

'INTERNALIZING WORTHINESS': A STUDY OF OBESE NURSES MANAGING
THEIR WEIGHT

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Dedication

This is dedicated to my loving husband Gary, my two wonderful children Caroline and Andy, and my parents who always supported my dreams.

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List of Abbreviations

American Heart Association	AHA
American Nurses Association.....	ANA
Body Mass Index	BMI
Capabilities, Opportunity, Motivation, and Behavior.....	COM-B
Centers for Disease Control.....	CDC
Cross-Sectional	CS
George Mason University.....	GMU
Health Care Provider.....	HCP
Journal of Nursing Administration	JONA
Kilograms.....	kg
Meters	m
Non-physician healthcare professional	NP-HCP
Normal Weight.....	NW
Nurses Health Studies	NHS
Obese.....	OB
Overweight.....	OW
Registered Nurse.....	RN
Secondary Analysis.....	SA
United Kingdom.....	UK
United States	US
Versus	vs.

Abstract

‘INTERNALIZING WORTHINESS’: A STUDY OF OBESE NURSES MANAGING THEIR WEIGHT

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George Mason University, 2020

Dissertation Director: Dr. Kyeong Mi Oh

Introduction: A significant number of nurses are overweight and obese, which poses a risk to their health and wellbeing. This study uncovered a theory illustrating how nurses who are obese manage their weight and how the process was influenced by personal, contextual, situational, and conditional factors.

Method: The researcher employed a qualitative research method using face-to-face, semi-structured interviews with registered nurses who were currently obese or had a history of obesity and subsequent weight loss. Proprietary software was used for data management and qualitative data analysis. Three levels of coding were employed to uncover the underlying process of how obese nurses manage their weight in the context of the demanding contemporary workplace. The associated personal, contextual, situational, and conditional factors that act as barriers and facilitators to this process were identified.

Results: The narratives revealed the nurses wanted to lose weight and implement eating behaviors but failed to balance their own self-care needs against patient care demands. This may be linked to the long history of self-sacrifice in nursing. The nurses described cues to action helped them initiate weight loss and balance their own health against workplace demands. When the nurses struggled with their weight, they recalled being reluctant or avoiding engaging patients in weight loss counseling; however, when they started to lose weight, they felt empowered to provide weight loss counseling to patients.

Implications: The findings from this study have implications for practice, education, and research. Nurse leaders and managers may consider creative work redesigns to support the nurses in implementing self-care practices at work. Nurse educators may incorporate activities to allow students to develop and practice personal self-care skills before graduation. Researchers could explore the interrelatedness of self-worthiness, self-sacrifice, and negative outcomes for nurses managing their weight and design and test weight loss interventions, specifically addressing the unique barriers that nurses face.

Keywords: nurses; obesity; weight loss; grounded theory; qualitative research; health promotion; workplace; healthy nurse

Chapter One - Introduction

Background and Significance

The United States (US) continues to have a high obesity rate among adults (Flegal et al., 2012; Hales et al., 2017; Wang & Beydoun, 2007) despite national initiatives promoting healthy lifestyles and weight loss for individuals who are overweight and obese (Centers for Disease Control and Prevention, 2017). Almost 70% of adults are overweight with a body mass index (BMI) over 25 kg/m², and half of those are obese with a BMI of over 35 kg/m² (Hales et al., 2017). Overweight and obesity significantly increase mortality and morbidity (Mozaffarian et al., 2015). The overall mortality of obese people is estimated to be twice the rate of individuals with normal weights (Flegal et al., 2013). The American Heart Association (2014) further estimated that if this trend continues, the healthcare cost related to obesity could reach over \$900 billion or one-sixth of the total healthcare costs by 2030. There are limited healthcare funds available, so this could severely restrict what other health issues we might be able to treat as a society.

In order to reverse these trends, we need to find effective ways to reduce obesity. Healthcare providers and nurses have the potential to assist obese clients in achieving weight loss and managing their weight.

Decline in Weight Loss Counseling by Healthcare Providers.

In 2003, in response to the increasing weights seen in adults, the US Preventive Services Task Force recommended that primary healthcare providers, “screen all adult patients for obesity and offer intensive counseling and behavioral interventions to

promote sustained weight loss for obese adults” (Moyer, 2012, p. 373). Intensive behavioral weight loss interventions will likely improve glycemic control and reduce modifiable risk factors for cardiovascular diseases in obese patients (Moyer, 2012). However, when Kraschnewski and colleagues (2013) conducted a secondary analysis of outpatient primary care visits from the National Ambulatory Medical Care Survey ($N = 32,519$), they found that weight loss counseling in primary care settings (care provided by physicians, nurse practitioners, or physician assistants) is declining. When they compared the rates of weight loss counseling for patients from the 1995–1996 surveys to patients from the 2007–2008 surveys, they found that weight loss counseling had decreased from 7.8% to 6.2% among all patients. More concerning, the researchers found that the rate at which obese patients received weight loss counseling declined from 39.9% to 29.9% overall. Finally, they found that the likelihood of a patient with hypertension receiving weight loss counseling decreased by 41%; furthermore, odds of receiving weight loss counseling was decreased by 59% for patients with diabetes.

The decline in weight loss counseling over time is in contrast to what patients say motivates them to lose weight. Data from the 2005–2008 National Health and Nutrition Examination Survey ($N = 7,790$) reveal that patients express a greater desire to lose weight if their healthcare provider informs them that their weight is a health issue (Post et al., 2011). There is a paucity of research about how frequently registered nurses provide weight loss management counseling to overweight and obese patients or how patients perceive such weight loss counseling.

The decrease in rates of weight loss counseling seems to contradict what patients say may motivate them to manage their weights and achieve weight loss. Furthermore, the decreasing trends in weight loss counseling suggest there is a gap between current practice in the US and the recommendations to screen all adults and provide behavioral weight loss interventions to obese patients (Moyer, 2012). Nurses have the training to assist patients with health promotion strategies and behavioral weight management interventions to decrease the rates of overweight and obesity.

Effect of Overweight and Obesity on Weight Loss Counseling.

The effect of a healthcare provider's personal health practices on how he or she provides patient care was first examined among physicians who smoke. Studies found that healthcare providers who smoke are less likely to provide smoking cessation counseling for their clients (Kawakami et al., 1997; Pipe et al., 2009). Compared to physicians who did not smoke, physicians who smoked were also less likely to associate smoking with poor health outcomes (Pipe et al., 2009).

Zhu and colleagues (Zhu et al., 2011) conducted a systematic review of nine studies to examine the relationship between a healthcare provider's weight status, and their practice with regards to assessment, counseling, and referrals when dealing with overweight and obese clients. While the studies varied significantly with regards to method and instruments used, the researchers found that healthcare providers of normal weight were more likely to provide general weight loss counseling to obese patients compared to their overweight counterparts.

Only one of the nine studies, conducted by Hoppé & Ogden (1997), included a sample of nurses ($N = 586$) from the United Kingdom (UK). This cross-sectional study stratified the nurses according to low or high BMI. The mean BMI for the whole sample was 23.48 kg/m^2 (SD 3.43), and 35.9% of the nurses were overweight or obese. The nurses with high BMI were significantly less likely to view obesity as preventable, but both the high and low BMI subjects lacked confidence that the weight loss counseling would be effective on a 7-point Likert scale (3.85 for low BMI vs. 3.93 for high BMI). In contrast, both groups felt more confident about providing weight loss counseling, measured by self-efficacy (4.78 for both the low and high BMI groups). The notion that the nurses feel more confident about providing weight counseling but that such counseling would not be successful may seem contradictory and suggests a need for further research into nurses' attitudes towards overweight, obesity, and weight loss management strategies.

A cross-sectional study with a sample ($N = 500$) of non-physician healthcare professionals (NP-HCPs) from the US examined the NP-HCPs' weight loss management practices and beliefs (Bleich et al., 2014). The sample included subjects from nursing, nutrition, behavioral/mental health, exercise, and pharmacy categorized into a normal weight (NW) and overweight or obese (OW/OB) groups. There were no statistical differences between the groups with regards to which weight category of patients should receive weight management counseling. The majority of HCPs in both weight categories believed it was appropriate to engage obese or morbidly obese patients about weight management counseling. However, very few (2% NW vs. 4% OW/OB) HCPs believed

that it would be appropriate to engage overweight patients in weight management counseling.

The researchers further explored how the HCPs believed patients would respond to professionals of varying weight categories (Bleich et al., 2014). The majority of HCPs in both weight groups (82% NW vs. 72% OW/OB) believed that patients would be “less likely” to trust weight loss advice from overweight or obese HCPs, and “more likely” (73% NW vs. 71% OW/OB) to trust advice from a normal weight HCP. Finally, the HCPs with normal BMI were more likely to report being successful in assisting their patients in achieving weight loss compared to their heavier counterparts (52% vs. 29%, $p = .01$).

While the study conducted by Bleich and colleagues (2014) revealed no statistically significant differences in beliefs about weight management practices between normal weight and overweight HCPs, it is important to note that very few of the HCPs believed it was appropriate to counsel overweight patients. In addition, HCPs with normal BMI were more confident in their ability to help patients lose weight. A more detailed analysis of the different professional groups might reveal differences in practice, as these non-physician professional groups vary significantly in what role they play in weight management practice. More research is needed to identify the weight management practices, attitudes, and beliefs of nurses, who work closely with patients on topics such as diet and health promotion. Furthermore, the notion that only obese patients should receive weight loss counseling warrants more research. While recommendations from the US Preventive Services Task Force recommends intensive behavioral weight loss

interventions for all obese patients (Moyer, 2012), nurses should provide health promotion and weight loss counseling to patients in the overweight category as well.

Hicks and colleagues (2008) examined whether the weight status of a nurse would impact the notion of trust or confidence during diet and exercise counseling. The researchers conducted a quasi-experimental study on a convenience sample ($N = 150$) of students, faculty, staff, & visitors to a university in New York. The subjects were shown a picture of a virtual Caucasian female nurse dressed in white. In one picture, the virtual nurse was “weight appropriate” (size 10-12), and in the other, the virtual nurse was “overweight” (size 20-22) (p. 351). Subjects then rated their confidence in receiving “diet and exercise education from the nurse on a visual analog scale” (p. 351). The subjects felt significantly less confident with diet and exercise education from the larger nurse ($M = 5.8$, $SD = 2.86$) versus the normal weight nurse ($M = 7.3$, $SD = 2.0$, $p = .00$). The researchers did not explain how the dress size was related to weight status. Like BMI, a person’s dress size may not accurately depict the body fat composition due to variation in height and lean muscle mass. Nonetheless, it is important to recognize that the weight status of the nurse may impact the confidence in the education they give and thus affect the desired patient outcome of weight loss.

Some nurses may have distorted perceptions about body image and weight. In a cross-sectional study of nurses ($N = 760$) by Miller and colleagues (2008), 24% of the overweight nurses (BMI range 25-29.9) failed to identify themselves as overweight. For obese nurses, 3% failed to correctly identify with an obese weight category (BMI > 30). The failure of some of the nurses to correctly classify a BMI between 25 and 29.9 as

overweight may help shed light on results from other studies (Bleich et al., 2014) where the majority of health professionals did not counsel patients on weight management until the patients had reached the obese weight category. It is important for nurses to correctly identify overweight in patients and themselves and provide the appropriate health promotion and counseling.

Stigma Related to Obesity in Healthcare.

A systematic review of 30 research studies clearly documented that overweight, obesity, and weight management were sensitive issues (Mold & Forbes, 2013). Both patients and healthcare providers acknowledge that issues of stigmatization and bias towards obese patients may create barriers for patients accessing healthcare. Obese patients reported feeling “powerless” (p. 122). Even when obese patients were able to access healthcare, they may have received inadequate treatment, as some healthcare professionals reported feeling “reluctance” when performing specific procedures (e.g., pelvic exams) on obese patients due to “practical difficulties” (p. 122).

Negative attitudes held by some HCPs may complicate the issue of weight loss counseling. Puhl and Heuer (2009) conducted an integrative review examining the stigma of obesity. They found evidence to suggest that some healthcare providers including, physicians, nurses, and nursing students, view obesity as a behavioral issue. Obese patients were viewed as “lazier”, and lacking will power compared to normal-weight patients (p. 944-945). Furthermore, providing weight loss counseling to obese patients may be futile as these patients are unlikely to change their behavior (p. 944). Stigma and discrimination against obese individuals in general, such as in employment and

educational settings, and in the media, are also well established (Puhl & Heuer, 2009). Beneficence and justice are among the basic tenants that guide ethics in healthcare (Emanuel et al., 2011). Healthcare professionals should to treat all patients with dignity, respect, and provide the needed services to all patients, including weight loss counseling to overweight and obese patients.

Research further suggests that how healthcare providers approach patients about weight issues is a crucial factor. The use of terms such as “unhealthy weight” to describe obese patients may increase the likelihood of achieving the desired results (T. K. Kyle & Puhl, 2014, p. 1211). Issues of overweight and obesity need to be addressed in an open but respectful and sensitive manner by all healthcare professionals in order to provide effective care to all patients. Healthcare professionals who work with overweight and obese patients need to possess current knowledge about the state of the evidence, attitudes that facilitate a therapeutic provider/patient working relationships, and skills to effectively deliver weight loss counseling in order to assist individual patients in achieving long-term weight loss.

Perceptions of Overweight Nurses Providing Weight Loss Counseling.

The quantitative data suggest that both healthcare professionals and patients believe that overweight nurses would be less trustworthy when they provide health promotion education (Bleich et al., 2014; Hicks et al., 2008). Given the stigma associated with obesity, it is not surprising that many overweight nurses express ambivalence about their body image and their performance as a healthcare provider. Qualitative studies may

further clarify some of the trends regarding weight loss counseling found in the quantitative data.

Brown and Thompson (Brown & Thompson, 2007) conducted a descriptive qualitative study ($N = 15$) about nurses' attitudes and beliefs when providing weight loss counseling to clients. The purposive sample of female nurses from the UK varied with regards to weight (low, medium, and high BMI). Nurses from all weight categories claimed that weight loss counseling is a sensitive subject, and many of the nurses reported being conscious of their weight when counseling obese patients. Nurses with low BMI were concerned about patients perceiving them as lacking empathy or not having adequate knowledge of weight management. However, the nurses with a high BMI felt self-conscious about their weight and concerned that patients would focus inappropriately on it during weight loss counseling. The nurses with high BMI tended to base their weight management advice on personal "hunches" rather than evidence-based practice (p. 540), and some reported feeling guilty for not being a better role model. Finally, the researchers also reported that while some of the nurses with high BMI felt they were able to empathize with the overweight patients due to shared experiences, others appeared to be more judgmental toward obese patients. The researchers hypothesize that this ambivalence may be due to self-critique as the nurses were overweight themselves.

Aranda and McGreevy (2014) conducted a phenomenological study ($N = 7$) with female nurses in the UK that helps further explain the complex feelings experienced by overweight nurses. The in-depth interviews with the overweight nurses revealed strong

feelings such as guilt (regarding being a poor role model), fear (of being judged for being a larger body size), and empathy (from shared experiences) towards patients who are also overweight and obese. Concepts identified included struggling with their body image both personally and in the context of being an overweight healthcare professional, eating to deal with stressful situations (e.g., long or irregular work hours), and for some, even questioning the importance of having a normal/healthy body size (e.g., excess weight not perceived as a health issue).

The researchers reported that some nurses expressed mixed feelings when it came to working with patients who were overweight and obese (Aranda & McGreevy, 2014). Some overweight nurses felt their body size allowed them to empathize with the patients and develop rapport. Many, however, expressed feelings of guilt related to being poor role models and even fear of being judged and deemed hypocritical. This notion that the nurses did not follow the guidelines for healthy lifestyles themselves while being in the position of weight/healthy lifestyle educators caused anxiety among many nurses who feared being challenged in their professional role.

Many of the female nurses in the phenomenological study struggled to deal with the stigma they had experienced as overweight women (Aranda & McGreevy, 2014). The internal struggle with body image may have impacted their role performance as they engaged in health promotion counseling with patients. While some overweight nurses may find it easier to establish trust and rapport with their overweight patients, nurses must carefully examine and manage their feelings in order to be effective in delivering evidence-based health promotion counseling to their patients.

Nurses play an essential role in educating patients about their health (Letvak, 2013). However, nurses appear to mirror the rest of the population with regards to weight status, and many nurses are overweight or obese themselves (Miller et al., 2008). Overweight and obese nurses may be less likely to provide weight loss counseling to clients compared to nurses of normal weight (Zhu et al., 2011), and if they do, they may be less effective (Brown & Thompson, 2007). Both nurses and patients may perceive an overweight nurse offering weight counseling education as less trustworthy compared to a normal weight nurse (Bleich et al., 2014; Hicks et al., 2008). The literature suggests that some nurses with unhealthy BMIs may base the advice they give to patients on personal experiences rather than evidence-based practice (Brown & Thompson, 2007, p. 540). Some fail to recognize overweight as a health issue in themselves (Miller et al., 2008), as well as in their overweight patients (Bleich et al., 2014).

