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WEIGHT-RELATED PERCEPTIONS AND SELF-REPORTED LIFESTYLE BEHAVIORS AMONG BLACK NURSES IN THE UNITED STATES

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ABSTRACT: *Obesity is a growing epidemic for both the general population and nursing profession. 50% of nurses are overweight or obese (Miller, Alpert, & Cross, 2008), with more than 40% of Black women obese in 2008 (CDC, 2011). This descriptive study examined weight-related perceptions and lifestyle behaviors of Black nurses (N=41) living in the US. Participants were recruited from the graduate and undergraduate nursing programs at Kean University. IRB-approved Informed Consent was obtained before completion of a 13-item questionnaire assessing weight perceptions and lifestyle behaviors. Body Mass Index (BMI; kg/m^2) assessed weight (women, n = 33, M = 28.64, SD = 5.58; men, n = 8, M = 26.60, SD = 5.58). Mean BMI for US born nurses was 27.88 $\pm$ 1.78 and 28.57 $\pm$ 1.31 for non US born, not statistically significant at t = - 3.18, p = .752. 41% of the group perceived their weight as normal. A negative correlation (r = -.41, p =.008) existed between BMI and "Are you currently exercising?" Findings reinforce the need for additional study to understand whether current exercise reduces the BMI or whether those with increased BMI lack motivation to exercise.*

KEYWORDS: attitudes, body size, obesity management, stereotypes, body mass index, nurse-patient relations

INTRODUCTION

According to the American Heart Association (AHA; Go, 2014; Mozaffarian, Benjamin, & Go, 2014), obesity is a common health condition which is multiplying nationally and globally. If the role of a nurse is to teach patients and the public about healthy lifestyles, is it possible for an overweight or obese nurse to be an effective patient educator? Role modeling healthy diet and lifestyle may positively impact patients. According to the Centers for Disease Control and Prevention (CDC; 2011) many of the chronic health issues seen today in the United States (US), like Diabetes Mellitus, hypertension and cardiovascular diseases are related to diet and lifestyle. Miller, Alpert, and Cross, (2008) affirmed that obesity may be as prevalent among the nursing profession as in the general population. They estimated that 50% of nurses are overweight or obese.

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More than two-thirds of US adults are considered overweight and obese (National Health and Examination Survey, NHANES, 2010). Obesity is an emerging concern not only for patients but also for nurses who provide their care and education (Brown & Thompson, 2007). Brown and Thompson (2007) claim that primary care nurses play a significant role in the management of obesity, but the reaction to the stigma of obesity and its effects on a nurse's body size is still unexplored.

Disparities among population groups have been noted (Akil & Ahmad, 2011). Men and women of all race/ethnic groups are affected by the overweight/obesity epidemic. An estimated 2.6 million deaths worldwide, caused by overweight and obesity, contribute 2.3% of the global burden of disease (Akil & Ahmad, 2011). According to Pbert and colleagues (2013), 34% of adolescents and young adults, ages 12 to 19, are currently overweight or obese. This increases their risk of becoming obese adults. The Centers for Disease Control and Prevention (CDC, 2011) affirmed that one-third of adults were overweight in 2008, and non Hispanic-Blacks have the highest prevalence of obesity. Moreover, more than forty percent of Black women were obese in 2008. The health statistics for Blacks indicate the need for an individual and communal response to the problem of obesity in the US. African American and Hispanic neighborhoods have 50% to 70% fewer supermarkets. These have been associated with more healthful diets, higher vegetable and fruit consumption, and lower obesity rates (Akil & Ahmad, 2011).

According to Del Parigi (2010), obesity is a state of excessive adipose tissue mass; a condition usually translating into excessive body weight. Obesity and overweight are expressions frequently used interchangeably, but they do not essentially represent the same situation. A number of individuals are overweight but not obese, while obese individuals are overweight to a certain characterized degree (Moyad, 2004). The Body Mass Index (BMI), a formula for determining obesity, is defined as the weight in kilograms divided by the square of the height in meters (kg/m^2). It is one of the best methods to determine who is potentially overweight and obese (Moyad, 2004). However, abdominal girth is considered to be the most predictive of poor health outcomes (Moyad, 2004).

The World Health Organization (2003) defined BMI less than 25 as being normal, while 25 to 29.9 is overweight, and 30 or greater is obese. Obesity is categorized into three classes: Class I is a BMI of 30 to 34.9 kg/m^2, Class II is a BMI of 35 to 39.9, and Class III is a BMI equal or greater than 40. The BMI does not take into consideration the individuals who engages in weight lifting or resistance exercises as they may have a slight increase in BMI due to an increase of lean body mass which weighs more than fat tissue (Moyad, 2004).

