, time and scheduling flexibility and participant willingness to participate contributed to the success of the project's implementation. Limitations included the lack of strong research support for a

single weight bias reduction intervention, selection method, politically-incorrect terminology used in the AFAQ, participants' time constraints and post-intervention follow-up rates. These factors should be considered when contemplating future projects.

Implications for the Future

This EBP project provided worthwhile information regarding multifactorial interventions for reducing weight bias in health care. Future implications for practice, theory, research, and education will be explored. Such implications can be used to guide and improve future EBP projects and practice changes, as well as to effectively implement interventions to reduce weight bias in health care.

Practice

Recent literature maintains that weight bias in health care is pervasive in health care settings (Rubino et al., 2020). The resulting stigma can result in both physical and psychological harm. Furthermore, affected persons are less likely to receive adequate health care (Rubino et al, 2020). The *2020 Joint International Consensus Statement for Ending Stigma of Obesity*, authored by a multidisciplinary group of international experts and representatives of scientific organizations, was released on March 4, 2020, World Obesity Day (Rubino et al., 2020). The consensus statement provides recommendations to eliminate weight bias and encourages education about weight stigma, in order to "facilitate a new public narrative about obesity, coherent with modern scientific knowledge" (Rubino et al., 2020). This reinforces the need for ongoing, effective weight bias interventions to reduce weight bias and stigma. As the largest group of healthcare providers (Smiley, et al., 2018) and one who interacts closely with patients and the public, nursing is in a key position to facilitate the new public narrative about obesity. In addition, nursing is consistently named as the most honest and ethical profession (Proctor& McClendon, 2020). With this respect, nurses can yield a strong influence to facilitate the new public narrative about overweight and obesity. This can be accomplished through nursing

interventions, including demonstrated attitudes, actions, word choices, communication and educational efforts.

Administrative support allowed for the implementation of a multifactorial intervention, based on the best available evidence. While the primary outcome of reduced antifat bias was not significant, secondary outcomes, evidenced by participant quantitative and qualitative feedback, validated the benefit of participating in the project and supported ongoing efforts to reach all colleagues with this information. Therefore, the project was determined to be in support of continued efforts to reduce weight bias. It was determined to be feasible for continued implementation, particularly in light of the organization's plans to increase medical and surgical services focused on overweight and obesity.

Resources to meet the need may be addressed by its incorporation onto the ALC online educational platform. Some modifications to the multifactorial intervention may be appropriate, in order to streamline participant time requirements, while maintaining the overall integrity of the intervention. Future discussions with the CNO/project site facilitator and Human Resources for placing this on the ALC will be required. Future EBP projects may benefit from formative and summative outcomes of this project.

Theory

Nursing theory can provide one with a framework for improving patient care. Application of a theory to an EBP project may enhance understanding of complex situations. The EBP project director integrates research, theory and practice in order to determine the best available evidence and develop an intervention to address the problem of interest. McCrae (2011) quotes Benner and Wrubel (1989, p.5), stating, "A theory is needed that describes, interprets and explains not an imagined ideal of nursing, but actual expert nursing as it is practiced day to day." This represents a very pragmatic approach, one which may lend itself particularly applicable to evidence-based practice. Although a specific theory was not applied to this EBP project, the Stetler Model for Evidence-Based Practice was utilized to provide structure and

direction for this project. This model, too, delivers a very pragmatic approach to research utilization, with an emphasis on employing critical thinking. It also allowed for implementation by a single project director, which was practical for this DNP student EBP project. Phases I – V provided logical, step-by-step guidance for the entire process. Thus, although not a true theory, the Stetler Model evidenced the attributes of a pragmatic theoretical basis for nursing practice. Future nursing theories are needed to build upon, add-to and guide the integration of nursing research, theory and practice to provide support for evidenced-based practice in nursing.

A project director seeking to design a future EBP project focusing on weight bias and stigma may want to consider utilization of the Relationship Based Care model. Its twelve basic values assumptions are intended to guide the process of internal change on the part of the health care provider to improve provider-patient caring relationships. Included in these basic values assumptions are factors that parallel weight bias reduction interventions, such as care providers' knowledge of self, relevant education, an inspiring, common vision and supportive infrastructure. Incorporation of Relationship Based Care in the EBP project may enhance the outcomes of the intervention.

Research

Additional high-quality research is needed to address the issue of weight bias in health care. Research into obesity is reported to be underfunded, as compared to its burden and costs. (Rubino et al., 2020). Identification of contributors to the development weight bias, as well as how to lessen or eliminate these contributors, is vital for preventing bias. Determination of the most effective strategy for reducing weight bias that currently exists among health care providers, among the multifactorial strategies now proposed, is needed. Identification of new, additional strategies is also warranted. Studies need to include practicing health care professionals and be conducted in real-world settings. Older instruments, such as the AFAQ, may require revision in order to avoid the potential effect of currently-deemed non-politically correct language, which might affect outcomes.

In addition to addressing overall weight bias in health care, research focusing specifically on the reduction of bias and stigma surrounding overweight and obesity treatments needs to be undertaken. At this practice site, ongoing evaluation of the impact of weight bias reduction interventions needs to be instituted.

Education

Health care providers require education and training in the current scientific knowledge relating to overweight and obesity and the care of persons with these diseases, as well as the prevalence and reduction of weight bias. A recent international consensus statement calls for ensuring that “formal teaching on the causes, mechanisms and treatment of obesity are incorporated into standards curricula for medical trainees and other health care providers” (Rubino et al., 2020). Current efforts to educate on these topics, however, does not appear to be sufficient. The consensus statement reveals a gap “between stigmatizing narratives around obesity and current scientific knowledge regarding mechanisms of body-weight regulation” (Rubino et al., 2020). Thus, ongoing education on weight bias and stigma is supported in the most recent literature. It was also strongly supported by participant feedback during both the formative and summative evaluation processes.