The evidence suggests that obese people may experience stigma and bias when accessing healthcare (Puhl & Heuer, 2009). The negative perceptions towards obese patients are prevalent in all healthcare professions, including among nurses (Puhl & Heuer, 2009). Overweight nurses may experience stigma related to their body weight, and they may feel inadequate or ambivalent in their role as health educator (Aranda & McGreevy, 2014; Brown & Thompson, 2007). There is currently a paucity of literature exploring how overweight and obesity affect nurses in the workplace, during interactions with patients, and in their personal lives. Furthermore, there is a need for effective intervention studies for weight management in nurses (Letvak, 2013), and it is not currently clear what factors influence weight management in nurses. More research is

needed to explore how nurses manage their weight, including what factors influence barriers and facilitators for that process.

Purpose of the Study

The purpose of this study was to develop a theory that explains how registered nurses who are obese or have a history of obesity and subsequent weight loss manage their weight. A secondary purpose of the project was to clarify how the process of weight management among obese nurses [theory] was influenced by the personal, contextual, situational, and conditional factors.

Research Question

Specifically, the research question for this study was:

What is the process by which nurses manage their weight to reduce obesity?

A sub-question for the study was:

How is the process of weight management influenced by personal, contextual, situational, and conditional factors that may act as barriers or facilitators?

The long-term goal of this study is to contribute to the development of effective weight loss interventions for nurses to increase their health and well-being, as well as their effectiveness when counseling overweight clients. A conceptual grounded theory model may help researchers, nurse managers, and individual nurses develop effective interventions to promote weight loss and healthy lifestyles among overweight and obese nurses by selecting components to specifically address the areas identified by the participants in this study. Furthermore, using a comprehensive framework can assist in developing effective interventions in the future (Michie et al., 2011).

Conceptual Framework of the Study

This qualitative study aimed to explore how nurses manage their weight. The conceptual framework for this study is derived from the Capabilities, Opportunity, Motivation, and Behavior (COM-B) behavior change model (Michie et al., 2011). Michie and colleagues (2011) proposed a new comprehensive framework, the Behaviour Change Wheel (p. 8), aimed at guiding behavior change interventions and policies after conducting a systematic review of 19 existing frameworks (see Figure 1). At the core of their new model (see Figure 2), is the concept that three core components drive behavior change: capability, opportunity, and motivation (Atkins & Michie, 2013).

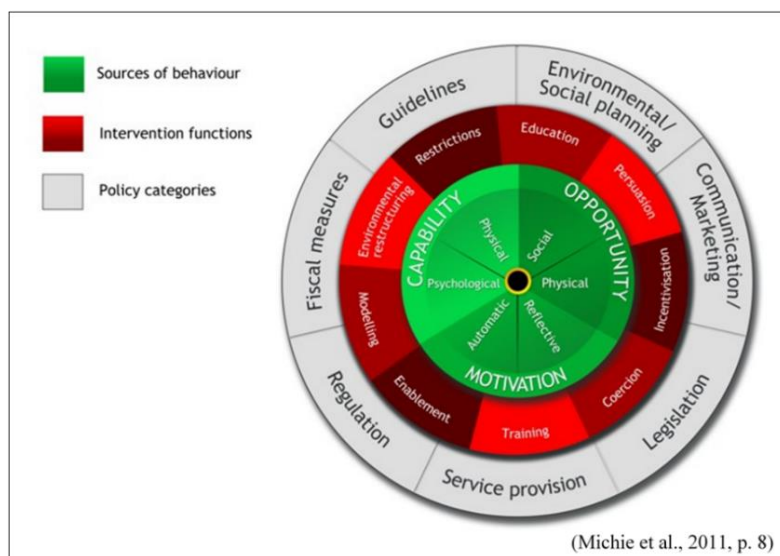


Figure 1

The Behaviour Wheel

The researcher employed the COM-B model as a frame of reference in the initial conceptualization of the factors that might influence the process. However, the ongoing data collection and analysis was driven by an iterative process; the model did not constrain the generation of the grounded theory. At the end of the analysis process, the new grounded theory was compared to the COM-B framework, and it was determined that the situation-specific ‘Internalizing Worthiness’ theory aligns with the tenets and elements of the behavior change framework. Using a comprehensive framework may assist in developing effective interventions for overweight nurses by identifying effective strategies in the context of institutional and social influences.

Capability.

Atkins and Michie (2013) defined the component of *capability* as an individual’s *physical* and *psychological* capabilities. The physical aspect of capability may refer to the skills of the individual, including motor function and overall health. With regards to weight management, this could be an individual’s ability to walk one mile. The psychological aspect refers to the knowledge held by the individual. For this study, this could be the knowledge that exercise is important to health, and the ability to schedule regular time for exercise three times per week.

Opportunity

Atkins and Michie (2013) defined the component of *opportunity* as being comprised of extrinsic (environmental) influences on the individual’s behavior. Opportunity has two different dimensions, namely the *physical* and *social* opportunities. An example of a physical opportunity that act as a barrier is a lack of access to healthy

food during a nurse's work shift. Whereas, a social opportunity that act as a facilitator could be having coworkers form a pact to encourage each other to choose healthy lunch options.

Motivation.

Atkins and Michie (2013) further defined the component of *motivation* as encompassing intrinsic cognitive and emotional processes that affect behavior change. Motivation is divided into *reflective* or *automatic* factors. The reflective factors may be conscious thinking, such as when an individual is actively thinking about starting a diet the next day. Automatic factors may be habits or emotional responses such as an individual automatically overeating when feeling emotionally distressed.

Behavior.

In order to change behavior, an individual needs the capability, the opportunity, and the motivation to do so (Atkins & Michie, 2013). As illustrated in Figure 2, the COM-B model suggests that both capability and opportunity influence one's motivation. There are bidirectional relationships between the three core components (capability, opportunity, motivation) and behavior. Capabilities may influence behavior directly, but behavior may also, in turn, change the capabilities of the individual.



Figure 2

The COM-B Model (Michie et al., 2011) with Personal, Contextual, Situational, & Conditional Factors

Weight Management.

Lazarus and Folkman (1984) defined coping as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” in their theory about stress, appraisal, and coping (p. 141). For this study, coping is defined as the manner, the process, in which nurses manage their weight. Furthermore, this study uncovered a variety of factors, including personal, contextual, situational and conditional factors that affect this process. The personal, contextual, situational and conditional factors interact

with the core components, capability, opportunity, and motivation to influence the behavior.

Personal Factors.

Lazarus and Folkman (1984) defined personal factors as commitments and beliefs. For this study, personal factors were expanded to include age, race/ethnicity, relationship status, educational level (see demographic survey, Appendix B), attitudes, beliefs, motivation, and personal experiences. Additional personal factors were introduced by participants during the interview; for example, some participants discussed weight-related stigmas or choosing to undergo bariatric surgery.

Contextual Factors.

For this study, contextual factors are defined as elements in the environment or inherent in the role of the professional nurse that may affect the process of weight management in nurses. Examples of contextual factors include work-related stress and the Registered Nurses' role as educator, role model, or caretaker.

Situational Factors.

Lazarus and Folkman (1984) offered situational factors that affect the process of coping, including the novelty of a particular experience, or the predictability, uncertainty, and temporal characteristics that influence one's appraisal of the situation. In this study, situational factors are defined as external factors outside of the individual's control that may or may not be present at any given time. For example, situational factors included changing work shifts, working with obese patients, and unpredictable demands in the workplace.

Conditional Factors.

For this study, conditional factors are defined as conditions or triggers that may or may not be present in a specific situation, that have an impact on the coping process (R. K. Mallinson, personal communication, December 9, 2015). An example of a conditional factor from this study was when a nurse brought in pre-packed meals for snacking, she was able to maintain a healthy diet; however, when she forgot to bring the food, she ate the unhealthy foods in the break room.

Definition of Variables

Body Mass Index (BMI).

The most precise and accurate measures of overweight and obesity are computerized tomography, magnetic resonance imaging, dual-energy X-ray absorptiometry, and air displacement plethysmography because they can distinguish adipose tissues accurately (Shuster et al., 2012). However, the use of these diagnostics technologies may not always be feasible due to high costs, accessibility, and adverse effects from radiation (Silva et al., 2013; Tarleton et al., 2014). For this study, the cost and convenience for the participants outweighed the need for precision. The estimation of the participant's weight category (i.e., normal, overweight or obese) was determined by a calculation of the body mass index (BMI) using a self-report measure of weight.

According to data from the Nurses Health Studies, the self-report weights from the nurses were correlated with a technician measured weight, and while some nurses underreported their weight the difference in the means was low at 1.7 kg (Rimm et al., 1990).

In this study, BMI was operationalized as a calculation (weight in kilos (kg) divided by height in meters squared (m²)), based upon the participant’s self-report of height and weight. Table 1 shows the categorization of weight status as a function of BMI (Centers for Disease Control, 2015). This definition was used during screening to determine whether potential participants met the inclusion criteria of a BMI > 30 kg/m². For this study, the researcher calculated the percipient’s current BMI, as well as the BMI associated with their highest reported weight.

Registered Nurse (RN).

For this study, a registered nurse (RN) is defined as an individual who holds a Diploma, Associate, Baccalaureate, Masters, or Doctoral degree in nursing and holds a current license to practice as an RN in the United States. To be eligible for this study, the RNs were working a minimum of 20 hours per week in the nursing profession.

Table 1 *Standard Weight Status Categories Associated with BMI Ranges(CDC, 2015)*

Body Mass Index	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal or Healthy Weight
25.0 – 29.9	Overweight
30.0 and Above	Obese

Chapter Two – Literature Review

Review of the Literature

This review of the literature will start with the prevalence of overweight and obesity in nurses. Next, it will look at an analysis of the link between mental health issues and weight status among nurses, the influence of ethnicity on overweight, and work-related barriers to healthy lifestyles for nurses. Finally, the current state of the science with regards to weight loss interventions aimed at nurses will be examined. A summary of the evidence will outline the gaps in the literature.

Search Strategy

The criteria for inclusion in this review were English, full-text, peer-reviewed journal articles. The following search terms were used to search library databases: “obesity” AND "weight loss" OR "body weight” AND “nurses”. The search was guided by a library staff expert, and the following databases were searched: CINAHL, Cochrane Library, Medline, PubMed, Proquest Nursing and Allied Health Source, Web of Knowledge, PsycInfo, and Google Scholar. A secondary search was completed using the following search terms: “obese” OR “overweight” or “over weight” AND “nurses” or “nursing staff, hospital” AND “qualitative.” The references of relevant articles were searched. The first search produced 1,508 results, and the second search revealed 200 results. However, after removing duplicates and reviewing the abstracts, only 61 research articles were applicable.

Nurses' Health Studies

The Nurses' Health Studies (NHS) are longitudinal studies with samples of nurses. The original NSH began with baseline data collection ($N = 121,700$) in 1976 with a sample of nurses born between 1921 and 1946. Nurses were selected because their training and education increased the likelihood of accurately answering health-related questions (Harvard University, n.d.). However, study protocols did not verify that the nurses continued to work in the profession throughout their participation in the study (Letvak, 2013). Follow-up questionnaires were sent every two years, and biological samples have been collected for sub-samples since 1980. The NHS II was started in 1989 with a sample of nurses born between 1946 and 1964 ($N = 116,430$); whereas nurses born after 1964 are eligible to enroll in the NHS III that is currently recruiting nurses.

Published articles using data from the Nurses Health Studies have been reporting mean BMI rates rather than prevalence rates of overweight and obesity in the samples. The mean baseline BMI recorded in 1976 from a subset of the NHS sample ($N = 46,994$) was 23.7 kg/m^2 (SD 1.4), with an increase of 0.4 kg/m^2 after four years. For NHS II, researchers reported that in 1989, the mean BMI of the sample ($N = 47,928$) was 23.0 kg/m^2 (SD 2.4) at baseline with an increase of $.6 \text{ kg/m}^2$ after four years (Smith et al., 2015). This suggests that a significant number of nurses may have been overweight.

The NSH and NSH II studies have helped clarify the relationship between obesity and the increased the risk of developing chronic disorders such as type II diabetes (Hu et al., 2014), coronary heart disease (Manson et al., 1995), cancer (Martínez et al., 1997). While many articles published from the NSH do not provide the prevalence of

overweight and obesity among nurses, they are still significant contributors to the body of evidence that outline the health risks for women who are overweight and obese (Hruby et al., 2016). It is also important to realize that the early NSH only used samples of women. Male nurses have increased in numbers over the years and now comprise 9.1% of the total nursing workforce (U.S. Health and Human Services, 2013, p. 16).

Overweight and Obesity among Nurses

As outlined in Table 1, the Centers for Disease Control (2015) categorizes a person's weight status according to their BMI. A cross-sectional (CS), descriptive study randomly sampled nurses from six different regions across the US ($N = 749$) and found that 30.6% of the nurses had a BMI in the overweight category; whereas, 23.5% of the sample were obese (Miller et al., 2008). The researchers reported a lower than expected response rate at 15.5%, increasing the risk of selection bias. While self-report weight has been established as a valid measure of weight, particularly for individuals under 60 years of age, this method of measuring BMI may still underestimate the actual weight status of individuals (Han, Storr, et al., 2012; Kuczmarski et al., 2001).

Five other cross-sectional studies found similar rates of overweight and obesity (see Table 2) using self-report measures of height and weight (Chin et al., 2016; Han et al., 2011; Letvak, Ruhm, & McCoy, 2012; Nahm et al., 2012; Zitkus, 2011). The prevalence of overweight among nurses ranged from 26.6% to 32%, whereas the prevalence of obesity ranged from 18% to 31.4%. The five cross-sectional studies used convenience samples from different areas of the country with sample sizes ranging from 169 to 2,103 registered nurses in each study (see Table 2).

A cross-sectional study of randomly selected nurses ($N = 187$) from six hospitals in Massachusetts used objective measures of height and weight to report on the prevalence of overweight and obesity (Zapka, Lemon, Magner, et al., 2009). Two-thirds of the subjects were overweight (37.2%) or obese (28.2%). The study also used questionnaires to collect self-report weights. A majority (82.2%) of the nurses in the sample reported feeling overweight; over a third (42.0%) selected “a little overweight”, and almost a quarter (24.2%) selected “moderately overweight”, and 15% selected “very overweight” (p. 855). Only 29.6% of the nurses in the sample reported receiving weight loss counseling from a provider; however, 61.7% reported that they were trying to lose weight. While healthcare providers may not always bring up the subject of weight loss, the nurses expressed a desire to lose weight. The rates of overweight and obesity in this sample were slightly higher than the rates in the studies using self-report measures.

The cross-sectional studies using self-report measures of height and weight ($N = 4,913$) and objective measures of height and weight ($N = 187$) with samples of nurses from different areas of the country provide mounting evidence that overweight and obesity affects over half of the nurses in the US. Obesity significantly increases morbidity and mortality (Flegal et al., 2013) and may affect a quarter or more of the nursing workforce. While many of the nurses reported that they were trying to lose weight, it is notable that few had received this recommendation from their healthcare providers. The high rates of overweight and obesity have serious health implications for the nurses themselves, and potentially, for the patients for whom they serve as role models.

Table 2.*Prevalence of Overweight (OW) and Obesity (OB) Among Nurses*

Authors	Year ^a	Type of Study Measures	Region	Sample	Results
(Chin et al., 2016)	2013	CS ^b Survey Self-Report	CA	<i>N</i> = 394	31% OW 18% OB
(Han, Trinkoff, et al., 2012)	2002-2003	CS Survey Self-Report	NC, IL	<i>N</i> = 2,103	27.9% OW 27.1% OB
(Letvak et al., 2013).	2012	CS Survey Self-report	NC	<i>N</i> = 1,171	32% OW 24% OB
(Miller et al., 2008)	2008	CS Survey Self-Report	AK, GA, MA, NE, NM, WV	<i>N</i> = 749	30.6% OW 23.5% OB
(Nahm et al., 2012)	2011	CS Survey Self-Report	MD	<i>N</i> = 169	26.6% OW 31.4% OB
(Zapka, Lemon, Magner, et al., 2009)	2005	CS Survey Objective	MA	<i>N</i> = 187	37.2% OW 28.2% OB
(Zitkus, 2011)	2011	CS Survey Self-report	NY	<i>N</i> = 721	30% OW 27% OB

Note. ^a - Year refers to the time of data collection. ^b Cross-sectional (CS)

Mental Health and Weight Status among Nurses

Luppino and colleagues (2010) conducted a systematic review and meta-analysis of 15 studies (amassing data from 58,745 individuals) to discover the long-term (over one

year) relationship between overweight, obesity, and depression. The analysis showed strong positive relationships between depression and increased weight. Being overweight increased the individual's chances of being depressed by over a quarter (27%), and the risk increased for obese patients by over half (55%). However, being depressed also increased the risk of being overweight by 20% and increased the risk of being obese by 55%. Mental health and weight status appear to be intertwined in a complex relationship, so it may be appropriate to address both mental health and weight issues in individuals with excessive weight.

This relationship between overweight and depression is also present among nurses. Letvak, Ruhm, and McCoy (2012) conducted a cross-sectional study with a sample of hospital nurses ($N = 1,171$) in North Carolina. The researchers found that 18% of the nurses showed symptoms of depression using the nine-item Patient Health Questionnaire (PHQ-9). The researchers conducted a multivariate linear regression and determined that BMI ($p = .006$), job satisfaction ($p < .001$), quality of the care provided ($p < .001$), and productivity ($p < .001$) were significant predictors for depression. The model accounted for 60.6% of the variation in depression scores.