Obesity is a growing epidemic not only for the population but also in the nursing profession. Nurses serve as a role model when caring for patients and when providing weight-related education to the public; therefore, nurses should be an example for the public. Nurses are a critically important resource for patients trying to understand and implement healthy behaviors; hence, they can significantly influence patients trying to lose weight and/or maintain weight loss. Hicks, McDermott, Rouhana, Schmidt, Wood-Seymour, and Sullivan (2008) revealed that people felt less confidence in the overweight nurse's ability to provide

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education on diet and exercise. Weight-appropriate nurses may exhibit more confidence in their patient teaching education, which might guarantee a better outcome. Brown and Thompson's (2007) study disclosed that nurses with different body sizes have different effects on their patient pertaining to education sessions. A normal weight nurse appears to amplify sensitivities surrounding obesity and add concerns about appearing to lack empathy. However, an overweight or obese nurse was perceived to have greater empathy, but with concerns about being a poor role model. The effects of the nurse's weight on patient satisfaction and/or health outcomes by race have not yet been investigated.

Work-related disabilities have always been an issue in the nursing profession. Not only has obesity been linked to a number of health risks, such as heart disease, it also has been associated with work-related disabilities such as back injury (Naidoo & Coopoo, 2007). In a study of 351 African-American women Gaston, Porter and Thomas (2011) found that although the women were predominately obese or extremely obese, they saw themselves as healthy and appropriate. Given these findings, the purpose of this study was to examine the weight-related perceptions and lifestyle behaviors of Black nurses living in the US. As of today, there are no related studies that have been done for Black nurses living in the US, a paucity which led to this investigation.

Theoretical Underpinning

The hope of this study was to build on the body of knowledge/awareness, and to educate nurses about being a change agent. In addition, given the importance of the nursing profession as role models to patients, their families, and to the community as a whole, first impressions of nurses make a lasting influence on patients.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980; Sheppard, Hartwick, & Warshaw, 1988) or its extension, the Theory of Planned Behavior Model (TPB; Ajzen, 1988; Shafir & LeBoeuf, 2002; Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2003) has been proposed as a way of explaining the role of knowledge in relationship to behavior (Baranowski, et al., 2003). The TRA (Shafir & LeBoeuf, 2002, Baranowski et. al 1997; 2003) model intends that people are more likely to perform a behavior when they intend to perform that behavior, and over which they have control (Shepherd, Sparks, & Guthrie, 1995). As knowledge accrues in a health behavior domain, changes in attitude are initiated. Over some period of time, changes in attitude accumulate, resulting in behavioral change (Baranowski et. al 2003). According to the TPB (Ajzen, 1988), this change is predicated upon perceived control, the additional component added to the TRA (Ajzen & Fishbein, 1980). Along with attitudes and subjective norm, perceived control predicts behavioral intentions (Shepherd, Sparks, & Guthrie, 1995).

Description of TRA

In the TRA (Ajzen & Fishbein, 1980), it is assumed that behavior is determined by behavioral intention to send forth behavior. Fishbein and Ajzen (1975) declared that this behavioral intent is caused by two factors; namely, attitudes and subjective norms. The attitudinal factor is considered to be a function of beliefs about conscious decisions and

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evaluation of the consequences of performing the behavior. Meanwhile, subjective norms are a function of normative beliefs and the desire to comply. Both attitudes and subjective norms determine behavioral intent, meaning that if a person's attitude changes, his or her behavioral intent will probably change (Ajzen & Fishbein, 1980). TheTRA (Ajzen & Fishbein, 1980) has been widely used by other researchers for decades to model a variety of health promoting behaviors and has helped to predict the intention to exercise or not to exercise (Beadnell, Baker, Gillmore, Morrison, Huang, & Stielstra, 2008); Uzoebo, 2008).

In using the TRA (Ajzen & Fishbein, 1980), it is assumed that the main determinant of one's attitude or moral worthiness resides in one's social environment. For example, a person's intention to perform a behavior such as exercise is a predictor of subsequent behavior, and the intention is predicted by attitude towards the behavior and the perceived social norm (Fishbein & Ajzen, 1975).

If attitude towards obesity changes, it is possible that more nurses will find exercising and healthy behavior necessary, which can in turn lead to a reduction in the rate of overweight and obesity in Black nurses in the US. It is therefore justified to use the TRA (Ajzen & Fishbein, 1980) as a framework to examine the relationship between weight-related perceptions and lifestyle behavior among Black nurses in the US.