An additional aspect of education on weight bias and stigma is the need for education of the individual with overweight and obesity, who may not be aware of the full scope of bias and stigma to which they are being subjected. Research notes that a significant number of persons internalize weight bias, leading to self-blame and self-directed weight stigma (Rubino et al., 2020). This can have further negative impacts on health and well-being. It is reasonable to conclude that if health care providers experience a gap between stigmatizing obesity narratives and current scientific knowledge regarding weight, persons with overweight and obesity also experience this gap. As such, they may not be aware of the best available evidence for treating their disease, which presents a barrier to care. The DNP student project director has begun

speaking to community groups regarding weight bias and stigma, in an effort to both educate on and advocate for weight bias reduction.

Conclusion

This EBP project answered the PICOT question: "Among health care professionals employed at a small midwestern hospital, does the introduction of a multi-factorial intervention versus current practice of no intervention reduce weight bias immediately and at two-to-three months post-intervention?" As discussed, this project yielded mixed results. The primary outcome yielded a non-significant result: The multifactorial intervention did not significantly impact weight bias immediately or at two-to-three months post-intervention, per the AFAQ. In contrast, the secondary outcome, which focused on participant quantitative and qualitative evaluation of the intervention, provided encouraging results in support of this project's continuation.

Research shows that changing attitudes is complex and is often not sustained (Forscher et al., 2019). Although changes in the immediate and two-to-three-months post-intervention AFAQ scores did not demonstrate a reduction or sustained reduction in weight bias, project participants' evaluations provided informative feedback regarding the intervention and its impact. Participants identified what they perceived as the most beneficial components of the intervention. They reported increased knowledge of their own weight bias, as well as increased awareness of the issue of weight bias in health care. A recurring theme noted was that of the expressed need to continue and expand organization-wide exposure to this intervention. Repeated exposure to the topic of weight bias over time may be required to change attitudes. Support for continuation of the intervention components identified as the most beneficial is being sought. Tentative plans are to continue the project, with some modifications, by placing it on the ALC online educational platform. This will enable the intervention to be assigned for completion by all colleagues and physicians.

In addition to applying the best available evidence to reduce weight bias among health care providers, this project provided the student project director with the opportunity to showcase an evidence-based practice project to a number of colleagues. There has also been discussion of the DNP student project director presenting this at an upcoming nursing grand rounds, where additional nursing staff can be exposed to the EBP project and process.

During the project, the student project director and the project itself were met with an overwhelming amount of support by the CNO/site facilitator, participant colleagues and the CMO. Building on this, a proposal will be made for components of the project to be incorporated into the design of new overweight and obesity services being considered.

During the project, the role of the doctoral-prepared APRN was also highlighted. In addition to the clinical skills required for patient care, the project demonstrated the APRN's role in locating and synthesizing best available evidence, designing and implementing an EBP project, and evaluating and disseminating the outcomes in order to improve patient care. As a result, several nurses, who were in the process of deciding to further their education, have decided to do so and have reached out for support from the student project director, leading to some mentoring opportunities.

The prevalence of persons with overweight and obesity continues to increase; unfortunately, so does the occurrence of weight bias and stigma (Fruh et al., 2016). This can negatively impact morbidity, mortality and quality-of-life of those living with overweight and obesity (Puhl & Heuer, 2010; Sutin et al., 2015). Research indicates that interventions are needed to reduce weight bias in health care. This has recently been echoed in a joint consensus statement, in which a multidisciplinary group of international experts, including representatives of scientific organizations, called for new public discussions on obesity. These discussions are to provide education on modern scientific knowledge about obesity, which may change attitudes and lessen weight bias and stigma. The role of the doctoral-prepared APRN will allow him or her to lead these discussions, by providing education and leadership at

organizational, local, state and national levels. This EBP project is but a first step in this process of improving the lives of persons with overweight and obesity.

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BIOGRAPHICAL MATERIAL

Rose M. Flinchum

Ms. Flinchum began her career in nursing by graduating with an A.S. in Nursing from Purdue University North Central 1977, followed by a B.S in Nursing from Purdue University in 1979. She then worked as a staff nurse and patient/staff education coordinator while obtaining a M.S.Ed. with a focus on instructional design in 1998 and a M.S in Nursing, Adult Health Clinical Nurse Specialist (CNS) in 1994, both from Purdue University Calumet. Ms. Flinchum is certified through ANCC as an Adult Health CNS and by NCBDE as a Certified Diabetes Educator (CDE); she is also board certified in Advanced Diabetes Management by the AADE. Employed as an APRN at a Northwest Indiana hospital, she practices as a CNS, CDE and as Quality Coordinator for their ADA-recognized program. She is also a consultant and presenter for MedBridge, a producer of video-based healthcare content. Ms. Flinchum currently attends Valparaiso University to earn a Doctorate of Nursing Practice, with an anticipate graduation date of May, 2020. Her memberships in professional and nursing organizations include Sigma Theta Tau International - Zeta Epsilon chapter, ISNA, ANA, CAPNI, SNAP, MNRS and NWINRC. She has also been an active member of AADE, serving at the local and state levels, and was the recipient of AADE's Advocacy Award in 2013. Ms. Flinchum also received the Daisy Award in 2013, was named Indiana Diabetes Educator of the Year in 2019 and received the Janet M. Brown Outstanding DNP Student award in 2020. Rose has precepted and mentored many nurses throughout her career. She authored a chapter in *Diabetes Mellitus: A Guide to Patient Care* and has presented diabetes and obesity-related podium and poster presentations at local, state and national conferences. Rose became interested in the concepts of weight bias and stigma while working with patients with diabetes, also experiencing overweight or obesity, noting that weight bias and stigma are common in healthcare and have significant negative impacts. Rose plans to continue presenting on this topic to increase public and healthcare provider awareness of bias and to advocate for the elimination of weight bias and stigma in healthcare.