The researchers further analyzed the data to show linkages between depression scores, musculoskeletal pain, and work performance (Letvak, Ruhm, & Gupta, 2012). Presentism is a loss of productivity or activity impairment due to health problems such as depression or back pain. The data showed a significant link between depression and decreased productivity due to health problems (presentism). Presentism, in turn, is associated with adverse patient outcomes such as patient falls, medication errors, and a

decrease in self-reported quality of care scores. These are especially important factors as there is currently an increased focus on improving the quality of care and containing costs in healthcare (Institute of Medicine, 2010).

These studies suggest a positive relationship between depression and weight status in the general population, as well as nurses. Furthermore, the research suggests that depression may negatively affect productivity, quality of care, and patient outcomes. More research is needed to understand the relationships between obesity, mental health, and the potential effects on patient outcomes.

Relationship between Ethnicity and Obesity among Nurses

A cross-sectional study of randomly sampled hospital employees ($N = 813$) in the Massachusetts area used surveys to examine behaviors related to weight loss (Zapka, Lemon, Estabrook, et al., 2009). The sample consisted of nurses/physician assistants (30.5%), administrative staff (21%), other clinical staff (19.3%), technicians (10.2%), laborers (7.8%), managers (7.7%), and faculty (3.6%); nearly two-thirds (63.5%) of the healthcare professionals and staff in the sample were involved in direct patient care. There were significant differences between the different ethnic groups with regards to overweight and obesity ($p < .001$). The Black employees had the highest prevalence of obesity (49.1%) as compared to the Hispanic employees (39.4%) and the White employees (34.1%). The Hispanic employees had the highest rate (38.9%) of being overweight, and nearly a third of the Black employees (31.3%) and the White (31.6%) employees fell into the overweight category. While less than a third of the sample was

comprised of nurses, these findings suggested that ethnicity is a factor in overweight and obesity among hospital employees.

Zapka and colleagues (2009) further conducted logistical regression analysis to establish which factors were significantly related to current attempts at weight loss (yes/no). Weight loss attempts were significantly associated with self-perceived overweight for both Whites (OR = 2.62, 95% CI = 2.01-3.43, $p < .001$) and Blacks (OR = 7.87, 95%CI = 3.49-17.74, $p < .001$). The sample did not include enough Hispanic subjects to calculate the odds ratio for this subgroup. Other factors that significantly predicted weight loss attempts were female sex for Whites only (OR = 2.07, 95% CI = 1.7 - 72.43, $p < .001$), college education (Whites: OR = 1.41, 95% CI = 1.13 - 1.76, $p < .002$; Blacks: OR = 5.42, 95% CI = 2.57 - 11.45, $p < .001$), and physician initiated weight loss counseling (Whites: OR = 1.18, 95% CI = 1.03 - 1.35, $p < .01$; Blacks: OR = 2.72, 95% CI = 1.53 - 4.48, $p < .001$). These findings suggest that ethnicity, education, and the support of a healthcare provider may be important factors in weight management among hospital employees; however, since only 194 out of the 814 were nurses, the results may not be generalized to all nurses.

Work-Related Barriers to Healthy Weight Management among Nurses

A secondary analysis using data from the Nurses' Worklife and Health study ($N = 2,103$) measured the association between job stress and weight status (Han et al., 2011). Height and weight were measured using self-report. The self-report weight was estimated from original categorical weight ranges (100-129 lbs.; 130-159 lbs.; 160-189 lbs.; etc.) using low median and maximum values for each range. The researchers found

statistically significant differences between the group of nurses who were normal or underweight versus the group of nurses who were overweight or obese with regards to age ($p < .01$), ethnicity ($p < .01$), educational background ($p < .01$), length of time in profession ($p < .01$), hours worked per week ($p = .02$), depressive symptoms ($p < .01$), exercise ($p < .01$), and experience of restless sleep ($p = .03$). Factors that were not significantly different between the normal or underweight versus the overweight or obese group included the role of the nurse (e.g., staff nurse, administrator, etc.), the workplace setting (e.g., hospital, nursing home, or community setting), adequate sleep, and smoking.

The researchers also conducted logistical regression and found 57-79% of the variance explained by the models. Of note, working long hours increased the odds of a nurse being overweight or obese by 23% (OR = 1.23, 95% CI 1.08-1.40), $p < .01$). These results suggest that time in the profession, educational status, hours worked per week, and long work hours may be important factors with regards to nurses' weight management.

Geiger-Brown and colleagues (2004) reported on open-ended comments from the Nurses' Worklife and Health Study. Almost a fifth (22%) of the respondents provided comments relevant to the impact of work stress on their ability to maintain a healthy lifestyle. Important themes identified by the researchers included "excessive demands" and "injustice and unfairness" (p. 18). The nurses cited long work-hours, often without days off between shifts, mandatory overtime, and low staffing ratios as being barriers that prevented them from maintaining healthy lifestyles. As a result of these work-related stressors, some nurses expressed a desire to leave their current job, leave the profession, or retire.

Zapka and colleagues (2009) examined the relationships between lifestyle and weight in hospital nurses ($N = 194$) in Massachusetts. This sample was a subset of a larger sample comprised of 813 hospital employees. A majority of nurses in the sub-sample agreed (53.0%) or strongly agreed (27.2%) that their job was stressful. Likewise, nearly half of the sample agreed (45.8%) or strongly agreed (35.6%) that the work environment was stressful. However, this did not appear to be significantly related to the weight status of the nurses. On the contrary, the nurses who strongly agreed with the job being stressful also reported eating more fruits and vegetables and being more physically active at work. While increased consumption of fruits and vegetables can be part of a diet that has an overall increased caloric value, the researchers cited the possibility of response bias and the use of self-report for the lifestyle behaviors as possible contributing factors to these unexpected findings.

Nahm and colleagues (2012) conducted a cross-sectional study with a sample ($N = 183$) of registered nurses from Maryland to examine their health behaviors. More than half of the nurses responded they did not have regular meals (yes/no), and a majority (72.2%) admitted to getting inadequate weekly exercise (yes/no). The researchers also collected qualitative data regarding specific strategies that could improve nutrition and exercise by asking open-ended questions on the survey. The subjects suggested improved quality and lower cost of cafeteria foods, and scheduled meal-time at work; however, when asked which stress management techniques they used most frequently, they cited “to eat” (17.4%), followed by “exercise” (16.9%), and “use of relaxation technique”

(14.6%) (p. e28). A lack of regular meal patterns and exercise may be associated with increased weight in nurses.

A qualitative study of the impact of night shift work on nurses' home, family, and social life ($N = 21$) revealed that working nightshifts impact sleep and overall health (Vitale et al., 2015). The nurses were recruited using snowball sampling from the New York City area. When asked about health concerns, the participants expressed that stress, long-term job pressures, poor nutrition, and lack of exercise contributed to weight gain. Night shifts influenced eating habits; one participant stated: "salads or healthy foods aren't appealing at 2:00 AM..., so I eat comfort foods" (p. 76). The participants offered recommendations that included providing onsite gym access and job sharing and shift exchanges.

Malik and colleagues (2011) analyzed survey data from British registered nurses ($N = 551$) and nursing students ($N = 325$) to examine the relationship between weight status and healthy lifestyle behaviors. The registered nurses in the sample were significantly more likely than the nursing students to be overweight (31.8% vs. 18.9%) or obese (12.9% vs. 9.1%). While the research suggests age is related to overweight and obesity for nurses in the US (Letvak et al., 2013), this difference between the British registered nurses (RNs) and students may suggest that work conditions for nurses may also be a significant factor in weight gain. Many of the RNs (45.4%) reported that they do not exercise for 30 minutes on most days of the week. Many of the RNs also reported eating foods high in fat and sugar a "few times per week" (61.3%), "once a day" (30.7%), or "multiple times per day" (5.6%) (p. 493). The lack of exercise combined with poor

eating habits may account for the significantly increased prevalence of overweight and obesity among RNs as compared to nursing students.

Faugier and colleagues (2001b) also surveyed British nurses ($N = 126$) to identify barriers to healthy eating. The researchers found that increased work-load or inadequate staffing interfered with meal breaks; some nurses reported never taking meal breaks (6%), or sometimes or almost never (31%), taking regular meal breaks. Furthermore, the majority of the sample (74%) accessed food from vending machines at work. The respondents cited shift patterns, a lack of breaks, and a lack of healthy food choices available during late shifts as barriers to healthy eating.

The literature suggests that work conditions may adversely affect nurses' weight status. Quantitative studies have shown significant positive relationships between long work hours, educational background, and increased weight. Qualitative studies have identified work-related stress, excessive demands on the job; mandatory overtime; poor staffing ratios; variable shifts including working night shifts; and lack of scheduled meal breaks as barriers to leading healthy lifestyles. However, the research is not clear about how these factors may interact and act as barriers or facilitators in the process of weight management by registered nurses.

Weight loss Interventions for Nurses

Even moderate weight loss, such as 5-10% of total body weight, can significantly improve the health of obese adult patients (Pasanisi et al., 2001). Behavioral weight loss interventions are effective in achieving long-term weight loss for individuals (Lang & Froelicher, 2006; Lehnert et al., 2012; Loveman et al., 2011; Van Dorsten & Lindley,

2011) and have few risks when carried out under the supervision of a healthcare provider (Lyznicki et al., 2001). Behavioral weight loss interventions include combinations of diet, exercise, and behavioral or cognitive-behavioral components. The diet component reduces overall caloric intake while maintaining a balanced diet with an adequate intake of essential nutrients. The exercise component increases metabolism and provides the added benefit of better cardiovascular health (Vanhees et al., 2012).

Two cognitive-behavioral weight loss intervention studies used experimental designs with adequate sample size and objective outcome measures (Christensen et al., 2012; Lahiri & Faghri, 2012). Both studies used cluster randomization, where different units, rather than individual subjects were assigned to the intervention group to decrease the risk of contamination among the workers.

The FINALE-health study was a one-year experimental study ($N = 98$) using a behavioral weight loss intervention for female healthcare workers who were overweight in Denmark (Christensen et al., 2011). The intervention consisted of a physical exercise component, a dietary component (i.e., daily food log and individual recommendations), and weekly cognitive behavioral therapy sessions implemented during work hours. The women in the intervention group achieved significant weight loss (5.8 kg, $p < .000$) and decreased BMI (2.2, $p < .000$) compared to the control group. When calculated over the length of the study, the average weight loss was .11 kg/week. This study did take place in Denmark, where healthcare is socialized and paid for by the government. The high frequency of interventions during work time has not been replicated in any published studies from the US using healthcare workers as a sample.

The other cluster randomized study ($N = 72$) used a monetary incentivized behavioral weight loss program with a sample of healthcare workers from New England (Lahiri & Faghri, 2012). The sample consisted of registered nurses, licensed practical nurses, and certified nursing assistants. Both the intervention and the control group received the cognitive-behavioral weight loss intervention. The intervention consisted of educational materials and one individual consultation. The consultation addressed barriers to maintaining a healthy lifestyle and took place during work hours. The intervention group also participated in a monetary incentive program with cash rewards for weight loss. Both the intervention and the control groups achieved statistically significant long-term weight loss over the length of the study. However, the intervention group's mean weight loss was .12 kg/week compared to .03 kg/week for the control group. The cognitive-behavioral aspect of the weight loss program was highly individualized, based on respondents' answers to a questionnaire, and implemented at a low frequency (once) during the study.

A single-blinded randomized control trial ($N = 182$) used a weight loss intervention consisting of education materials as well as active planning sessions based on Bandura's Theory of Planned Behavior (Luszczynska & Haynes, 2009). The sample consisted of nursing and midwife students from an English university. The intervention was implemented in three sessions over two months, and there was a follow-up at four months. The outcome variables measured were self-reported weight and height, daily fruit and vegetable intake, physical activity, and self-efficacy. The control group received educational material about nutrition and weight control strategies along with knowledge

questions and exercises like crossword puzzles, but they did not participate in the planning sessions. The researchers reported that subjects who were overweight and obese achieved a statistically significant reduction in BMI ($p < .05$). However, baseline or actual change in BMI was not reported for these subgroups. Limitations to the study include the use of self-report weight.

The Eating, Activity, and Supportive Environment (EASE) study was a feasibility study ($N = 31$) to evaluate an obesity prevention program for healthcare professionals using Prochaska's Stages of Change as a framework (Roux et al., 2014). The EASE study implemented weekly one-hour sessions for six weeks with a sample of nursing students. The intervention included nutrition education, physical exercise, motivational interviewing, and stages of change. Both the intervention group and the control group lost weight; however, the difference between the groups was not statistically significant, probably due to the small sample size and short duration of the study.

Another feasibility study implemented 'Patient-Centered Weight Management Program on a small sample ($N = 25$) of older nurses (45 years or older) from one community hospital in Baltimore (Nahm et al., 2014). The design was a single group pre-test post-test with a three months duration. The intervention consisted of an eight-week program with face-to-face sessions with a health coach, online dietary education, exercise DVDs, and access to an online eHealth portal where the subjects would record progress. The nurses achieved a significant decrease in BMI after eight weeks, with an average BMI decrease of $.444 \text{ kg/m}^2$ ($p = .005$). The effect did not, however, remain significant at the three-month follow up. The nurses were losing weight during the intervention phase

of the study, but then lost the momentum and went back to their old lifestyles during the maintenance phase. This study did not use an experimental design, thus increasing the risk of history maturation, and instrumentation bias (Polit & Beck, 2011).

The Nurses Living Fit™ was a quasi-experimental study where nurses self-selected to either the treatment group or the control group ($N = 217$) (Speroni et al., 2012). The intervention consisted of physical exercise sessions (12), yoga sessions (4), and nutrition education sessions (4) distributed over 12 weeks. The intervention did not include a specific cognitive-behavioral component but discussed the topics of goal setting and the mind/body connection during the sessions. This study did show a statistically significant difference for mean BMI decrease between the groups ($-.5 \text{ kg/m}^2$ vs. $-.2 \text{ kg/m}^2$, $p < .5$) during the intervention phase; however, the effect did not remain significant 12 weeks later. Further analysis of qualitative data from open-ended survey questions revealed that the nurses would have liked more specific information and for the program to be offered continuously (Speroni et al., 2013). The self-select to intervention group increases the risk of selection bias for this study.

Tucker and colleagues (2011) conducted a feasibility study “WellNURSE 24/7” with female hospital nurses who were also working mothers to increase physical activity during work and decrease body fat ($N = 58$). The physical work environment on the units was updated with treadmills equipped with computers, standing work stations, walking nursing rounds and meetings, and cues to action in the form of signs to promote the use of stairs and activity during breaks. The researchers used objective measures of height and weight and body fat index (dual-energy x-ray absorptiometry) pre and post-

intervention and a pedometer to measure activity. Units were selected for the intervention using the modified work environment and for the control group. All participants were asked to increase their physical activity for ten weeks.

While both intervention and control groups both increased their activity (1,424 vs. 1,358 daily steps), the difference was not statistically significant. The intervention group did decrease the amount of body fat mass compared to the control group (-.68 kg vs. -.07 kg, $p < .028$). The researchers hypothesized that the pedometer did not measure the nurses' activity accurately. Finally, the nurses who attended a focus group at the end of the intervention, reported that incorporating the activities into the workday was feasible and helped with stress reduction. The nurses recommended increasing the length of the intervention to allow for better integration into the daily workflow, providing continued support and encouragement, and providing adequate privacy for the activities. Modifying the work environment to allow nurses to increase their physical activity during work hours appeared to be feasible and help nurses with stress reduction. The researchers did not specify if increased activity, such as walking on a treadmill, affects nurses' efficiency or accuracy when working on a computer at the same time. More research is needed to examine if physical activity during work affects the nurses' work output.

Tucker and colleagues (2016) conducted another feasibility study with 18 nurses and 9 medical assistants from two ambulatory clinic units. The researchers used a pre- and post-design based on non-exercise activity thermogenesis (NEAT) and physical activities during work hours. The work units were randomly selected to receive personalized health coaching via texts in either the first three months (early-text) or the

last three months (late-text). The two groups were significantly different as the early-text group consisted mainly of registered nurses ($n = 18$), whereas the other group consisted mostly of medical assistants ($n=9$). The baseline BMI was also different for the two groups (26.8, SD 6.3 vs. 34.3, SD 7.8). The body mass index decreased for both groups, but the results were only statistically significant for the group receiving early text coaching ($-.6, p = .03$ vs. $-.6, p = .31$). Likewise, physical activity increased for both groups, but again the early-text group was statistically significant (2.9%, $p < .01$ vs. .6%, $p = .83$). The number of sick days was also measured for both groups but did not differ significantly. The differences in base line BMI, education, and role function makes it difficult to conclude anything from the results; however, the researchers also conducted focus groups where the following themes emerged, providing ongoing “support from leaders and physicians, making equipment visible, allowing time, and adding healthy vending options” (p. 317). These recommendations from the nurses should be considered for future work improvement projects and intervention studies.

Finally, Blake and colleagues (2013) conducted a five-year observational study in the UK, with a pre and post-test to measure the effectiveness of a workplace wellness intervention for healthcare workers ($N = 1,452$). The intervention was implemented over five years, with the primary aim of increasing physical activity. A dedicated website and a staff gym were made available to promote activities including exercise classes, cycling events, dietary interventions such as healthy eating classes or healthy eating campaigns, competitions, health education, health screenings, and relaxation therapies. Outcomes were measured using surveys and self-report height and weight. There were no statistical

differences between the pre- and post-test with regards to BMI (25.2, SD 4.9 vs. 25.4, SD 5.9); however, the employees were significantly more likely to report being “very or fairly active at work” for the post-test compared to baseline (69.7% vs. 53%, $p < .001$). While the intervention did not result in significant weight loss as measured by BMI, the survey results suggest that employer health promotion campaigns can positively affect employee behavior.