ACRONYM LIST

AADE: American Association of Diabetes Educators

AFA: Antifat Attitudes

AFAQ: Antifat Attitudes Questionnaire

AFAT: Antifat Attitudes Test

ALC: Advanced Learning Center

AMA: American Medical Association

ANA: American Nurses Association

ANCC: American Nurses Credentialing Center

ANOVA: Analysis of Variance

APA: American Psychological Association

APRN: Advanced Practice Registered Nurse

BC-ADM: Board Certified, Advanced Diabetes Management

BCMHAS: British Columbia Mental Health and Addiction Services

BGDS: Belief in Genetic Determinism Scale

BMI: Body Mass Index

BOAP: Beliefs About Obese Persons

CAOQ: Causal Attributions of Obesity Questionnaire

CAPNI: Coalition of Advanced Practice Registered Nurses in Indiana

CITI: Collaborative Institutional Training Initiative

CT: Computerized Axial Tomography

CDC: Centers for Disease Control

CDE: Certified Diabetes Educator

CMO: Chief Medical Officer

CNO: Chief Nursing Officer

CNS: Clinical Nurse Specialist

CON: Canadian Obesity Network

CON-RCO: Canadian Obesity Network - Reseau canadien en obesite

DNP: Doctorate of Nursing Practice

ED: Emergency Department

EBP: Evidence Based Practice

F-Scale: Fat Phobia Scale

HAES: Health at Every Size

IAT: Implicit Associations Test

ISNA: Indiana State Nurses Association

IRB: Institutional Review Board

JHNEBPELQG: Johns Hopkins Nursing Evidence-Based Practice Evidence Level and Quality Guide

JHNEBPM: Johns Hopkins Nursing Evidence-Based Practice Model

LENS: Leveraging Equitable Non-Stigmatizing health promotion delivery

MNRS: Midwest Nursing Research Society

MRI: Magnetic Resonance Imaging

NCBDE: National Certification Board for Diabetes Education

NWINRC: Northwest Indiana Research Consortium

NIH: National Institutes of Health

OAC: Obesity Action Coalition

QAS: Quality Assessment Scale

RCT(s): Randomized Controlled Trial(s)

SDS – 17: Social Desirability Scale – 17

SNAP: Society of Nurses in Advanced Practice

SPSS: Statistical Package for the Social Services

UMB: Universal Measure of Bias

U.S.: United States

WBI: Weight Bias Internalization

WBIS-M: Weight Bias Intervention Scale

WHO: World Health Organization

Appendix A

Project Invitation and Directions

October 28, 2019

Dear Colleague,
My name is Rose Flinchum and if you don't know me, I am the Diabetes Clinical Nurse Specialist. I work both inpatient in the mornings and with the outpatient diabetes educators in the afternoon.
I am requesting your assistance, please. I am completing my Doctorate in Nursing Practice (DNP) at Valparaiso University by conducting an evidence-based practice project, which focuses on determining the effect of a research based, multifactorial intervention for reducing weight bias in healthcare providers.

Here are the steps to participate in the project: (Time required: Approximately 20-25 minutes)

1. Place your name in the return address area on the envelope; I only need to know who participated so that I can send you the follow-up forms in 2-3 months. I assure you that the envelope will be immediately separated from your other paperwork when I receive it; there will be no attempt to associate your name with your answers.
2. Complete a brief demographic form (anonymous)
3. Complete a 9-question published tool assessing current weight bias (anonymous, marked "pre-intervention")
4. Watch a 17-minute video on weight bias
5. Watch a 2-minute video in support of reducing weight bias at our hospital
6. Briefly review a guideline, based on the best available evidence, on care of the patient with overweight or obesity
7. Complete the same 9-question published tool assessing weight bias after participating in the intervention (anonymous, marked "post-intervention")
8. Return the paperwork to me in the self-addressed envelope (provided)

In 2-3 months, I will send you the same anonymous 9-question published tool to complete, in order to assess your weight bias at that time. You will also receive a satisfaction questionnaire/evaluation, where I will ask you to share your thoughts about this weight bias intervention. Both forms are to be returned to me in the self-addressed envelope I will provide. The paperwork and links to the two videos are attached to this e-mail so that you can watch these and complete the project at a time that is convenient for you. I am also placing the paperwork in envelopes on the units/in the departments, so that you don't need to run the copies. If you prefer, I can bring my laptop and paperwork to you to complete the project; just let me know a place and time.
Thank you so much for considering participating in this project. In order to get the most meaningful results, I need as many participants as possible from all clinical areas. I am so very grateful for those who have participated already and for any/all additional colleagues willing to help me with this project.
If you have any questions, please do not hesitate to contact me; my e-mail is r.flinchum@lph.org, my office number is X7162 and my cell is (219) 973-9401; please feel free to call anytime (including night shift!)
With much appreciation,

Rose M. Flinchum, Diabetes CNS

Appendix B

Antifat Attitudes Questionnaire

Pre-Intervention Questionnaire Please rate each statement based on your initial reaction. No names please

(0 = very strongly disagree; 9 = very strongly agree)

	0	1	2	3	4	5	6	7	8	9
1. I really don't like fat people much.										
2. I don't have many friends that are fat.										
3. I tend to think that people who are overweight are a little untrustworthy.										
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.										
5. I have a hard time taking fat people too seriously.										
6. Fat people make me somewhat uncomfortable.										
7. If I were an employer looking to hire, I might avoid hiring a fat person.										
8. I feel disgusted with myself when I gain weight.										
9. One of the worst things that could happen to me would be if I gained 25 pounds.										
10. I worry about becoming fat.										
11. People who weigh too much could lose at least some part of their weight through a little exercise										
12. Some people are fat because they have no willpower.										
13. Fat people tend to be fat pretty much through their own fault.										