Most of the studies examining weight loss in healthcare workers and nurses were feasibility studies with small samples, or they were descriptive studies lacking a control group (Blake et al., 2013). Only two out of the eight research studies (The FINALE-health and the Monetary Incentivized Study) had experimental designs, adequate sample sizes, and objective outcome variables measured in a standardized manner to ensure validity. Both of these studies evaluated the long-term effects of behavioral weight loss interventions implemented in part during paid work hours. Both studies found similar results with significant mean weight loss (Christensen et al., 2011, 2012; Lahiri & Faghri, 2012). However, the sample in these studies consisted of healthcare workers, and the studies did not report what percentage of the subjects were RNs.

The Nurses Living Fit (self-select intervention group) (Speroni et al., 2012) and Patient-Centered Weight Management Program (single group pre-test/post-test design) (Nahm et al., 2014) studies did use samples of nurses. The two studies did demonstrate statistically significant differences for mean weight loss between the intervention and control groups with a high-frequency intervention with moderate individualization during the implementation phase; however, the effect did not remain significant 12 weeks later.

Furthermore, the qualitative data from this study reveal that the nurses would have liked the information given to have been more specific (individualized to each subject). More research is needed to demonstrate which weight loss interventions are effective in assisting nurses in achieving and maintaining healthy weights.

Gaps in the Literature

The evidence is mounting that nurses have high rates of overweight and obesity, which in turn pose a risk to their health and potentially reduce their effectiveness as role models and educators on topics such as health promotion and weight management. However, there are only a few studies examining weight loss interventions for nurses. Many nurses say work conditions such as long work hours, inability to take meal breaks, shift work, and general work stress impact their health, but the literature is not clear on how these factors influence weight management. There is a paucity of research examining how nurses manage their weight and the factors that affect this process. As a profession, nurses have a duty and obligation to address the issue of overweight and obesity among ourselves; otherwise, we will not be effective in assisting the public in maintaining a healthy weight. More research is needed to explore how obese nurses manage their weight and what factors influence this process. This research can then be used to design weight loss interventions for nurses considering their unique work environment and educational backgrounds.

Chapter Three - Methodology

Introduction

This study employed a qualitative, grounded theory approach (Corbin & Strauss, 2014) to generate a theory to explain the process by which obese nurses manage their weight. The researcher used purposive sampling to recruit a culturally diverse sample of registered nurses and used semi-structured face-to-face interviews to collect in-depth, rich information from the participants. The nurses were obese or had a history of obesity and subsequent weight loss at the time of the interview. The interviews were audio-recorded and transcribed verbatim for accuracy, and data analysis was conducted concurrently with data collection. The researcher also used photo-elicitation where participants took photos of the food they ate for two days before the interview. The photos were used to encourage participation and promote genuine reflection during the interviews. The GMU Institutional Review Board approved the study, and all participants provided written consent prior to participation in the interviews.

Study Design

Grounded theory is a method of systematically gathering and analyzing qualitative data to develop theoretical explanations of the interrelatedness and complex nature of phenomena (Corbin & Strauss, 2014). The grounded theory method differs from other qualitative research methods as goal is to generate a theory to explain a specific process and the factors that influence the process (Creswell, 2012). This study used steps outlined by Corbin and Strauss (2014). Semi-structured interviews allowed the

participants to tell their stories while still focusing on the process under investigation (Corbin & Strauss, 2014). Furthermore, using open-ended questions provided an opportunity for the participants to elaborate and describe their experiences (Streubert & Carpenter, 2010). The photo-elicitation strategy may be applied in qualitative research to promote a more authentic dialogue, allowing participants to share richer and more meaningful narratives (Bates et al., 2017). This strategy was initially implemented with the first ten participants; however, the activity resulted in superficial responses regarding their diet. The process proved to be cumbersome in the busy lives of the nurses. In collaboration with an expert researcher, the photo elicitation was made optional for the last ten participants; none of these participants elected to send or bring photographs to the interview.

Population and Sample

Population.

The 2017 National Nursing Workforce Survey estimates that there are 4.6 million registered nurses in the United States (Smiley et al., 2018). The target population for this research was obese nurses or nurses who had a history of obesity and subsequent weight loss. Research suggests that more than a quarter of the registered nurses in the US may be obese (Chin et al., 2016; Han et al., 2011; Letvak, Ruhm, & McCoy, 2012; Miller et al., 2008; Nahm et al., 2012; Zapka, Lemon, Estabrook, et al., 2009; Zitkus, 2011).

Sample and Setting.

The sample for this study consisted of a diverse group of registered nurses from the Greater Washington, DC area to ensure maximum variation (Polit & Beck, 2011).

The researcher employed purposive sampling and selected additional participants with the intent to inform and explain emerging theories (Streubert & Carpenter, 2010).

Inclusion criteria included being a registered nurse, working in the nursing profession, and having a current (or history of) body mass index (BMI) of 30 kg/m² or greater by self-report. Exclusion criteria included pregnancy, breastfeeding, or having had a recent birth (within nine months).

There was no predetermined number of participants in grounded theory. The researcher continued interviews until adequate data was collected and no new meaningful, and relevant data was revealed in subsequent interviews; this is referred to as theoretical saturation (Streubert & Carpenter, 2010). The researcher recruited participants by posting a flyer in breakrooms at local area hospitals. In addition, snowball sampling, where study participants also referred others to the study, was used as a strategy to recruit potential participants (Polit & Beck, 2011). Study participants received a \$50 gift card in appreciation for their time and travel.

Data Collection

The researcher informed prospective participants, who contacted the researcher, about the study purpose and provided them with a brief outline of what participating in the study would entail, including time commitment, consent form, demographic survey, and an audio-recorded face-to-face interview. The term “obese” was not used by the researcher, as it may have been perceived as stigmatizing the participants (Puhl & Heuer, 2009, p. 950). The researcher used terms such as “unhealthy weight” (T. K. Kyle & Puhl, 2014, p. 1211) or BMI numerical categories when engaging with participants during the

screening process and in the interview. The researcher conducted a basic screening to verify that the participants met the inclusion criteria, including meeting the BMI requirements, before scheduling the interview.

After verifying the participants met the inclusion criteria, the researcher reviewed the consent form and provided each participant with an opportunity to ask questions. For conversations conducted via phone or email, the researcher emailed a copy of the consent form to the participant (see Appendix A). The researcher asked participants to print the consent form and sign it if they agreed to participate in the study. The participants then scanned and emailed the signed consent form back to the researcher or took a photo of the signed consent form and texted or emailed the photo of the consent form to the researcher.

The researcher also requested the participants document their eating habits for two days before the interview. The participants photographed their food choices and sent the photos to the researcher via email or text (after first sending their signed consent), along with a brief description such as “Monday, sandwich, and chips for lunch.” The photographs (printed or digital copies) were used to initiate conversations about the participants’ eating habits during the interviews. The narratives elicited by the photographs, rather than the photographs themselves, were used as data for the study. After conducting and analyzing ten interviews, the researcher determined in collaboration with an experienced researcher that the photographs did not continue to provide additional meaningful data to the process of nurses managing their weight (there was considerable variation in the diets and few similarities). The process of documenting

meals and sending the photographs was cumbersome and challenging for the participants to complete during busy work hours, so participants for subsequent interviews did not send photographs of their meals to the researcher.

The interviews took place at mutually agreed times and private settings, such as a library meeting room, private office, or a participant's living room. The researcher verified and collected the original consent forms at the beginning of each interview. After the consent form verification, the researcher gave the demographic survey (see Appendix B) to the participants and asked them to fill it out. The researcher then introduced the audio-recorders and reminded participants that the interview would be recorded. The researcher employed two audio-recorders, in case one malfunctioned. In addition, the researcher mentioned that brief notes would be taken during the interview. When the participants' questions had been addressed, the interviewer started the audio-recording.

The interview guide (see Appendix C) outlines some major questions and probes used in the interviews. The researcher used the interview to elucidate details in the narrative data with regards to factors and temporal sequences to obtain rich, in-depth data and to ensure accuracy (Creswell, 2012). The interviews with the first two participants in the study served to pilot and refine the interview questions, probes, and techniques. Interview questions developed for subsequent interviews were refined in alignment with the grounded theory method, in which the analysis progresses, based on emerging concepts and categories (Streubert & Carpenter, 2010). The data from these initial interviews were included in the data analysis. As each interview concluded, the researcher thanked participants for their time and contribution and asked if there were

any last questions or comments for the researcher. Once the dialogue was complete, the interviewer turned off the audio-recorder.

The interviewer then asked the participants if they would be agreeable to having the interviewer contact them for a follow-up interview, should it be necessary for additional data or clarification. If a participant agreed, the interviewer asked the participant to sign the bottom section of the consent form (see Appendix A). The participant would be asked to also sign a new consent form at the time of the subsequent interview. Finally, all participants were provided with a gift card and thanked for their participation in the study. Immediately after each participant left, the interviewer noted any immediate thoughts about the interview and the narrative.

Data Analysis

The analysis for this study was guided by the grounded theory steps as outlined by Corbin and Strauss (2014). Beginning with the first interview, the researcher analyzed the narrative data while concurrently collecting new data. The researcher transcribed each interview verbatim, with notations denoting non-verbal aspects such as long pauses and changes in volume to assure accuracy, and facilitate analysis. Following transcription, the researcher listened to each audio-file while reading the transcribed narrative to ensure accuracy and initiate engagement with the data. The researcher reviewed any field notes and created a one-page summary of each narrative interview highlighting the most prominent aspects of the interview pertaining to the process of nurses managing their weight. In addition, memos and diagrams were created during the coding process to

capture and store essential information about the analysis (Corbin & Strauss, 2014).

Finally, the researcher refined or added questions for subsequent interviews.

Coding Procedures

The researcher used Dedoose computer software (Dedoose, 2018) to manage and analyze the qualitative data, employing open, axial, and selective coding of the narratives. Furthermore, the constant comparative analysis method was applied throughout the process to identify categories and themes and to examine the relationship between them as the grounded theory of the process by which nurses manage their weight developed (Corbin & Strauss, 2014). The researcher conducted repeated coding checks at various times throughout the research process. The findings of the data analysis were compared for consistency. A researcher with expertise in qualitative research was consulted to assist with the analysis.

Open Coding.

While reading the transcribed narratives, the researcher began with open coding to identify concepts and categories using an inductive approach and remaining open-minded. The sentences were broken down, and specific terms and phrases relevant to the process were underlined or coded. The words or phrases were grouped together to form initial categories. The categories were analyzed with regards to similarities and differences relevant to the process of nurses managing their weight.

Emerging categories, concepts, or themes were checked against mounting data using constant comparison strategy (Corbin & Strauss, 2014). The researcher used the developing conceptualizations from the data analysis to recruit future participants and to

direct subsequent interviews. The researcher used this purposive sampling strategy to maximize the variability in the participant pool and develop a rich and meaningful grounded theory.

Axial Coding.

Next, axial coding was used to illustrate the dimensions of the emerging concepts and themes in the data and begin to identify their relationships with each other (Streubert & Carpenter, 2010). The analysis continued to be verified and checked against previous analysis findings. When looking at weight management in nurses, the researcher continued to compare data from nurses who had been successful at losing and managing their weight, with participants who had not been successful in losing weight or participants those who had lost weight but regained it.

Selective Coding.

Finally, the researcher used selective coding to recode data relevant to the central themes and relationships identified by earlier analyses. Through the selective coding process, the researcher aimed to “integrate and define the emerging theory” (Corbin & Strauss, 2014, p. 344). This process revealed the full conceptual description of the process of weight management by nurses (Polit & Beck, 2011).

Saturation.

Sampling continued until the data thoroughly explained the process of nurses managing their weight and no new data relevant to the theory emerged from subsequent interviews; this was the point of theoretical saturation (Polit & Beck, 2011). Each category or theme was explained in-depth and contained enough rich detail to adequately

describe the concept (Corbin & Strauss, 2014). Premature closure of data collection may lead to immature or underdeveloped theories (Corbin & Strauss, 2014). Data collection for this study continued until a grounded theory emerged with rich details that explain a variety of cases of nurses managing their weight.

Trustworthiness

The researcher used Lincoln and Guba's framework (1986) to guide the protocols and procedures for this study and ensure trustworthiness. The framework includes five criteria: credibility, dependability, confirmability, transferability, and authenticity. To increase the trustworthiness of this study, the researcher followed the guidelines laid out under each criterion and documented research activities throughout the research process.

Credibility

The criterion of credibility in qualitative inquiry refers to the findings of the study being a true reflection of the phenomenon under investigation (Polit & Beck, 2011). To achieve this, the researcher used the strategies of “bracketing” and “reflexivity” throughout the research process to minimize the risk of her own bias and preconceived assumptions influencing the study. These strategies were used before the start of the research and throughout the data collection and analysis process. The credibility of this study was further enhanced by using in-depth interviews and prolonged engagement in the project (Creswell, 2012).

Bracketing involves the process of putting aside one’s own beliefs as not to unduly influence the analysis and conclusions of the results with preconceived notions (Streubert & Carpenter, 2010). The researcher started a diary before the start of the

project and maintained it throughout the process to explore prior knowledge and ideas about topics related to this research study (Streubert & Carpenter, 2010). The use of bracketing increased the credibility, as the contexts and ideas emerging from the interviews stemmed from the participants' narratives, not from the researcher's preconceived ideas. This careful review of preconceived bias and beliefs also decreased the risk of the researcher inadvertently subjecting the participants to stigmatizing language or inferences.

Reflexivity is the self-reflection or self-critique that allows the researcher to understand how one's values and beliefs may impact the research (Streubert & Carpenter, 2010). The researcher uses a diary to record feelings and experiences throughout the research process. It is essential to carefully evaluate how values, background, and unique experiences may impact interactions with participants and the data analysis process. The researcher committed to transparency by accurately documenting research activities related to research protocols and procedures throughout the research process. Furthermore, the researcher periodically validated the process, including the use of reflexivity with another experienced researcher.

The in-depth interviews and the use of open-ended questions allowed participants to tell their stories. In addition, probes were used to elucidate the concepts in question. Field notes further complemented the analysis by describing the researcher's general impressions during the interview or comments made after turning off the recorder. The field notes, summaries, memos, and diagrams all complimented the narratives from the interviews.

The prolonged engagement was achieved by the researcher conducting the interviews; listening to, summarizing, and transcribing the audio-recording; conducting the coding (open, axial, selective); creating diagrams and memos; and engaging in a continuous comparative analysis of the data. This entire process enabled the researcher to develop an intimate familiarity and understanding of the data that allowed for the emergence of the theory that explaining the interrelatedness of the factors affecting the process of weight management in nurses.

Finally, the researcher used peer-debriefing, where an experienced colleague reviewed the process and findings to ensure that the concepts and emerging theory were supported by the data (Streubert & Carpenter, 2010). Any inconsistencies were discussed, and third party involvement was sought in cases of disagreement. The use of peer debriefing by an expert in qualitative research was employed at various times throughout the research process as needed.

Techniques used to increase the credibility of this study included bracketing and reflexivity to decrease the influence of researcher bias and preconceived notions influencing the collection and analysis of data. Other measures taken to increase credibility included ensuring the narratives from the interviews were in-depth and rich in detail, maintaining prolonged engagement with the data, and establishing the integrity of the concepts and theory emerging from the data. Finally, the use of peer-debriefing, where an expert researcher audited the coding and results, served to verify the authenticity of the finding.

Dependability

The criterion of dependability in qualitative inquiry refers to data and analysis being stable over time and noted conditions; an essential aspect of dependability is credibility (Polit & Beck, 2011). Dependability was enhanced in this study by maintaining careful transparent records, including a journal and memos, and clearly outlining decisions made with regards to coding and sampling. This allows for a second researcher to replicate a similar study. The use of peer-debriefing where an expert researcher reviewed the process and findings with the researcher increased the likelihood that another researcher would find the same results with similar participants and contexts. Finally, the purposive sampling increased the likelihood of a diverse sample of participants. This increased the likelihood that the findings may be transferable to different samples of nurses or healthcare professionals.

Confirmability

Confirmability in qualitative inquiry refers to the objectivity of the data analysis and findings (Polit & Beck, 2011). Maintaining a careful audit trail enhances the confirmability of a study (Streubert & Carpenter, 2010). In addition to a research diary for bracketing and reflexivity, the researcher maintained a detailed audit trail, using the qualitative data analysis software throughout the research process. This audit trail allowed for transparency in the decision-making process and could potentially allow for replication of the study with similar participants and contexts. Finally, the peer-review of an expert researcher increased the confirmability of the study and decreased the risk of the findings being due to preconceived bias or perspectives of the researcher.

Transferability

The criterion of transferability in qualitative inquiry refers to the possibility of the findings being applicable to other groups of people. The purposive sampling technique enhances the transferability of the study (Streubert & Carpenter, 2010). The researcher used the purposive maximum variation sampling technique to recruit a diverse group of registered nurses from different cultural backgrounds, different educational backgrounds, different levels of experiences in the nursing profession, and different levels of success in managing their weight for maximum variation. This variability in the sample ensured that the experiences captured were not unique to one particular sub-group of nurses, thus enhancing the transferability of this study. Careful documentation of the factors involved in the process of weight management also increased the possibility that the findings from this study may have implications for registered nurses from different regions or countries, or for other healthcare professionals such as nursing aides, dietitians, respiratory therapists and so on. Furthermore, the findings from this study may be able to help us develop weight loss interventions and strategies that will help nurses increase their effectiveness when working with overweight and obese clients.

Authenticity

The criterion of authenticity in qualitative inquiry refers to whether or not the study findings reflect the true reality of the participants' experiences (Polit & Beck, 2011). The researcher achieved authenticity through the use of reflexivity, audio-recordings with verbatim transcription, field notes, and prolonged engagement with the data. Finally, care was taken to accurately depict the true experiences of the nurses and

findings of the study by including rich, detailed descriptions and, when appropriate, direct quotes to create a vivid and compelling story. At the end of the study, the researcher reviewed the existing literature to explore how well the grounded theory fit into the context of the existing literature and how it contributed new information.

In summary, the researcher enhanced the trustworthiness of this study by using bracketing and reflexivity, and by maintaining a detailed research diary where preconceived assumptions, feelings and potential bias were reviewed. A research journal with a transparent audit trail of decisions regarding sampling, coding and analysis was kept to increase the dependability and confirmability of the study. Audio-recording and verbatim transcription of the interviews, field notes, summaries, memos, and diagrams were used to ensure accurate representation of the participants' experiences. An expert researcher reviewed the entire process and analysis to verify the findings. Finally, prolonged engagement and continued sampling until saturation was reached, and rich descriptions of the experiences of the participants enhanced the trustworthiness of this study.

Human Subjects Considerations

This research study adhered to the ethical principles of respect, beneficence, and justice to ensure human rights protection as described in the Belmont Report of 1978 (Emanuel et al., 2011). The researcher obtained approval from the Institutional Review Boards for George Mason University before the start of the research. No pregnant women, prisoners, vulnerable populations, or children/adolescents participated in this study.

Consent Form and Participation

Participants who agreed to participate in the research project signed a consent form (see Appendix A) after being informed about the purpose and nature of the study. The researcher explained to each participant that participation was voluntary; participants did not have to answer any or all questions and were free to withdraw from the study at any point in time without repercussions of any kind. Finally, each participant was given opportunities to ask questions before signing the consent form before the start and at the end of the interview. There were no foreseeable risks for participating in the research study.

Confidentiality

The confidentiality of each participant's identity was protected throughout the research process. Each participant was given a unique pseudonym, and all study data, including the demographic surveys, were labeled with only this pseudonym. Only the researcher had access to the key that connects the individual participant's identity to their unique pseudonym. The researcher has kept this key in a locked cabinet in a private office, along with the written consent forms. The data files, including the interviews, will be maintained on a password-protected computer and locked in a cabinet when not in use. In addition, no information that could identify individual participants will be disclosed in any articles, presentations, or other documentation that may result from this study.

Study Limitations

Limitations to the study included sampling from a limited geographical region; the findings may not be representative of nurses throughout the United States. The

participants in this study self-selected to participate, potentially contributing to selection bias, and because obesity is a sensitive subject, some nurses may not have volunteered for the study. Finally, the study was limited by the one-interview design. Subsequent interviews may have allowed the participants to reflect on the topic and revealed additional contributing factors that could act as facilitators and barriers to nurses managing their weight.

Chapter Four – Manuscript One

Introduction

This chapter includes a summary of the findings from the study, a manuscript describing the grounded theory model, and discusses the findings and implications. The manuscript, ‘Internalizing Worthiness’: A Grounded Theory Model of Obese Nurses Managing their Weight will be submitted to the *Qualitative Health Research* journal.

Results

Overweight nurses manage their weight through a core process of internalizing worthiness. Caring for others is an essential aspect of nurses’ professional role and the responsibility for patients and family members weighed heavily on many of the nurses. This responsibility along with a stressful work environment left many of the nurses unable to balance the needs for self-care against the demands of patient workload and the needs of family members. To cope, they focused on what they saw as their primary responsibility namely caring for others. This may lead to unhealthy lifestyles practices such as unhealthy eating and lack of exercise. Most nurses knew the concept of self-care but failed to internalize and practice it. The core issue that prevented the nurses from prioritizing their own health was a lack of internal appreciation of their worthiness. This lack of inherent worthiness may be related to the history of nursing with nursing care and the caring aspect of the profession being recognized as less important when compared to the medical treatments and profession (Galbany-Estragués & Comas-d’Argemir, 2017).

The profession of nursing has a long history of self-sacrifice (Ciezar-Andersen & King-Shier, 2020); however, it is essential that nurses care for themselves in order to be able to provide quality care to patients (Wei et al., 2020). This study found that when nurses internalize their own worthiness and balance self-care with caring for others, they became motivated to implement self-care and healthy lifestyle behaviors, initiate weight loss strategies, or maintain stable weights. These findings have implications for nurses, nurse educators, and nurse managers.

Manuscript One

‘Internalizing Worthiness’

A Grounded Theory Model of Overweight Nurses Managing their Weight

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Abstract

Overweight and obesity is a growing problem in the US, and many nurses struggle with excessive weight. Employing a grounded theory design, the researcher conducted in-depth interviews with a sample of registered nurses ($N=20$) to uncover the process by which nurses, who are or were obese, manage their weight. Overweight nurses face multiple workplace and personal stressors, as well as stigmas that serve as barriers to adopting self-care behaviors. The participants described cues to action that led to weight management through a core process of '*internalizing worthiness.*' The grounded theory illuminates how perceptions of nurses as selfless may contribute to workplace conditions that undermine their health and well-being. Overweight and obese nurses were reluctant to engage clients in weight loss counseling if they had not yet internalized their own worthiness for self-care. After losing weight, nurses felt empowered to counsel and support overweight patients. Recommendations for practice, education, and research are proffered.

Keywords: nurses; obesity; weight loss; grounded theory; qualitative research; health promotion

‘Internalizing Worthiness’

A Grounded Theory Model of Obese Nurses Managing their Weight

The results from the 2015-2016 National Health and Nutrition Examination Survey (NHANES) reported that 39.8% of adults in the US are obese (Hales et al., 2017, para. 2). Nurses also struggle with excessive weight, and there is mounting evidence that many nurses are obese. Studies reporting on the prevalence on obesity among nurses found obesity rates ranging from 18% to 31% (Chin et al., 2016; Han, 2011; Letvak et al., 2013; Zapka, Lemon, Magner, et al., 2009; Zitkus, 2011). The wide range in estimates may be due to regional differences in overweight and obesity rates as well as sampling bias, non-response bias, or response bias. A British study found that nurses have higher rates of obesity (25.1%) compared to other healthcare professionals (14.4%) such as physicians and other licensed therapists (R. G. Kyle et al., 2017); while a U.S. study of non-physicians reported nurses having significantly higher rates of overweight and obesity compared to dietitians (55% vs. 25%) (Bleich et al., 2014, p. 2477). Landmark studies such as the Nurses Health Study found evidence that obesity among nurses is associated with increased risk for breast and colon cancer as well as stroke, congestive heart failure, cataracts, and age-related macular degeneration (Grodstein et al., n.d.), and is likely to affect the nurses’ well-being and quality of life.

Background

It has been found that moderate weight loss – as little as 5-10% of one’s total body weight – can significantly improve the health of obese adult patients (Pasanisi et al., 2001). Many behavior-based weight-loss interventions may be effective in achieving

long-term weight-loss for individuals (Castelnuovo et al., 2017; Peckmezian & Hay, 2017) and have few risks when conducted under the supervision of a healthcare provider (Lyznicki et al., 2001). A core aspect of the professional role for nurses is health promotion (Institute of Medicine, 2010), such as assisting clients in adopting lifestyle behaviors that include healthy eating and physical activity. Yet, many nurses struggle to maintain healthy weights themselves.

Some of the factors associated with increased weight among nurses are similar to those in the general public; these include increasing age (Letvak et al., 2013), ethnic/cultural factors (Zapka, Lemon, Estabrook, et al., 2009), and mental health issues such as depression (Letvak, Ruhm, & McCoy, 2012). However, the work environment and the professional role of the nurse may also present unique barriers to maintaining a healthy lifestyle and supporting weight control.

Many nurses have reported that increased workload and job stress affect their health and well-being (American Nurses Association, 2017); data from the Nurses' Worklife and Health study ($N = 2,103$) suggested that long work hours are important factors affecting nurses weight (Han, Trinkoff, et al., 2012). These factors may contribute to inadequate time to take meal breaks (Faugier et al., 2001b), or a lack of regular meals and inadequate exercise (Nahm et al., 2012). Other workplace factors that may negatively impact nurses' weight are rotating shifts and nightshifts (Vitale et al., 2015), which disrupt regular sleep-wake cycles.

Few studies have examined nurses' weight loss attempts or identified which interventions may be successful for addressing obesity in nurses (Letvak, 2013).

Consequently, there is a lack of evidence to design weight loss interventions for nurses that target the specific barriers affecting their ability to lead healthy lifestyles (Kelly & Wills, 2018). While the literature suggests that work conditions may adversely affect nurses' weight status, it is not clear how these factors interact and may act as barriers or facilitators in the process of weight management by nurses. The purpose of this study was to develop a theory of how obese nurses, who are or were obese, manage their weight.

Method

Study Design

A qualitative grounded theory design employing face-to-face interviews was used for this study. The grounded theory method was selected as it guides the researcher to systematically gather and analyze qualitative data to develop theoretical explanations of the interrelatedness and complex nature of phenomena (Corbin & Strauss, 2014). Grounded theory differs from other qualitative research methods in that the goal is to generate a theory to explain a specific process and the factors that influence that process (Creswell, 2012).

Setting and Sample

Eligible participants were registered nurses residing in the Greater Washington, DC region with a current (or history of a) body mass index (BMI) of 30 kg/m² or greater by self-report. Flyers were posted in the break rooms of four local area hospitals in the Northern Virginia Area. A maximum variation sampling technique was used in order to obtain a diverse sample of nurses ($N = 20$) across age groups, years of experience, race/ethnicity, and education.

Data Collection

Face-to-face in-depth interviews were conducted between August 2017 and September 2019 in private settings. The sessions were audio-recorded and ranged between 22 and 82 minutes. The semi-structured interviews used open-ended questions, such as “Tell me about your weight?” Interview probes were used to elucidate details in the narrative data with regards to factors and temporal sequences to obtain rich in-depth data and to ensure accuracy (Creswell, 2012). After four interviews, the interview guide was updated based on the information obtained in the initial interviews. The additional open-ended question was used to further clarify the participants’ experiences as overweight nurses interacting with colleagues and patients. Recruitment continued until no new data relevant to the theory emerged from interviews.

Data Analysis

The data analysis began during the first interview and was conducted concurrently with data collection. The researcher took brief field notes during the interviews to document observations and reactions to the narratives to further support the analysis. Each interview was transcribed verbatim and imported into the Dedoose (Dedoose, 2018) online software platform for management and analysis. Three phases of coding were used in the study. The first involved examining the transcript text and developing themes of information. This involved a constant comparative method of identifying instances that represented the theme. The second phase involved connecting themes, and the third phase involved developing a framework from themes that resulted in a set of theoretical propositions (Creswell, 2012). Theoretical saturation was determined by having the data

necessary to complete a comprehensive and representative grounded theory (Polit & Beck, 2011).

Rigor

Lincoln and Guba's (1986) framework guided the protocols and procedures for this study to ensure trustworthiness. The researcher employed 'bracketing', 'reflexivity' and prolonged engagement with the data throughout the research process to enhance credibility, and ensure the theory is a true reflection of the phenomenon in question. Dependability was enhanced by the use of peer-debriefing with an experienced researcher. The researcher further strengthened the confirmability by creating an audit trail using qualitative data analysis software. Purposive sampling was utilized to recruit a diverse sample of nurses to increase the likelihood that the findings from this study are transferable to other groups of nurses. Finally, authenticity was addressed by audio-recording the interviews, producing verbatim transcriptions, and engaging with the data over a prolonged time period in order to accurately describe the participant's experiences. The researcher employed these strategies along with a recruitment strategy based on theoretical saturation to enhance the credibility of study findings.

Ethical Considerations

The study was approved by the George Mason University Institutional Review Board in August, 2017. Participants signed a consent form after being informed about the purpose of the study. The confidentiality of the participants was maintained by using pseudonyms.

Results

The sample (N=20) consisted of registered nurses with varying ethnic and educational backgrounds (See Table 3). The participants ranged in age from 29-64 years old and reported working in the profession from 1 to 40 years. The majority of the nurses were female and half (n=10) worked in direct patient care as bed-side nurses; the sample also included charge nurses, triage nurses, case managers, nurse practitioners, and a nurse manager.

Table 3

Demographics of Sample

Characteristics	(N=20)
Age	Range: 29-64 yrs, MDN = 44.5
Gender	Female = 17 Male = 3
Ethnicity/Race	White (10) Black/African American (6) Asian (3) Other (1 Native American/White)
Years Practicing as RN	Range: 1-40 yrs, M = 20
Shifts worked	Day-shift (15) Night shift (5)
Educational Background	Associate (5) Baccalaureate (6) Masters (6) Doctoral (3)

Fluctuations in BMI

Participants reported their current BMI, which ranged from 23 to 43 kg/m² at the time of the interview. They also reported their highest measured BMI, which ranged from 30 to 56 kg/m² (See figure 3). Six of the nurses had a current BMI < 30 at the time of the interview. Of the four participants who had undergone bariatric surgery, two continued to struggle to manage their fluctuating weight. The fluctuating weights reported by the participants reveal an overarching theme, a lifelong struggle of managing the weight.

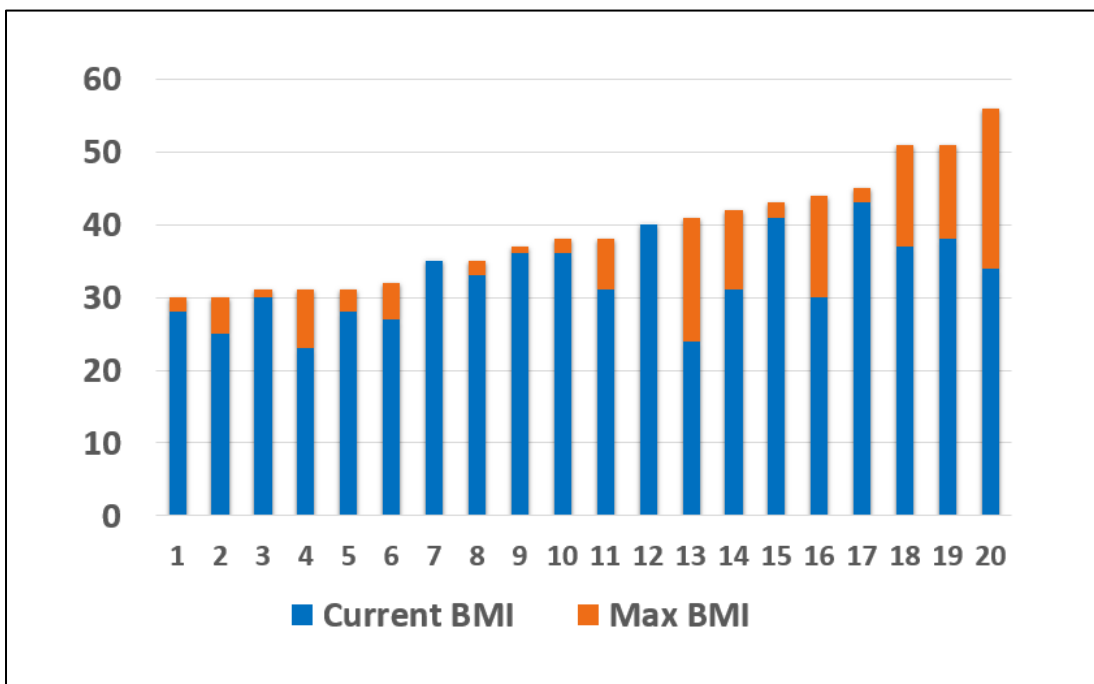


Figure 3 *Participants' Current and Maximum (Max) Body Mass Index (BMI)*

A Grounded Theory of ‘Internalizing Worthiness’

The narratives revealed a core process of internalizing worthiness. Caring for others is a central tenet of professional nursing. As caregivers the nurses felt responsible for the client’s wellbeing, and worried about catching practice mistakes before harm came to their patients. This vigilance along with heavy workloads and a busy work environment left many of the nurses with high levels of stress. Some of the nurses struggled to decompress and recharge after work, as they often acted as primary caregivers for children or elderly parents in their private lives. The constant presence of stress left the nurses unable to cope and caused an imbalance where the nurses focused on caring for others while ignoring their own health. When nurses recognized and ‘internalized worthiness’ it allowed them to focus on their health and balance self-care with caring for others.

The major themes that emerged from the interviews were, (1) *caring for others*, (2) *confronted by multiple stressors*, (3) *focusing on self*, (4) *worthy of self-care*, and (5) *providing weight loss counseling*.

Caring for Others

The narratives revealed that the nurses regarded caring for others as an essential aspect of their professional role. This serious sense of responsibility for monitoring ill patients often weighed heavily on the nurses; some were concerned with the ever-present opportunity for errors in their practice that might put the patients at risk. As one nurse said:

Is very stressful. You’ve got patient lives in your hands.