Appendix C

Antifat Attitudes Questionnaire

Immediate Post-Intervention Questionnaire Please rate each statement based on your initial reaction. No names please

(0 = very strongly disagree; 9 = very strongly agree)

	0	1	2	3	4	5	6	7	8	9
1. I really don't like fat people much.										
2. I don't have many friends that are fat.										
3. I tend to think that people who are overweight are a little untrustworthy.										
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.										
5. I have a hard time taking fat people too seriously.										
6. Fat people make me somewhat uncomfortable.										
7. If I were an employer looking to hire, I might avoid hiring a fat person.										
8. I feel disgusted with myself when I gain weight.										
9. One of the worst things that could happen to me would be if I gained 25 pounds.										
10. I worry about becoming fat.										
11. People who weigh too much could lose at least some part of their weight through a little exercise										
12. Some people are fat because they have no willpower.										
13. Fat people tend to be fat pretty much through their own fault.										

Appendix D

Antifat Attitudes Questionnaire

2-3 Month Post-Intervention Questionnaire Please rate each statement based on your initial reaction. No names please

(0 = very strongly disagree; 9 = very strongly agree

	0	1	2	3	4	5	6	7	8	9
1. I really don't like fat people much.										
2. I don't have many friends that are fat.										
3. I tend to think that people who are overweight are a little untrustworthy.										
4. Although some fat people are surely smart, in general, I think they tend not to be quite as bright as normal weight people.										
5. I have a hard time taking fat people too seriously.										
6. Fat people make me somewhat uncomfortable.										
7. If I were an employer looking to hire, I might avoid hiring a fat person.										
8. I feel disgusted with myself when I gain weight.										
9. One of the worst things that could happen to me would be if I gained 25 pounds.										
10. I worry about becoming fat.										
11. People who weigh too much could lose at least some part of their weight through a little exercise										
12. Some people are fat because they have no willpower.										
13. Fat people tend to be fat pretty much through their own fault.										

Appendix E

Antifat Attitudes Questionnaire Permission

From: "Rose M. Flinchum" <rose.flinchum@valpo.edu>
Reply-To: "rose.flinchum@valpo.edu" <rose.flinchum@valpo.edu>
Date: Wednesday, July 3, 2019 at 10:47 AM
To: "Crandall, Chris S." <crandall@ku.edu>
Subject: SPN Profile Message: Request to use the Antifat Attitudes Questionnaire for a DNP EBP project

Hello, Dr. Crandall; I am an Advanced Practice RN-CNS and DNP student at Valparaiso University. I am doing an EBP project which involves implementation of a multifactorial intervention for reducing weight bias among health care providers at a small hospital. After searching the literature, I was impressed with the rating the Antifat Attitudes Questionnaire received in the article by Lacroix et al, 2017. I would like to use this instrument pre-intervention, immediately post-intervention and again at 2-3 months post intervention to determine sustainability of any changes.

May I please have permission to utilize this instrument? If you have any questions or need any further information, please do not hesitate to contact me. My e-mail, as above, is rose.flinchum@yahoo.com. My cell is (219) 973-9401 if you prefer to call (however, I am sure that my professors will require some documentation in writing regarding granting of permission to use the instrument. Thank you in advance for your consideration of this request; it is greatly appreciated.

Re: SPN Profile Message: Request to use the Antifat Attitudes Questionnaire for a DNP EBP project Inbox ×

Crandall, Chris S. <crandall@ku.edu> 2:31 PM (8 minutes ago)
to me

Yes, of course, you may use this for any non-commercial purpose.

As a personal aside, my great-grandfather graduated from Valparaiso in 1880 (during the brief window it was called "Northern Indiana Normal School and Business Institute.") He did become a teacher and educational administrator.

Good luck with your research.