This responsibility for patients adds stress to the lives of nurses who feel responsible for the life and wellbeing of their patients.

I am taking care of my job, taking care of patients. Come home, take care of kids.

There's no time for me.

The nurses is explaining that the constant caring for others both at work and at home leaves her without any time to focus on herself.

For many nurses, the role as caregiver extended beyond their professional life as they often had caring responsibilities for family members before tending to their own needs. Some of the nurses verbalized the importance of self-care but did not internalize or practice it for themselves. The lack of focus on their own health and self-care caused an imbalance where the nurses ignored their own health, and it often led to unhealthy eating, a lack of exercise, and weight gain for the nurses in the study. See Table 4 for additional examples of quotes.

Table 4

Table of Supporting Quotes

Themes	Examples
Caring for Others	<p><i>I feel like I am not able to provide adequate nursing care and take care of myself at the same time because staffing is so bad. Having six or seven acute patients in a 12-hour shift where you are running, running, running, you hardly have time to pee.</i></p> <p><i>I feel very, very responsible for my patients. And when they ring that bell, and somebody doesn't answer it, it bothers me a great deal.</i></p>

	<p><i>And if you come home, there is also another stress... Instead of thinking you are going to relax, you have to come home and meet the family that depend on you.</i></p> <p><i>I've always cared. I haven't always taken care of myself, going back to me personally. I always made sure that the person, not self, but others, has been taken care of. I think that nurses in general are that way.</i></p> <p><i>I just feel it's hard for me to focus on the diet when my mind has to focus on multiple things at once. I went back into working in the hospital, and I work 10 hours shifts, four to five days a week. By the time I get off, [it] takes me two hours to get home, [I] have to cook dinner, check homework, all those things. And by then, I'm tired.</i></p>
<p>Confronted by Multiple Stressors</p>	<p><i>It is stress. I really... You know, I really believe it, and if you if come in stressed and you go home stressed. You don't get enough sleep. But I don't think anybody looks at it that way. They say, 'Well you know, you do the best.' But then you get the call ... can you come in? Can you come in? You're tired. It's a vicious circle, and by the time you do decompress... And then I used to get those mad munchies, and you could figure out why. Because it was [a] way to stay awake. You have got to get your fill.</i></p> <p><i>I would go home when I'm feeling guilty, feeling stressed. No less than three pieces of buttered toast with cinnamon sugar on it.</i></p> <p><i>You come to work, and the stress level is so high that you shift into kind of want to do mode. I forget about other things that I need to do even for my own health. I understand that taking a break is important, but I always ignore going for break. And want to do, so that's why I call it want to do. So, the want to do mode cause me to push myself beyond my limit. Want to make other patients comfortable, want to make my staff have the necessary things they need. As a leader we really want to lead by example.</i></p> <p><i>I will tell you. I think its stress. I think that nursing has become much more stressful, and the stress is not something that's actually measured very well.</i></p> <p><i>I just know it's stressful, and it's become more stressful. That's partly why I make myself eat in the morning. ... These there are just a lot of little things that have been added and has to do with communications, with families and that kind of thing. And I can't be guaranteed, so my yogurt sometimes doesn't get eaten, my little grapes and cheese, they don't get eaten.</i></p>
<p>Focusing on Self</p>	<p><i>The fear of knowing what excessive weight can cause. And I think practicing as a nurse, I've seen people that come to me as patients with</i></p>

	<p><i>excessive weight, so that is where the fear comes. So, the fear of if I don't do something about it, I may end up becoming a patient.</i></p> <p><i>I'll pre-prepare meals. Like whatever I was making for dinner, I make sure I have enough. So, let's say I was working two days in a row, I'd make sure I had enough for my lunches for two days.</i></p> <p><i>You really need to take that 30-minute break, or the 15 that they give you in between because it changes you. Like that 30 minutes that you are away, you actually have a clearer mind.</i></p> <p><i>You are just trying to cope ... How can I manage this? I think I am living the life of maybe planning and doing things routinely. I think that helps from deviating from the norm [laughing] having a schedule. Making time no matter what to take that walk if that's how you relieve your stress. And also find something that you know you like doing – Hobbies by yourself. Find something that you can do.</i></p> <p><i>I was so demoralized, but you want me to have another surgery, so you can do another. I said no. So, I said nope. In my mind that means the food won that I have no self-control, so I can't do that. So, I decided ... I started walking, you know, and that helped.</i></p> <p><i>Well, so the first thing ... was work life balance... when I worked in a hospital I was charting for an hour or two after the shift trying to catch up...</i></p> <p><i>I have to have a job where I can take the breaks... So, it sucks. I miss ICU nursing, but for my own health I just can't do it anymore.</i></p>
<p>Worthy of Self-Care</p>	<p><i>I think it is under estimated or undervalued what we go through.</i></p> <p><i>So, [my] family's counting on me, I need to really work on my health actually to be there for them. That is something that I owe to them. I need to be healthy, so that is another motivational factor that caused me to want to lose weight, and actually hopefully get to my ideal body weight.</i></p> <p><i>I have to get healthy, and I have to get back to me so that I can be totally happy.</i></p> <p><i>God forbid they realized that we actually have solid degrees, and we're the ones who are actually managing the patients when they start to circle the drain. And we're the ones that recognize that they're only putting out 8 cc's an hour in urine, and maybe, you know, we need some Dopamine to protect their kidneys, or whatever the story is.</i></p> <p><i>Recognition. I think that is what it is. Like, you get acknowledged.</i></p>

<p>Providing Weight Loss Counseling</p>	<p><i>I felt like a hypocrite. I felt like, how can I tell this patient that what he needs to do to improve his health, is to change his diet, to get out and exercise. And he could be looking at me, saying 'Well – What about you?'</i></p> <p><i>Yeah, I'm uncomfortable bringing that up because me, myself, you know?</i></p> <p><i>They would tell me, 'I know I need to lose weight.' And they would say how hard it is. I would empathize with them and oh, I would say 'I know', I would kind of joke, 'I know the struggle' [laughing] because I was not a skinny mini either. If a patient did bring it up, I would definitely have no problem talking about it, but I can't say I ever initiated those conversations.</i></p> <p><i>So that is one of the things, me, feeling kind of inadequate as a nurse to be teaching about losing weight, health maintenance, and then here I am, an overweight, unhealthy nurse. So that kind of one of the main things that really made me determine to say yeah, I'm willing to lose some weight.</i></p> <p><i>I didn't judge my patients and that's a huge part of it. And to be able to talk to them about, okay, like we're doing this interview now. It's making me think about oh, my gosh, what I need. I need to stay on track. I need to continue what I'm doing.</i></p>
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Confronted by Multiple Stressors

The majority of the nurses expressed being barraged by multiple stressors in their daily practice on nursing units. One participant highlighted how the professional role of the nurse is to catch potential mistakes of other healthcare personnel to assure safe treatments for her patients:

So you've got this whole layers of stress on stress. ... There's the responsibility of triple checking medicines and making sure the doctor ordered the right thing, and the pharmacy gave you the right thing, and you're giving the right thing, and you're giving it the right way to the right person.

The responsibility for patients along with a busy and often stressful work environment often become a constant presence in their lives. Many of the nurses also cited increased situational stress as a barrier to their ability to focus on maintaining a healthy lifestyle. The stress could be related to financial issues, or pursuing continuing education such as obtaining a BSN or advanced degree. Additional stressors included family issues such as divorce or caring for children or elderly parents.

The role of the nurse may influence the nurse's private life as well. Many of them described coming home after working long shifts and assuming the caregiver role in their private lives. Nurses in the study expressed that they did not have the opportunity to decompress and tend to their own physiological needs in order to reenergize for the following day. In addition, nurses are essential workers, and cannot leave their assignment before another nurse is available to take over the assignment, and many organizations limit the number of times the nurses can call out sick in a given time period. This means nurses may not be able to respond to family emergencies or they may feel guilty for leaving their coworkers short by calling out. One of the participants described the effect of not feeling she would be available in case of a family emergency:

...not being able to care for the family and being at work, that's difficult. When you have an emergency, you cannot call out, you cannot say 'Oh, I have an emergency I can't come in.' It's not an option when you are a nurse. You have to go in, which is stressful.

The expectation that nurses will fulfill their professional responsibility even if their family needs them, compounds the stress experienced by nurses. When the nurses

experienced stress from multiple sources in addition to the constant stress in their work life, the stress would overwhelm their ability to cope.

To cope with the high levels of stress, some of the nurses fell back on what they felt is their core responsibility: caring for others. The majority of the participants directly linked the inherent duty to care for others with a direct impact on their ability to care for themselves. One nurse echoed a common experience:

You don't really take care of yourself. Though, I try. I really try to eat, but when you get to that busy day, forget about it. You're probably not going to get any break. I try to do water though..., and I try to go to bathroom, too. But the whole 'sitting and enjoying your 30-minutes', as nurses, I think we're really bad at that.

When the nurses are overwhelmed by the increased workload, they prioritize the needs of their patients before tending to their own basic needs such as sitting down to eat a meal for 30 minutes during a 12-hour shift. The nurse is describing a culture where many nurses do not take meal-breaks and prioritize the needs of others before considering even their own physiological needs such as eating and toileting. This expectation that nurses are present and focused during their entire shift to meet the demands of patient care is part of the culture of nursing. Terms like nurse bladder refers to working a 12-hour shift without a bathroom break, and many especially older nurses refer to these practices as an integral aspect of the behaviors of a professional nurse. These beliefs and the culture where nurses ignore their own physiological need while on duty may be unspoken; yet, the practice may add subconscious peer-pressure to nurses who attempt to practice self-care at the workplace. The conflict between the responsibility for patients, and living up

to the expectations of how a professional nurse behaves versus taking care of themselves led to feelings of guilt in some of the nurses. This participant was concerned about his patient's needs during his meal breaks which left him with feelings of guilt:

I would like to be able to sit down and have a lunch without feeling guilty about it.

As the nurses worked to fulfill their professional role and their professional obligations, they were determined to meet the expectations of the patients for whom they were caring. The responsibility and duties often became overwhelming and were detrimental to their own health.

Focusing on Self

The process of focusing on one's wellbeing often started with cues to action that motivated the nurses to take action. Some of the nurses described being motivated by the physical symptoms from the excessive weight. The desire to be a role model was another facilitator that motivated other nurses to start implementing healthy lifestyle choices for themselves. Destigmatized counseling acted as cues to action for several of the nurses and helped them become motivated to make changes. One participant described how her healthcare provider engaged her in a conversation about weight:

I was embarrassed. And she said 'Don't hide from me. I'm here to help you.' She uses the exact phrases, she should have. 'Well, what is it that you feel like you can do?' 'What do you think is a reasonable weight for you?' and 'How do you think your weight is impacting [you]?'

The provider engaged in destigmatized counseling by showing genuine concern while still addressing the weight issue directly. This allowed the provider to involve the nurse

in a collaborative dialogue to facilitate behavior change. The nurse seem to appreciate this approach, and it lessened the impact of the embarrassment. The nurse continued,

I was actually having back pain by then; my blood sugar was up. She didn't counsel me with 'This is taking a toll on your heart.' She didn't lecture me, because she knew.

The nurse appreciated the collaborative approach utilized by this provider that went beyond simply providing weight loss counseling, but instead utilized a personal and collaborative approach that expressed concern and engagement. The nurse was already aware of the impact of the excessive weight on her health, and her ability to maintain a healthy weight left her ashamed and embarrassed. This destigmatized counseling approach signaled to the nurse that her health was important, it lessened her embarrassment, and helped increase her self-worth. The cue to action from the provider in the form of destigmatized counseling facilitated the nurse's ability to focus on self-care. Destigmatized counseling, when a provider partners with their client, can empower and motive people to initiate changes in behavior. Other facilitators, such as bariatric surgery, mindful eating, planning and prepping healthy foods, joining and participating in a weight loss program, and peer support then help the nurses start to change behaviors and lose weight.

When the nurses became motivated to initiate weight loss and started focusing on their own self-care, it allowed them to achieve a balance between caring for self and caring for others. They began to appreciate their own health as an important aspect of their role as a registered nurse, and it allowed them to incorporate their own healthier self

when functioning in their professional role. One participant explained how her health impacts her work and her patients:

I truly believe you have to be healthy within, both emotionally and physically, in order for you to be effective at what you do as far as taking care of your patients.

The nurse explained that her wellbeing has an impact on her ability to effectively care for her patients. Many of the nurses verbalized the importance of self-care and the importance of being a role model for their patients; yet, they struggled to implement self-care with the constant presence of stressors in their lives. Cues to action in the form of destigmatized counseling can act as a cue to action for nurses to start implementing healthy lifestyle choices and begin to lose weight. For several of the nurses changing jobs was necessary to achieve a healthier work-life balance where they were able to focus on and maintain a healthy lifestyle.

I don't work bedside anymore. I know to maintain this [healthy lifestyle], I will probably never be able to go back to the bedside.

The inability to balance the demands and stress associated with bedside nursing and their ability to implement self-care prompted some of the nurses to leave bedside nursing.

Worthy of Self-Care

Several nurses spoke of feelings of discomfort – even shame – related to their excess weight. This nurse explained how the excess weight made her feel:

In your mind, you feel... ashamed that you can't control something that is very obvious. It's something on the outside that you can't hide

The nurse is internalizing the bias that overweight and obese people often experience where they are labeled as lacking self-control or lazy. She is unable to hide her excess weight, and she is left feeling ashamed because she is unable to control the weight.

Another negative aspect brought up by a few of the nurses was stigmatization. Like many other overweight and obese people, some of the nurses described experience weight stigmatization where they were blamed for their weight issue. For nurses, this can be especially traumatic, as teaching health promotion is a core component of the professional role of nurses, and the stigmatization negatively impacts their self-esteem and feelings of self-worth.

When you have a weight problem, they look at it as you are weak, that it's your character...It is stigmatism and prejudice. Yes, so that is hard.

These negative feelings related to how they are perceived by their patients and colleagues add additional discomfort and stress to the nurses' already stressful reality. This sense of discomfort and stress was intensified when nurses were expected to interact with their patients to promote weight loss and encourage the patients to adopt a healthy lifestyle, and many of the nurses described these situations as being very uncomfortable. One participant shared how she felt when she was providing weight loss counseling to her patients:

As a nurse, we do all this patient education. We're telling these people, oh yeah, lose weight because you're going to, whatever. And I just felt like a hypocrite...

The participant described feeling internal dissonance from telling her patients to do something she was not able to practice for herself. This discomfort from interacting and counseling patients on weight management affected the nurses emotionally.

Many of the nurses struggled with a choice of taking time to care for self or meet the needs of their clients or family members while ignoring even basic physiologic needs such as eating, going to the bathroom, and sleeping. Negative self-appraisals may help explain another underlying theme from the interviews namely, whether the nurses felt they were worthy of taking the time for self-care. Some of the nurses struggled with prioritizing their own health as they would feel guilty if tasks or client's or families' needs were not always met. One nurse described these feelings of guilt:

I almost feel like I've been cheating, that I actually took [a break] ... I almost feel like I'm cheating. I worry when I go back that a call hasn't been answered. A pain med hasn't been delivered, or a cup of ice ..., or somebody's had to go to the bathroom and been waiting for 20 minutes. ... and I've been sitting on the couch for 20 minutes, even though it's the only 20 minutes I've had all day, I feel bad.

This sense that the nurses cannot care for their own physiological needs without compromising their professional obligation to their patients reveal a lack of self-worth. Some of the nurses clearly expressed pride in the work they do, but lamented that they do not always feel valued in the role. This may be one of the reasons nurses often fail to internalize and practice adequate self-care.

We are more than worthy. We're the ones who are taking care of all the damn sick patients. ... But you know what? As a nurse, you don't feel like that. ... The bedside nurse has no respect.

A lack of support for the professional role of the nurse and the work nurses do, increase the tension between the nurses' feeling of duty to always meet the needs and demands of patient care first versus meeting his or her own physiological and emotional needs. The nurses often prioritized caring for their patients and families to the extent that they failed to appreciate that they too are 'worthy' of self-care. The cues to action and destigmatized caring behaviors from others can help the nurses gain the confidence and start appreciating that they are worthy of the time and effort it takes to implement self-care. That their wellbeing is important. When the nurses internalize their 'self-worthiness', they are able to achieve a healthier balance between own self-care and their responsibilities to care for patients, coworkers, and family members which allows them to achieve weight loss or manage their weight (see figure 4).