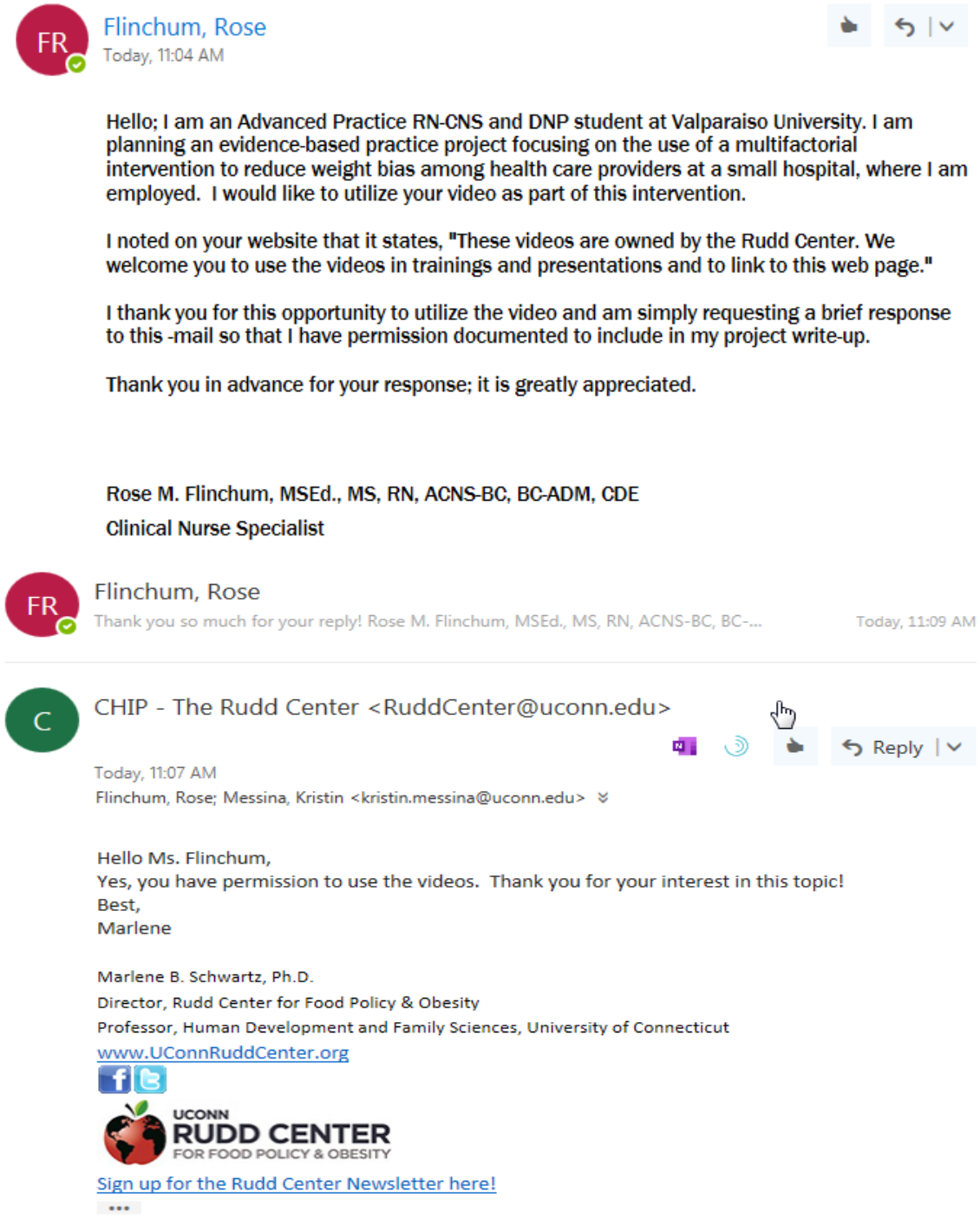
--
Chris Crandall
Professor of Psychology, University of Kansas
Past President, Society for the Psychological Study of Social Issues
Editor, *Personality and Social Psychology Bulletin*

Rose Flinchum 2:40 PM (2 minutes ago)
to Chris

Thank you so much. And how interesting that your grandfather graduated from the university in 1880; it really is a small world! I was unaware of the former name. Thank you for sharing the story of your ties to Valparaiso.

Appendix F

Rudd Center Permission



Flinchum, Rose
Today, 11:04 AM

Hello; I am an Advanced Practice RN-CNS and DNP student at Valparaiso University. I am planning an evidence-based practice project focusing on the use of a multifactorial intervention to reduce weight bias among health care providers at a small hospital, where I am employed. I would like to utilize your video as part of this intervention.

I noted on your website that it states, "These videos are owned by the Rudd Center. We welcome you to use the videos in trainings and presentations and to link to this web page."

I thank you for this opportunity to utilize the video and am simply requesting a brief response to this -mail so that I have permission documented to include in my project write-up.

Thank you in advance for your response; it is greatly appreciated.

Rose M. Flinchum, MSEd., MS, RN, ACNS-BC, BC-ADM, CDE
Clinical Nurse Specialist

Flinchum, Rose
Thank you so much for your reply! Rose M. Flinchum, MSEd., MS, RN, ACNS-BC, BC-... Today, 11:09 AM

CHIP - The Rudd Center <RuddCenter@uconn.edu>
Reply
Today, 11:07 AM
Flinchum, Rose; Messina, Kristin <kristin.messina@uconn.edu>

Hello Ms. Flinchum,
Yes, you have permission to use the videos. Thank you for your interest in this topic!
Best,
Marlene

Marlene B. Schwartz, Ph.D.
Director, Rudd Center for Food Policy & Obesity
Professor, Human Development and Family Sciences, University of Connecticut
www.UConnRuddCenter.org

UCONN RUDD CENTER FOR FOOD POLICY & OBESITY

Sign up for the Rudd Center Newsletter here!

Appendix G

Opinion Leader/Exemplar Script

“Hello, everyone. You have just viewed a video highlighting a very important topic: Weight bias and the resulting weight stigma occurring in healthcare.

On any given day, between 60 - 70% of the patients we care for are affected by overweight and obesity. As obesity rates have risen, so too have rates of bias and stigma. Up to 68% of patients with overweight and obesity admit to being subjected to weight stigma by healthcare providers. And unlike other forms of bias, which are becoming more socially unacceptable, weight bias and stigma continue to be tolerated by our society.

Bias and stigma can have very negative effects on our patients…even leading to increased morbidity and mortality, independent of the patient’s weight.

As we, as an organization, strive to fulfill our mission of “improving the health of our patients and communities,” we are considering adding additional services for persons with overweight and obesity. This makes it even more important that we address weight bias and stigma.

Therefore, we are both requesting and making it an expectation that all colleagues recognize, confront and take steps to eliminate weight bias and stigma within our organization. Please give serious consideration to what you have learned in the previous video, as well as what is shared in the guideline, which was developed to provide additional information.