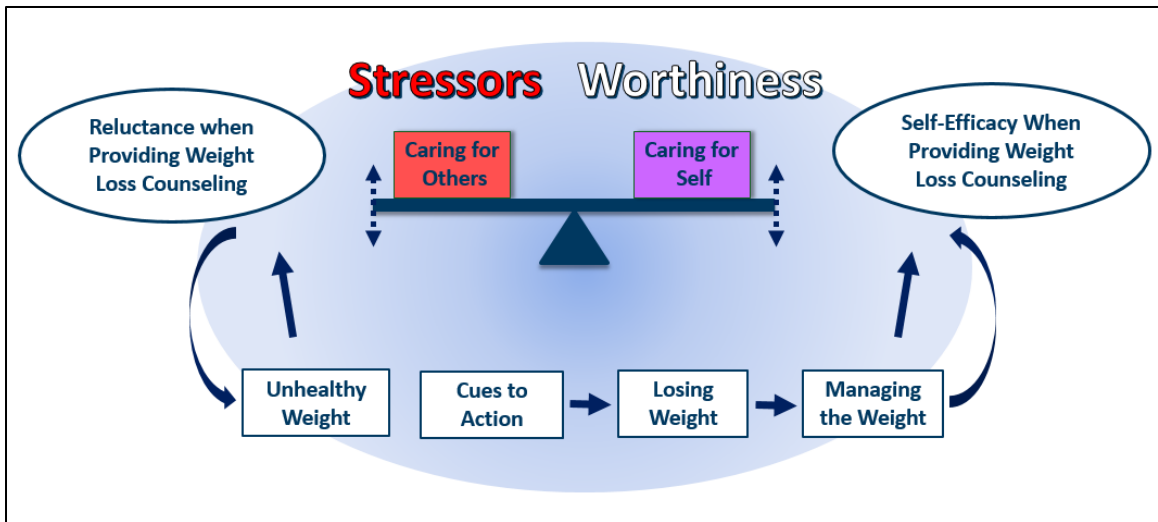


Figure 4

Nurses 'Internalizing Worthiness' to Balance Self-Care with Caring for Others

Providing Weight Loss Counseling

The narratives also revealed that when nurses are overweight or obese they are often reluctant to engage clients in weight loss counseling. However, when they became motivated, initiated their own weight loss, and focused on caring for self, they gained confidence in and embraced their role in counseling clients about weight loss management.

When I was three something [over 300 lbs.], I wouldn't say anything... Even though, I am the nurse... So I never [emphasis on never]... If they were diabetic, I could talk about that. Anything else about the weight, even though it was the elephant in the room, I would not touch it. Would not touch it. As I started to lose, yes, I can.

As the nurses started lose weight, some described acting as role models for their patients, and were able to provide destigmatized weight loss counseling and thereby promote better patient outcomes. Engaging clients in health promotion and weight loss counseling further increased the nurses' motivation to continue focusing on their own health. Some of the nurses described incorporating the health promotion education they provided to their patients into their own lives while others shared details of their personal weight loss journey with patients who struggled with weight issues. One of the participants described how engaging with an overweight client reminded her to continue to focus on her own self-care:

When I was counseling him, I felt like I was counseling myself. ...Some of these things, I'm counseling the patient about, I had to, put it into practice [for myself].

Providing weight loss counseling to a patient may act as a cue to action for both the nurse and the patient. The nurse may become motivated to implement similar health promotion strategies for herself. This nurse further shared:

It felt great counseling him, but it also reminded me to live a healthy lifestyle, so that you can be a role model, of course, to your patients.

The nurse is describing how providing weight loss counseling to her patient became a reinforcement for integrating the same practices into her own life. In addition, she shared that acting as a role model and providing health promotion to her client was a very positive experience. The nurse was feeling self-confident about providing weight loss counseling to her patient and it increased her sense of self-worth.

When overweight and obese nurses lose weight, they feel empowered to engage their patients in weight loss counseling. Acting in the role of health promoter and being a role model for their patients further motivates them to continue to implement self-care and healthy lifestyles into their own lives. When the nurses internalize their self-worth, they can achieve a balance between focusing on self while caring for others, and they feel empowered. Healthy nurses can in turn function as role models and provide destigmatized counseling to their patients where they now act as a cue to action for those patients. This may increase their self-confidence and encourage them to maintain the healthy lifestyles for themselves.

Discussion

The theory of Internalizing Worthiness revealed that participants in this study struggled to balance the demands of patient care with the need for self-care. The nurses who were either obese or overweight were very aware of their excess weight and the need to manage their weight. Many had attempted to lose weight and adopt healthy lifestyles, but were confronted by barriers in both the work setting and their personal lives. When the nurses were overwhelmed by high workload demands that exceeded their ability to cope, they prioritized the needs of their patients and families over their own self-care needs. The process of *internalizing worthiness* highlights the crucial role of cues to action and organizational support in facilitating steps towards weight management. The cues to action and destigmatized weight loss counseling helped some of the nurses internalize that they are worthy of the time and effort it takes to prioritize and balance their self-care needs against the demands of patient care. When these nurses internalized their 'self-

worthiness,' they were able to prioritize their health, implement self-care behaviors, and achieve weight loss or manage their weight.

According to Watson's Caring theory (2018), nurses must first meet their own physical, spiritual and emotional needs before they can effectively care for others. There is an increasing call from professional organizations and nurse leaders for nurses to practice self-care behaviors; the American Nurses Association launched the *Healthy Nurse Healthy Nation* (HNHN) initiative in 2017 to improve the health of the nation's nursing workforce. The HNHN provides an online platform of resources for nurses to access information, connect with other nurses, and participate in wellness challenges. The overarching message to nurses is to take control, prioritize their health, implement self-care, and practice mindfulness (Carpenter, 2018). It has been demonstrated that nurses who practice self-care strategies, such as mindfulness, may not only improve their wellbeing (Halm, 2017), but may also enhance their effectiveness (Wei et al., 2020). Yet, the work environment may not be conducive to self-care practices as nurses have a professional obligation to meet the demands of patient care while on duty.

Most of the nurses in this study recognized the importance of self-care but struggled to implement the practices at work. They described missing meal breaks due to workload demands or feeling guilty when taking time for themselves if their colleagues were too busy to take a break as well. Their workload expected self-sacrifice which communicated that they were dispensable. Nurses who chronically sacrifice their own physical and psychological needs may lose their sense of worthiness and ability to balance their professional duties with attention to self-care. Ciezar-Andersen and King-

Shier (2020) described how nurses' self-sacrificing supports the society's image of the 'ideal' nurse who cares for others at the expense of their own physical and psychological health. Psychological sacrifice may include prioritizing work demands over family or social obligations. The participants in this study described feeling guilty when taking time for themselves, had a workload environment that expected self-sacrifice, and perceived a healthcare system that communicated that they were dispensable. The findings from this grounded theory suggest that society's stereotype of the selfless nurse – while positive – may undermine their health and devalue the importance of their work.

The grounded theory of Internalizing Worthiness brings to light that nurses may feel under-valued and feel that their work is not given the respect it deserves. Some nurses may, inadvertently, undermine their professional image with self-defeating thoughts or uttering phrases such as "I am just a nurse." These comments undercut the valuable contribution that nurses bring to the healthcare team. Societal recognitions aimed at nurses may also paradoxically reinforce the culture of devaluing nurses by supporting the expectation that nurses should self-sacrifice. Nurses are often praised with the use of terms like *angels* and *heroes*. Recognizing nurses for altruistic principles is appropriate at times. Traditionally, women have filled the role of caregiver and, despite recent advances, nursing continues to be a feminized profession. There is a hierarchy in the healthcare environment and nursing care is frequently viewed as less important than medical treatments (Galbany-Estragués & Comas-d'Argemir, 2017). Many aspects of nursing care may not be readily visible (Ciezar-Andersen & King-Shier, 2020). Welton and Harper (2016) described the difficulties of measuring the 'value' of nursing care or

linking individual nursing care activities to specific patient outcomes. As a result, nursing productivity is measured with aggregate data (Weldon et al., 2018), a process that may lead administrators to view nurses as an expense to the organization, rather than an asset that enhances the quality of care. The process of internalizing worthiness, by its very nature, implies that some nurses may be led to consider themselves as less worthy of the health and wellbeing that they advocate for others.

There is a societal and professional expectation that nurses act as role models when providing health promotion to their patients. Yet, the nurses' work environment is not always conducive to individual nurse's ability to implement healthy lifestyle choices (Darch et al., 2017). Weight loss interventions and health promotion campaigns for nurses should be designed to address the barriers nurses face in the workplace (Kelly & Wills, 2018). Addressing overweight and obesity among nurses by designing interventions specifically aimed at increasing nurses' self-worth may empower nurses to prioritize their own health and increase their effectiveness in their roles as patient counselor and patient educator. When many of the nurses in this study internalized their self-worth, they were able to manage their weight; successful weight loss empowered them to engage patients in weight loss counseling.

Implications

Uncovering the process of internalizing worthiness highlights the paradox present in contemporary workplace for nurses. Nurses are encouraged to practice self-care. Yet, the stress and demands of the work environment, coupled with the expectation that nurses

will self-sacrifice, seems to counter the self-care message. These findings have implications for practice, education, and policy.

Administrators and nurse managers might explore creative work redesigns to ensure manageable workloads and unencumbered meal breaks for nurses. Nurses need support from their leaders to balance their desire to manage their weight – and overall health and well-being – with their professional demands in the workplace. Prioritizing workplace initiatives may integrate the facilitators for a healthy balance identified in this study; innovative programs may serve to reduce absenteeism and nurse turnover while improving patient outcomes. The participants in this study noted the discomfort with openly discussing obesity without attributing shame and blame. Nurse managers may advocate for wellness programs that provide destigmatized resources and counselors to address weight management with overweight or obese nurses.

Nurse educators may integrate exercises or modules that introduce nursing students to the importance of self-care and provide opportunities to develop personal self-care skills before graduation. Nursing students familiar with various strategies and interventions to manage stress and maintain a sense of worthiness may be invaluable as they transition to their new role as a novice nurse. Faculty facilitating debrief sessions following stressful simulation or clinical experiences may encourage students to decompress, recognize the elements that are stressful for them, and identify at least one self-care strategy that they can implement at that time.

Future research may explore the relationship between self-worthiness, self-sacrifice, and adverse outcomes for nurses managing their weight. Researchers may

design and test the effectiveness of theory-based interventions that empower nurses to balance their career and their health and well-being. Nurse researchers may collaborate with health economists to explore the cost-effectiveness of workplace redesigns or initiatives that promote nurse health and well-being.

Methodological Considerations

The first author (AGH) strengthened the trustworthiness of this study by bracketing to identify her preconceptions and ensured prolonged engagement with the participants and their narratives. Throughout the analysis, the researcher practiced reflexivity and consulted with qualitative research and nutrition experts to ensure that the findings were an authentic interpretation of the narratives. Overweight or obese nurses who were embarrassed by their weight may not have volunteered for this study. This study may also have limited by its single interview design; subsequent interviews over a prolonged period of time may have allowed for more self-reflection by the participants and the emergence of additional facilitators and barriers to the process of managing their weight.

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Chapter Five – Manuscript Two: Promoting a Culture of ‘Worthiness’

Introduction

After a summary of the findings relevant to nurse managers, a manuscript describing implications of the findings for the workplace is provided below. The manuscript titled “Promoting a Culture of Worthiness” will be submitted to the *Journal of Nursing Administration* (JONA).

Results

The narrative analyses revealed that nurses’ weight management involved a process of internalizing worthiness. Nursing is a female-dominated profession; historically, women were the caregivers (Galbany-Estragués & Comas-d’Argemir, 2017). The responsibility for the patient’s welfare weighed heavily on the nurses who participated in this study, and they described their work environment as very stressful and demanding. The bedside nurse may struggle to find the time and motivation to implement self-care strategies. Most of the participants also described frequent temptations to consume unhealthy foods during their work shift. To empower nurses to employ self-care strategies in their personal and professional lives, nurse managers may prioritize a culture that values nurses as individuals worthy of institutional support to achieve optimal wellness. Manuscript Two provides a variety of recommendations that nurse managers may consider for their institutions.

A culture of valuing might include providing nurses with unencumbered meal breaks, free from patient responsibility. This may allow the nurses to decompress and

recharge before returning to their duties. Nurse managers may advocate for innovative approaches to staffing to assure that the workload does not devalue the nurses' contributions and provides adequate opportunities for self-care and self-renewal.

Efforts to increase the availability of healthy food options in vending machines, cafeterias, and nursing lounges for all shifts may encourage nurses to maintain a healthy diet and manage their weight. Nurses expressed the need to have access to exercise facilities that are convenient and cost-effective, especially, when working 12-hour shifts. The nurse participants in this study were aware of the need to incorporate exercise into their weight management regimen. Creative work redesigns that facilitate opportunities for nurses to implement self-care during their working hours may signal that their health and wellness are important. Assisting nurses in finding the balance between meeting their own needs and meeting the needs of patient care may lead to decreased staff turnover rates and improved productivity and patient outcomes.

Manuscript Two

Promoting a Culture of ‘Self-Worthiness’ among Nurses

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Abstract

High rates of obesity affect the health of the nation's nursing workforce and may contribute to absenteeism, decreased productivity, and increased costs. This article describes workplace barriers and facilitators from a qualitative grounded theory study exploring how nurses ($N=20$) who were obese managed their weight. Many of the nurses felt undervalued and routinely self-sacrificed their own basic needs to ensure their patient's safety and meet the demands of patient-care. When nurses internalized their 'worthiness' and prioritized self-care against the workload demand, they were more likely to initiate weight loss and manage their weight. Supporting nurses with creative work redesigns and individualized health promotion interventions may signal that their health and wellbeing is valued. This study contributes to our understanding of how complex workplace demands for nurses affect obese nurses' ability to manage their weight while still performing in the role of caregiver.

Keywords: workplace; healthy nurse; weight management; qualitative research; health promotion

Promoting a Culture of ‘Self-Worthiness’ among Nurses

1 Introduction

There is currently an epidemic of obesity in United States (Centers for Disease Control and Prevention, 2017) with an estimated 35% of adults classified as obese (Hales et al., 2017). The evidence is mounting that nurses also have high rates of obesity, with up to a quarter of nurses being obese (Kelly & Wills, 2018). Overweight and obesity pose risks to the nurses’ health (Mozaffarian et al., 2015) and may increase workplace costs due to increased absenteeism and decreased productivity (Goettler et al., 2017). The American Nurses Association (American Nurses Association, 2020) launched the *Healthy Nurse, Healthy Nation* (HNHN) initiative after the Health Risk Appraisal (American Nurses Association, 2017) (N=14,000) revealed that many U.S. nurses are overweight and experience high levels of work stress. For nurses to optimally care for others – the fundamental mission of the profession – they must first be able to care for themselves. This research report focuses on specific contextual and situational workplace barriers and facilitators identified by overweight nurses managing their weight in a grounded theory study.

1.1 Background

Research suggests that adverse working conditions such as long work hours is significantly associated with increased weight among nurses (Han, Trinkoff, et al., 2012). Nurses’ ability to maintain healthy lifestyles and healthy weights are also affected by rotating shift schedules (Vitale et al., 2015), limited access to healthy food options (Faugier et al., 2001a), and missed meal breaks (Nahm et al., 2012; Nicholls et al., 2017).

Perceived stress is positively associated with increased body mass index (BMI) in adults (Tenk et al., 2018). The research is not clear about the role of stress on nurses' weight status (Buss, 2012; Han et al., 2011; Jordan et al., 2016; Ross et al., 2017). This may be related to the multifaceted nature of work stress affecting nurses (Buss, 2012) and individual nurses' coping mechanisms (Jordan et al., 2016). Few research studies have identified factors that facilitate nurses in maintaining a healthy diet (Nicholls et al., 2017) and improving their overall health (Letvak, 2013).

Researchers have found that individualized, workplace-based interventions can be effective in reducing the weight of employees (Christensen et al., 2012; Lahiri & Faghri, 2012). However, research on weight loss interventions for healthcare workers is scant (Kelly & Wills, 2018). Investments in weight loss interventions at the workplace may be cost-effective as healthcare workers who lost weight tended to have less absenteeism and were more productive (Lahiri & Faghri, 2012). Other researchers have demonstrated that short-term interventions may, initially, result in significant weight loss for nurses; however, the effects faded by three to six months post-intervention (Nahm et al., 2014; Speroni et al., 2012). The evidence for interventions that support long-term behavior change and successful weight management for nurses is lacking. A recent qualitative, grounded theory study identified a process of internalizing worthiness among nurses managing their weight (Harding et al., XXXX). The participants in the study described high workload demands and a constant presence of stress that caused an imbalance where the nurses focused on caring for others while ignoring their own health. When the nurses recognized and internalized worthiness, it allowed them to prioritize their own health and

balance self-care with caring for others to manage their weight. This study examined the specific contextual and situational workplace factors that acted as barriers and facilitators to the process of internalizing worthiness among nurses managing their weight and provides implications for nurse administrators and health system leaders for enhancing workplace wellness to support nurses' health and wellbeing.

2 Methods

2.1 Sample and Data Collection

We conducted a grounded theory study with individual semi-structured, face-to-face interviews with registered nurses (N=20) (Harding et al., XXXX). The nurses, who self-identified as obese (BMI >30 kg/m²) or with a history of obesity, were recruited between August 2017 and September 2019 from the greater Washington DC region. Open-ended questions such as "Tell me about your weight?" were used for the interviews along with probes to provide rich details, clarify responses and temporal aspects. All interviews were audio taped for subsequent transcription. The Institutional Review Board of the George Mason University approved this study in 2017 and participants signed a written consent form.

2.2 Data Analysis

The interviews were transcribed verbatim and imported into a software program for qualitative data management and analysis. Details about the data analysis have been described elsewhere (Harding et al., XXXX). Participant recruitment continued until theoretical saturation, when data repeated and no new data relevant to the theory emerged from interviews (Streubert & Carpenter, 2010). The resulting theory on weight

management among participating nurses is grounded in the data,(Corbin & Strauss, 2014) in which the data thoroughly explain the behaviors and attitudes of nurses and their struggles and successes with weight management.

3 Results

The registered nurses who participated in the study varied in their demographic characteristics (See table 5), indicative of our maximum variation sampling plan.