Thank you for all you do to provide safe, sensitive and compassionate care to all of our patients, including those affected by overweight and obesity.

Appendix H

Guideline for Care

Guidelines for Providing Safe, Sensitive and Compassionate Communication and Care to Patients with Overweight and Obesity

Purpose

Providing safe, sensitive and compassionate communication and care to patients with overweight and obesity is essential for their health and well-being. Studies show that a combined total of over 70% of adults to have overweight or obesity. Obesity is a now recognized as a complex disease resulting from a number of factors; many of these causes are outside of a person's individual control. Unfortunately, many persons in our society have been socialized to possess significant implicit and/or explicit weight bias, including healthcare providers. This weight bias can result in persons with overweight and obesity being the targets of stigmatization and/or discrimination when seeking or receiving health care services. Up to 69% of women and 40% of men with overweight and obesity report experiencing weight bias, which can then result in avoiding or delaying screenings or preventive care; even delaying seeking health care when a problem exists have been reported. These can lead to delays initiating preventive behaviors, diagnosis and treatment; poor health outcomes and quality of life may result. The occurrence of bias and stigma alone have been shown to increase mortality, even after other factors have been accounted for. By being aware of weight stigma and bias and providing safe, sensitive and compassionate communication and care to this population of patients, health care providers can improve health outcomes.

Definitions

A. **BMI**: Body Mass Index; uses weight and height to classify weight levels of overweight and obesity
B. **Overweight:** BMI > 30
C. **Obesity:** BMI > 40
D. **Weight Bias:** Negative weight-related attitudes towards a person because he or she is affected by overweight or obesity
E. **Implicit Bias:** Unconscious bias; may be contrary to one's
F. **Explicit Bias:** Conscious bias
G. **Weight-Related Stigma:** Manifestation of weight bias; discrimination or stereotyping based on weight
H. **Weight Discrimination:** Unjust or prejudicial treatment of persons based on weight

General Statements

A. All patients who present for inpatient care and outpatient services, regardless of weight, should receive safe, sensitive, respectful and compassionate communication and care.

B. Disrespectful communication, including regarding a patient's weight, appearance, eating behaviors or other characteristic(s) should not be tolerated. Disrespectful communication can include:
   1. Verbal (language/word choice, jokes)
   2. Non-verbal (body language, including such things as facial expression, physically distancing oneself from the patient)
   3. Other (i.e., inappropriate laughter)

C. Care of the patient should be provided based on providers' orders, diagnoses and co-morbidities, including assessment findings related to overweight and obesity.

D. Appropriate equipment and supplies to accommodate the patient's needs should be obtained and utilized, according to policy

Providing Care

A. Physical Assessment of Patients
   1. Physical assessment of patients with overweight and obesity may present challenges and require adaptation and/or modification, such as additional equipment, an assistant and allowing for more time to complete the exam (see Table below).
   2. Avoid the tendency to attribute all patient complaints and medical problems to their weight; serious missed diagnoses, including cancer resulting in death, have occurred.
   3. Remember that many persons with overweight and obesity have experienced significant negative weight bias and stigma previously and thus may be very hesitant to and embarrassed when being examined. Preserving patient dignity through word choices and actions is important.

Table 1. Physical Examination of Patients with Overweight and Obesity

Domain	What to Expect	Interventions
Environment	Seating, scales, equipment supplies may not be appropriate	Bariatric seating, scales, carts, beds, gowns, etc.
	Potential decreased mobility	Enlist assistant; utilize mobility aids
	Providers may be uncomfortable touching or talking about the bodies of persons with overweight/ obesity	Respectfully ask patient or aide to assist by retracting/holding breast, pannus, etc.
	Examinations take more time	Plan for, allow additional time; enlist aide
Vital Signs	Patient may be deconditioned	Wait 15 min after patient is settled before taking vital signs
	BP cuff size inadequate; may result in falsely elevated BP	Use extra-large or thigh cuff

	Potential metabolic syndrome	Measure waist circumference as appropriate
Head and Neck	Posterior oropharynx difficult to see	Use a tongue depressor
	Jugular venous pressure difficult to visualize	Attempt hepatojugular reflex (may also be hard to do)
	Thyroid difficult to examine, visualize	Ask patient to look up, stretch the neck
Cardiovascular	Heart sounds distant, difficult to hear	Palpate carotid pulse simultaneously, ask patient to sit up and lean forward. Ask lying patient to raise arms overhead
	Pulses may be difficult to detect	Utilize Doppler
Breasts	Breasts may be large, pendulous	Position patient in lateral decubitus position. Take adequate time to examine
Lungs	Breath sounds diminished	Auscultate directly over exposed skin
	Obstructive sleep apnea common	Consider further testing
Abdomen	Distant bowel sounds	
	Difficult palpation of deep structures	Consider diagnostic testing as indicated
	Bulging flank tissue not helpful in diagnosis of ascites	Assess for ascites using fluid wave or shifting dullness
Gynecological	Exposing introitus and speculum insertion difficult	Have patient abduct legs as much as possible; ask assistant to help with vulvar tissue retraction
	Reaching cervix is difficult	Have available and use a long-handled speculum
	Bimanual palpation difficult	If pelvic mass suspected, consider transvaginal ultrasound
Neurological	Reflexes may be difficult to elicit	Ensure proper positioning; utilize distraction techniques prn
Musculoskeletal	Potential decreased strength/ mobility; heavy limbs may make some tests difficult	Ask assistant to help with positioning
Integumentary	Acanthosis; skin excoriation, etc.	Thoroughly examine skin and skin folds