Interviews were conducted in-person and lasted approximately 45 minutes.

Table 5

Demographics of Sample

Characteristics	N = 20
Age	Range: 29-64 years old, M=46.85
Gender	Female = 17 Male = 3
Ethnicity/Race	White (10) Black/African American (6) Asian (3) Other (1 Native American/White)
Years Practicing as RN	Range: 1-40 years
Shifts worked	Day shift (15) Night shift (5)
Educational Background	Associate (5) Baccalaureate (6) Masters (6) Doctoral (3)

Professional Role	Bed-side nurses (10) Charge nurses (2) Triage nurse (3) Case managers (2) Nurse practitioner (2) Nurse manager (1)
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3.1 'Internalizing Worthiness'

A grounded theory of Internalizing Worthiness emerged as the process by which nurses manage their weight. The participants described their struggle in balancing their desire to provide excellent patient care with the need to engage in self-care activities. Their primary responsibility for assuring safe patient care often 'weighed heavily' on their minds, frequently to the exclusion of addressing their own physical and psychological needs. The nurses felt responsible for their patient's welfare and were concerned about practice errors that could negatively affect their patients. One nurse described her lingering doubts:

... you've got someone's life in your hands.... and you are thinking, 'Oh my God. Did I give the right drug? Did I do this? Did I do that? Did I do this that time?' There are so many ifs, what, did I, didn't I? ...and then even if you did something right...sometimes things just happen, you still second-guess [yourself].

Even following episodes in which quality standard of care resulted in adverse patient outcomes, some nurses ruminated and replayed the event. They described self-doubts and anxieties that could last for hours or days afterwards.

We are there all the time. The doctor, he does his thing, moves on, and then sometimes it comes. 'What did you do?' 'What do you mean, what did I do? Why do you look at me? Why do you look at the one person?' Like I did it on purpose! So, you deal with all that... We don't have the support, and we really don't debrief. Even when things went bad ... You see the traumas or all these super, super, bugs that you or I could catch as easy as that person outside. So you worry about all that stuff. Am I going to be taking it home to somebody?

Many of the participants were unable to decompress or debrief before arriving at home, where they often held the role of caregiver for children or elderly parents.

There is a workplace expectation that nurses prioritize the needs of their patients in order to provide excellent and compassionate care throughout their work-shifts. This notion of self-sacrifice may lead to coworkers expecting other nurses to 'push through' episodes of anxiety and stress without resolution. The narratives revealed that nurses who accept 'caring for others' as a priority over 'caring for self' may perceive that they are not worthy of the time and attention needed for self-care. At this juncture, they paid less attention to eating healthy foods, setting aside time for physical activity, and, subsequently, began to lose control of their weight. For numerous study participants, weight gain led to high blood pressure, labile glucose levels, and joint problems; these symptoms acted as a 'cue to action' to initiate weight control strategies. These participants described pursuing a balance between prioritizing their own health (and weight) while still caring for others.

The grounded theory contains sub-themes central to the nurses' work environment that have implications for nurse administrators. These sub-themes included (1) "*Who takes care of us?*" (2) "*Are we making future patients?*", and (3) *Valuing nurses' well-being.*

3.2 Who Takes Care of Us?

While it was clear that the nurses in this study took pride in their patient care, they felt their work was undervalued and the workplace may not be optimal for their health and well-being. One nurse questioned:

Healthcare, we take care of the patients – How come we are not taking care of us, the employees?

Many of the nurses cited heavy patient loads and repeatedly being short-staffed as factors that left them unable to meet their own basic physiologic needs. One nurse reluctantly accepted the self-sacrificing conditions that had become normalized:

Well, sometimes, you know, it's almost like you're being selfish because your colleagues are also in the same predicament. They haven't eaten either, so you feel guilty to take your break.

She felt responsible not only for her patients, but also for helping other nurses struggling with their workload. This nurse further explained:

And then when you take the break, you come back, and there's more workload. So, you have to choose: Do I really want to eat? or Do I want to get caught up, so I'm not sitting here hours after my shift?

Her own need for self-care created feelings of guilt. Some nurses relayed how their facilities implemented solutions to facilitate uninterrupted meal breaks only to discontinue these due to increased costs. One nurse explained:

You always have your phone with you, so we don't really get an uninterrupted lunch.

Finding creative solutions to cover for nurses during their breaks may signal that the nurses are worthy of a break during their shift to decompress and recharge. One nurse suggested how an investment may lead to greater productivity:

More staffing will help decrease the load for nursing, and then they are able to take their breaks and not feel guilty. ... Hire more, then you will have more.

3.3 Are We Making Future Patients?

The participants in this study knew that their weight was an issue, and they wanted to lose weight. Most nurses worked 12-hour shifts in acute care, and recounted the abundance of unhealthy food being a barrier to healthy eating at work. One of the participants further attributed health problems to the erratic and unhealthy eating patterns of the busy bedside nurse:

Just to have the time to sit down and really eat your food instead of just buying processed food that you can get down quick.

The prevalence of carbohydrate-rich snacks in healthcare facilities may seem contradictory. One nurse pointed to this inconsistency:

Look what is in those machines. We are at a hospital ... Are we making future patients?

This nurse was reflecting on the dichotomy between the healthcare institutions' core responsibility of providing care and promoting health, and the unhealthy food options at work. The nurse continued to ask:

Why can't we have vendors for fruits or something? ... Other corporations and businesses do that...

This nurse was advocating for healthier food alternatives.

3.4 Valuing Nurses' Well-being

Many of the nurses felt undervalued and wanted to be recognized for the professional work they perform. One participant didn't question the manager's intent, but rather the delivery:

Now, the manager, she has in her office a big thing of candy. Candy! No. Why can't we have fruit?

The nurse was asking for rewards or recognitions that do not impede her ability to manage her weight. In healthcare, there is still a tradition for families, physicians, and nurses themselves binging in donuts, cookies, and candy as a thank you to nursing staff. Alternate ways of showing appreciation may signal that employers and managers value their staff and care about their well-being.

Participants described health-promotion initiatives at their workplace, such as weight loss competitions, step-challenges, or reduced-cost exercise classes to promote wellness for their employees. While these efforts acted as 'cues to action' to motivate nurses to manage their weight, they often lacked consistency and longevity. One nurse lamented:

I don't think the initiatives at work led somebody to lose extreme weight. Maybe it started them... Because it ends – because the prize ends – and then they start something new. So, it doesn't continue.

The participants desired affordable and sustained health-promotion initiatives to assist them in managing their weight. Internalizing 'worthiness' facilitated a pattern of self-care that allowed nurses to manage their weight and be better role models for their patients.

One nurse relayed:

I believe that cultivating healthy habits for us will help us better take care of our patients. So, if you practice what you preach...

This nurse linked personal health to achieving better outcomes for patients.

4 Conclusion/Discussion

The process of internalizing worthiness contributes to our understanding of how nurses manage their weight in context of their professional role as caregiver. The nurses in this study described multiple barriers in the workplace including being exposed to multiple stressors, heavy workloads, and unhealthy food options that impeded their ability to implement healthy self-care behaviors and manage their weight. Many of the nurses further perceived lack of institutional appreciation for their professional contributions, health, and wellbeing. While workplace health promotion initiatives help the nurses initiate weight loss, a lack of longevity diminished the long-term effectiveness. The participants desired a workplace that recognized their value through policies and initiatives that allowed them to achieve a balance between self-care and caring for others and balance their weight.

Nursing can be a challenging profession, as nurses may care for patients with acute and, sometimes, life-threatening conditions. These frequent exposures to stressors at work may contribute to trauma and emotional distress in nurses and affect their quality of life (Walden et al., 2018). Research suggests that the high workload demands and long work hours are sources of stress and fatigue in nurses and associated with higher rates of practice errors (Di Muzio et al., 2019; Melnyk et al., 2018). Furthermore, nurses working in contemporary healthcare settings are exposed to psychological traumas which may contribute to unresolved work stress and compassion fatigue (Salmond et al., 2019). The added layer of complexity and stress from the compassion fatigue coupled with a perceived lack of institutional support may exceed these nurses' ability to cope. The nurses in this study recounted focusing and maintaining vigilance throughout their 12-hour shifts to guard against their own and other professionals practice errors. Many of the nurses continued to relive the traumatic or stressful events of the day after work to reassure themselves they did not commit practice errors. The pace of the contemporary acute care workplace left many of the nurses in this study little time for reflection or decompression during or after their shifts. If unable to decompress before leaving the unit, nurses brought the anxiety and hypervigilance home.

The emotional cost of caring for others and being responsible for their patients' welfare weighed heavy on the nurses in this study. While prior studies have suggested that stress may not be a contributing factor to increased weight in nurses (Han et al., 2011; Zapka, Lemon, Magner, et al., 2009), the findings from this study supports a context where increased workload demands and workplace barriers may impede the

ability of nurses, who are obese, to manage their weight. The nurses recounting missed meal breaks, heavy workload, and an abundance of unhealthy food options combined with a lack of healthy options impeding their ability to maintain a healthy diet. In addition, some of the nurses questioned the message inherent of a lack of value for the nurses and other employee's health in the available food options at work.

The public's image of nurses as trusted caretakers focused on the needs of patients may contribute, unwittingly, to the current dilemma in which nurses perceive they are overworked and undervalued. These findings illustrate that nurses could, unwittingly, internalize the unrealistic 'superhero' expectations; they could resign themselves to the idea that the well-being of others outweighs that of their own. Self-sacrifice has historically been an integral part the nursing culture where the stereotypical image of the ideal nurse sacrifices their own needs in order to prioritize the care of patients (Ciezar-Andersen & King-Shier, 2020). Nursing is a feminized profession and has been affected by a lack of perceived value compared to medicine (Galbany-Estragués & Comas-d'Argemir, 2017). Nurses in acute care settings may experience a cycle of stress that lead to feelings of being devalued and under-appreciated by their organization. There needs to be more effective measures to accurately capture the complexities of nurses' workplace stress (Alkrisat & Alatrash, 2017).

National and international organizations have issued calls for nurses to practice self-care; yet, the work environment may not easily facilitate such practices. The participants in this study knew their weight was an issue but struggled to find opportunities to implement self-care activities. Valuing nurses as individuals worthy of

institutional support and implementing long-term weight loss interventions individualized to each employee may act as cues to action for nurses to initiate weight loss. In addition, these interventions may be cost-effective by increasing productivity and decreasing absenteeism (Lahiri & Faghri, 2012). Recent nursing shortages have brought an increased focus on discovering factors related to nursing burnout, job dissatisfaction, and intent to leave. These factors include high workload, job complexity, and number of hours worked (Shin et al., 2018). Aiken and colleagues (2018) found that decreased nurse-to-patient ratios may result in decreased costs due to improved patient outcomes.

Strategies used to increase the trustworthiness of this study included bracketing and reflexivity, prolonged engagement with the data, face-to-face interviews, and peer-debriefings with expert researchers (Polit, 2009). The participants were selected for maximum variation in age, cultural background, and experience as a registered nurses thus increasing the likelihood that the findings from this study may be transferable to other groups of nurses. Limitations include a single interview design, as additional interviews may have uncovered how discussing one's weight management may have affected their actions. Finally, obesity is a sensitive topic which may have prevented some nurses from volunteering.

5 Implications for Nurse Managers

Nurse leaders and managers may consider promoting a culture that recognizes the nurses' value and assuring that each nurse gets a lunch break unencumbered by patient responsibility. Advocating for creative workload resolutions may decrease adverse patient outcomes and staff turnover, benefits to offset the added labor expense. Facilities

might promote exercise and healthy lifestyles for employees by offering cost-effective, convenient, and long-term exercise opportunities for the employees working various shifts. Collaborations with community partners could increase the availability of affordable exercise opportunities for nurses. Furthermore, replacing unhealthy foods with healthy options throughout the facility may encourage weight management. Redesigning workplaces may communicate to nurses that they are worthy of self-care and help achieve the *Healthy Nurse, Healthy Nation* goals.

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Appendix A – Consent Form

Overweight Nurses Managing Their Weight: A Grounded Theory Study

INFORMED CONSENT FORM

RESEARCH PROCEDURES

This research is being conducted to understand some of the issues that nurses deal with regards to managing their weights. If you agree to participate, you will be asked to meet with the researcher in a mutually agreed upon private setting. This meeting will last about 45-60 minutes, during which you will fill out a brief demographic survey and then participate in an interview with the researcher. This initial interview will be audio-recorded. If you agree to do so, there may be a brief (5-15 min) follow-up phone or face-to-face interview for additional data or clarification of data collected during the initial interview. In addition, you will be asked to take photos of your meals and snacks for the two days before the interview and send these photos to the researcher using your phone or email. The photos will only be used for the interview discussion and will not be used as study data.

RISKS

There are no foreseeable risks for participating in this research.

COSTS

You may incur a nominal fee related to data transmission of pictures over phone, should you choose to do so. Please check with your service provider to inquire about costs specific to you plan. Alternately, you may send these pictures via email.

BENEFITS

There are no direct benefits from participating in this study. However, the information gained from this study may help inform effective weight loss interventions specifically aimed at nurses.

CONFIDENTIALITY

The data collected in this study will be maintained confidentially. You will be given a unique pseudonym, and all audio and written files from the interview, as well as, the demographic survey data will use this pseudonym only. An identification key that connects individual participants' identity to their pseudonym will be kept in a locked drawer, in the faculty advisor's office along with the written consent form for comparison should the need arise. Only the researchers will have access to this identification key. Any electronic files containing data from the interviews or the demographic survey form will be kept on a password protected computer and locked in a drawer when not in use. The actual audio-files from the interview will also be destroyed when data analysis for the study has been completed. Your name or any identifiable data will not be used in any articles or presentations that may arise from this research. With regards to sending your signed consent form and photos electronically, you need to understand that no computer transmission can be perfectly secure; however, reasonable efforts will be made to protect the confidentiality of your transmission.

PARTICIPATION

You are eligible to participate in this study if you are a Registered Nurse, currently working in nursing profession for at least 20 hours per week, and either have a current BMI of 30 kg/m² or greater, or if you have ever had a BMI of 30kg/m² or greater with subsequent weight loss. Your participation is voluntary, and you may withdraw from the study at any time and for any reason. Furthermore, you may choose not to answer any or all questions asked during the interview. If you decide not to participate, or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any



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other party. If you complete the interview, you will receive a \$50 Starbucks or Walmart gift card as a token of appreciation for your time.

CONTACT

This research is being conducted by Anne-Mette Harding, RN, a PhD student in the School of Nursing, George Mason University. She may be reached at 703-851-0442 for questions or to report a research-related problem. The faculty advisor is Dr. Mallinson, and he may be reached at (703) 993-1941. You may contact the George Mason University Institutional Review Board office at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

PHOTOS FOR MEALS & SNACKS

- I agree to take photos of what I eat for two days prior to the interview and send these to the researcher via my phone or email.

AUDIO RECORDING DURING INTERVIEW

- I agree to audio-recording of my face-to-face interview.

CONSENT

I have read this form and agree to participate in this study.

Name

Signature

Date

FOLLOW-UP INTERVIEW

- I consent to a brief follow-up phone or face-to-face interview. I understand that I can withdraw this consent at any time.

Signature

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Appendix B - Demographic Survey

Interview # _____

Pseudonym: _____

Please answer the following questions.

What is your age? _____

Please circle: Male Female

How would you identify your ethnicity/race? Please check all that apply.

- Hispanic or Latino
- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other _____

What is your country of origin? _____

If born outside of the US, how long have you lived in the US/ _____

What best describes your relationship status?

- Single
- Partnered/Not Married
- Married
- Separated
- Divorced
- Other _____

How many children or dependents do you have? _____

What is the highest nursing degree you have earned?

- Diploma
- Associate Degree
- Baccalaureate Degree
- Master's Degree
- Doctorate Degree

How many hours do you usually work per week? _____

Which shifts do you usually work? Check all the boxes that apply.

- 12 hr.
- 8 hr.
- Day-shift
- Night-shift
- Rotating Day and Night- shift
- Other _____

How many years have you been practicing as a Registered Nurse? _____

What is your weight in pounds? _____ or Kilograms? _____

What is your height in Feet? _____ or Meters? _____

What is the most you have ever weighed? _____

How old were you at the time?

Appendix C – Interview Guide

Pseudonym: _____

Date: _____ Time interview started: _____ Time Interview ended:

- Consent Signed
- Demographic Survey completed

Thanks again for agreeing to participate in this study. We are now ready to start on the interview. Do you have any other questions at this time? I will now be starting the tape recording, and when I do, I will mention the pseudonym we agreed upon instead of your real name for confidentiality reasons. [Start tape recorder – state date, time, pseudonym for participant and interview number]. Thanks again for participating in this interview.

1. Tell me about your weight?

(Probes are used throughout the interview as needed)

You mention _____, can you tell me more about that?

Please go on...

Could you elaborate on...

How did that make you feel?

Tell me more about it....

Help me understand what you mean by....?

What happened then?

2. Tell me about these pictures? [show the pictures of foods consumed that the participant sent via email or text]
3. Many of our patients struggle with weight issues as well. Tell me about a time when you counseled a patient about their weight?
 - a. Could you tell me what happened?
 - b. How did it make you feel?
 - c. How do you think the patient felt in that situation?
4. Is there anything else you would like to tell me that I have not asked you about?

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Biography

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