Table 1. Adapted from Silk and McTigue, 2011

B. Weighing of Patients.

1. When appropriate and/or medically necessary, weigh adult patients who present for inpatient care and outpatient services. Enter height and weight into the EMR. A BMI calculation can be obtained; this disease-risk tool is used to determine overweight and obesity classification; it should not be used to determine a weight loss goal or target weight.
2. When not medically necessary at the time, patients should be given the choice of whether to be weighed. Some patients have experienced stigmatizing weighing episodes in the past; weighing can be a barrier to seeking care. In these circumstances, ask the patient if they would like to be weighed.
3. When weighing is medically necessary, provide the patient with the explanation (i.e., medication is being dosed on weight).
4. If possible, ask the patient if they want to see or be informed of the weight. If they do not, provide safety measures if they are backing onto the scale.
5. Scales with the ability to weigh patients with overweight and obesity, including extreme obesity, should be available and utilized. Weighing patients on freight or laundry scales is humiliating and is to be avoided.
6. Weighing should take place in a private location and not announced publicly.
7. Use sensitive and respectful verbal and non-verbal communication when weighing patients.

C. Institute Multidisciplinary/Collaborative Care

1. Physical, psychological and emotional needs of patients with overweight and obesity often require multidisciplinary team collaboration in order to provide comprehensive care.
2. Multidisciplinary team members whose expertise may be required include (but are not limited to):
   a. Dietitian
   b. Pharmacist
   c. Physical Therapist
   d. Occupational Therapist
   e. Respiratory Therapist
   f. Speech Therapist
   g. Wound Care Nurse
   h. Case Manager / Social Worker
   i. Patient Educator (Diabetes, Heart Failure, etc.)
   j. Spiritual Care Provider
   k. Hospitalist/Intensivist
   l. Consulting Specialists

D. Psychosocial Issues and Sensitive/Respectful Care

1. Recognize issues that adversely impact patients.
   a. Lack of privacy, loss of control and unfamiliar surroundings can be even greater sources of stress for patients with overweight and obesity.
   b. Previous negative experiences of weight bias and stigma from health care providers during previous encounters with the health care system.
3. Identifying one's own assumptions, attitudes and biases regarding overweight and obesity can be an important step in reducing weight bias and stigma.
4. Adhere to best practices
   a. Establish therapeutic relationships; see the patient as an individual and

develop a partnership, involving the patient in his/her care
b. Provide patient-centered, culturally competent care
c. Incorporate empathy and perspective taking

5. Communication strategies to employ include:
   a. Ask the patient's permission to discuss their weight
   b. Use person-first language; avoid labeling (equating) a person with his/her disease
      - Say "person with overweight and obesity" rather than "overweight or obese person"
   c. Ask the patient what terminology they prefer regarding weight.
      - Least stigmatizing/blaming terms include weight, unhealthy weighty, high BMI
      - More stigmatizing/blaming terms include fat, morbidly obese, obese
      - Most motivating words for weight loss include unhealthy weight, overweight
      - Least motivating words for weight loss include fat, morbidly obese, chubby
6. Avoid placing blame on the patient for their excess weight or difficulties in losing weight; instead, acknowledge the challenges in achieving and sustaining significant weight loss.
   - Most patients have tried to lose weight repeatedly.
   - Research shows that lack of success is much more attributable to the ineffectiveness of current conventional treatment options, biological and genetic factors that contribute to weight regulation and our societal environment, rather than a patient's discipline or willpower.
7. Keep health risks in proportion. A patient's weight may have not be contributing to the current health problem. Attributing all health issues to weight may lead to missed diagnoses.
8. Focus on the importance of behavioral changes and health outcomes, rather than only weight loss.
9. Recognize obesity as a chronic disease.

E. Special Physical Care Issues

1. Skin Care. Refer to the Pressure Ulcers-Prevention Protocol Utilization Guidelines for Skin Risk Assessment (PUP) Policy.
   a. Consult Wound Care early
   b. Assessment may be difficult due to turning, repositioning and lifting tissue to examine skinfolds; assistance by another provider may be required
   c. Comorbidities (diabetes, hypertension, peripheral vascular disease and lymphedema) may increase the risk of skin breakdown; frequent assessment is important
   d. Avoid the use of tape or use latex-free or hypoallergenic tape; use skin prep.
   e. Prevent rash from moisture; use Inter-dry or similar product in skin fold areas. Do not use cornstarch; this may promote yeast infections of the skin.

f. Assess the need for assistance with personal hygiene and provide assistance as needed.
g. Increased risk for impaired wound healing and pressure ulcers may exist; special dressings and care may be required.
h. Patient and family education regarding skin care is essential.
i. Adaptive equipment, such as long-handled mirrors, devices for holding sponges or washcloths, etc. may be required.

2. Respiratory Care
   a. Assess for and anticipate respiratory/ventilatory issues; involve respiratory care early.
   b. Small airway collapse may lead to ventilation/perfusion mismatch and hypoxemia; supplemental oxygen may be required. Cardiac complications may closely follow inadequately-treated respiratory compromise.
   c. Other commonly-encountered respiratory issues include atelectasis, obstructive sleep apnea and obesity hypoventilation syndrome (Pickwickian Syndrome).
3. Nutritional Issues
   a. Refer to Nutrition Care upon admission for assessment and development of a nutrition support plan.
   b. Coexisting nutritional needs include sarcopenia and frailty, increased risk for skin breakdown, pressure ulcers and poor wound healing, diabetes, renal disease and other chronic conditions.
4. Pharmacy Considerations
   a. Weight and record accurate patient weight
   b. Consult the pharmacist as needed
   c. Note that overweight and obesity can alter the pharmacokinetics of some medications, due to changes in bodily distribution, protein binding, metabolism and drug elimination.
   d. Weight-based dosing of certain drugs is not appropriate or safe for patients with overweight and obesity.
5. Diagnostic Testing / Special Procedures Issues
   a. Consideration must be given regarding the patient's size dimension/girth, maximum weight rating of the equipment and the mobility, positional tolerance and handling of the patient.
   b. Notify the diagnostic service as soon as orders are received, so any needed accommodations can be made.
   c. Refer to and follow Safe Patient Handling Policy.
5. Functional Considerations
   a. Request referral to Physical Therapy, Occupational Therapy, etc. early in the admission.
   b. Assess/reassess and document all areas of self-care, noting limitations such as decreased range of motion, endurance, fatigue, pain, and injury, as well as issues of balance, loss of muscle mass, excess skin impacting mobility.
   c. Promote independence in functional activities
   d. Incorporate the use of adaptive equipment appropriate for the patient's

weight, size and ability to be used in their home environment.

F. Space and Equipment Considerations (Refer to Bariatric Equipment and Safe Patient Handling Policies)
   1. Utilize equipment and supplies appropriate for the patient (i.e., beds, walkers, wheelchairs, carts, patient lifts/slings/slides, bedside commodes, scales, gowns, robes, socks, blood pressure cuffs, longer gauge needles, bariatric bedpan, incontinent pads, etc.).
   2. When possible, place the patient in the rooms indicated per policy.

References

Lamont, L. (2018). Bariatric care of the adult with obesity during inpatient care and transitions in care. Clinical Practice Guideline. Winnipeg Regional Health Authority. Retrieved from http://www.wrha.mb.ca/extranet/eipt/files/EIPT-057.pdf

Silk, A., & McTigue, K. (2011). Reexamining the physical examination for obese patients. *Journal of the American Medical Association, 305*(2), 193-194. Doi: 10.1001/jama.2010.1950

Citations

Bariatric Equipment Policy
Pressure Ulcers-Prevention Protocol Utilization Guidelines for Skin Risk Assessment (PUP) Policy
Safe Patient Handling Policy
Ultrasorb Pads Policy

No names, please

Appendix I

Participant Evaluation: A Multifactorial Intervention
for Reducing Weight Bias in Healthcare Providers

Please rate your response to the following questions on a 1-5 scale, by placing a check mark in the appropriate box, as follows: 1 – Strongly Disagree 2 – Disagree 3 – Neutral 4 – Agree 5 – Strongly Agree

Question	1	2	3	4	5
1. The Antifat Attitudes Questionnaire heightened my awareness of my own potential weight biases.					
2. The video "Weight Bias in Health Care" increased my awareness of this subject					
3. The video of Anetra Jones, CNO helped me understand the importance of addressing weight bias in our hospital					
4. The guideline contains information that will assist me in when caring for persons with overweight and obesity					
5. I believe my antifat attitudes lessened after participating in this educational session					
6. I will likely make changes in my communication with and caring for persons with overweight and obesity as a result of this education					
7. I believe ongoing reinforcement of this information would be beneficial to improving care of patients with overweight and obesity					

8. What did you find most beneficial in this training?

9. What did you find least beneficial?

10. Suggestions for improving this education:

Comments:

Thank you for participating in this educational evidence-based practice project. You will be contacted in approximately 2-3 months to retake the Antifat Attitudes Questionnaire for follow-up.

Appendix J

CITI Training Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Rose Flinchum (ID: 8051374)
- **Institution Affiliation:** Valparaiso University (ID: 3782)
- **Institution Email:** rose.flinchum@valpo.edu
- **Institution Unit:** Nursing
- **Phone:** 219.973.9401

- **Curriculum Group:** Group 1: Social Behavioral Educational Researchers
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 31302548
- **Completion Date:** 14-Apr-2019
- **Expiration Date:** N/A
- **Minimum Passing:** 80
- **Reported Score*:** 90

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
History and Ethical Principles - SBE (ID: 490)	14-Apr-2019	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	14-Apr-2019	4/5 (80%)
The Federal Regulations - SBE (ID: 502)	14-Apr-2019	5/5 (100%)
Assessing Risk - SBE (ID: 503)	14-Apr-2019	5/5 (100%)
Informed Consent - SBE (ID: 504)	14-Apr-2019	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	14-Apr-2019	3/5 (60%)
Research with Children - SBE (ID: 507)	14-Apr-2019	4/5 (80%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	14-Apr-2019	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?kc6e23803-5031-4c22-a5d6-bf3b47b2c076-31302548

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix J

CITI Training Certificate, p.2

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Rose Flinchum (ID: 8051374)
- **Institution Affiliation:** Valparaiso University (ID: 3782)
- **Institution Email:** rose.flinchum@valpo.edu
- **Institution Unit:** Nursing
- **Phone:** 219.973.9401

- **Curriculum Group:** Group 1: Social Behavioral Educational Researchers
- **Course Learner Group:** Same as Curriculum Group
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 31302548
- **Report Date:** 14-Apr-2019
- **Current Score**:** 90

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Defining Research with Human Subjects - SBE (ID: 491)	14-Apr-2019	4/5 (80%)
The Federal Regulations - SBE (ID: 502)	14-Apr-2019	5/5 (100%)
Assessing Risk - SBE (ID: 503)	14-Apr-2019	5/5 (100%)
Informed Consent - SBE (ID: 504)	14-Apr-2019	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	14-Apr-2019	3/5 (60%)
Research with Children - SBE (ID: 507)	14-Apr-2019	4/5 (80%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	14-Apr-2019	5/5 (100%)
History and Ethical Principles - SBE (ID: 490)	14-Apr-2019	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid independent Learner.

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Rose M. Flinchum