The TRA (Ajzen & Fishbein, 1980) has been widely applied to many issues in social psychology (Ajzen & Fishbein, 1980; Tesser & Shaffer, 1990) such as blood donation (Bagozzi, 1981), coupon usage (Shimp & Kavas, 1984), contraception use (Davidson & Morrison, 1983) and seat belt use (Wittenbraker, Gibbs & Kahle, 1983). The TRA (Ajzen & Fishbein, 1980) has also been successfully applied to a range of food choice issues, including eating in fast food restaurants (Axelson, Brinberg & Durand, 1983), beef consumption (Sapp & Harrod, 1989), salt intake (Shepherd & Farleigh, 1986), choice of milk of different fat levels (Tuorila, 1987; Shepherd, 1988), choice of high fat foods (Tuorila & Pangborn, 1988), fat intake (Shepherd & Stockley, 1985, 1987; Shepherd & Towler, 1992; Towler & Shepherd, 1992) and adolescent food choice (Dennison & Shepherd, 1995).

Sheppard, Hartwick and Warshaw (1988) carried out a meta-analysis of 87 studies using this model in the area of general consumer choice (not specifically related to foods). They found an estimated correlation of 0.53 between intention and behavior and a multiple correlation of 0.66 between attitude plus subjective norm against intention (Sheppard, Hartwick , & Warshaw, 1988). This therefore suggests that the model has validity both in the study of general consumer choice and the study specifically of food choice.

TRA have also been applied to other behavioral issues like the intent to use or not to use a condom. For example: to examine how well the TRA (Ajzen & Fishbein, 1980) (Ajzen, 1988) predicts condom use, Albarracín, Johnson, Fishbein & Muellerleile (2003) synthesized 96 data sets (N = 22,594) containing associations between the models' key variables. Consistent with the TRA's predictions, (a) condom use was related to intentions (weighted mean $r.$ = .45), (b) intentions were based on attitudes ($r.$ = .58) and subjective norms ($r.$ = .39), and (c) attitudes were associated with behavioral beliefs ($r.$ = .56) and

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norms were associated with normative beliefs (*r.* = .46). Consistent with the TRA's (Ajzen, 1988) predictions, perceived behavioral control was related to condom use intentions (*r.* = .45) and condom use (*r.* = .25), The result indicates that the TRA (Ajzen & Fishbein, 1980) (Ajzen, 1988) is a highly successful predictors of condom use.

The research questions for this study were:

- Is there a relationship between weight-related perceptions and lifestyle behavior among Black nurses?
- What percentage of Black nurses accurately perceives their weight according to their self-reported height and weight?
- What percentage of Black nurses practice lifestyle behaviors that combat obesity?

LITERATURE REVIEW

A study by Naidoo and Coopoo (2007), titled *The health and fitness profiles of nurses in KwaZulu-Natal,* focuses on identifying the health and fitness profile of one hundred and seven nurses (*n* = 107) working in a local hospital in KwaZulu Natal. The researchers of this study hypothesized that there is a connection between obesity and the prevalence of lower back pain among nurses. The high percentage of nurses with back pain stressed the need for wellness programs that would direct nurses on preventative and treatment interventions for back pain. Naidoo and Coopoo (2007) used a quantitative survey that required the participants to complete a questionnaire and perform a sequence of fitness tests, which included the following components: anthropometrical, flexibility, aerobic and strength.

The sample consisting of South African nurses were divided into four groups according to their responses from their personal medical history. These groups consisted of the healthy group (n=48), lower back pain group (n=27), lower back pain and hypokinetic disease group (n=16) and the hypokinetic disease (n=16). The study indicated that 55% of the nurses tested had some form of pathology including lower back pain, hypertension, asthma and diabetes. The hypokinetic disease group had the highest percentage of smokers (12.5%). The participants from this group were overweight. Eighty percent of the nurses reported that they did not exercise at all, and 20% exercised on a regular basis by walking for an average of 38 minutes. Fifty two percent engaged in some form of weight loss program. Seventy-three percent of the participants preferred a walking program and thirty-five percent preferred an aerobic dance program (Naidoo & Coopoo, 2007).

Lower back pain was common in 40% of the sample, primarily due to weak back strength and high percentages of body fat. There was a strong negative correlation (*r = -0.85*) between back strength and percent body fat. However, the *p* value was not provided. The hypothesis was accepted; increased percentage of body fat correlated with decreased back strength. Implication of this study stresses the value of health and fitness education ought to be emphasized as a primary health care mechanism in hospitals and nursing schools, as well as to patients and employees (Naidoo & Coopoo, 2007). While this study showed a

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relationship between BMI and back pain, it also highlighted the large percent of inactive overweight and obese nurses in South Africa.

Research by Hicks, McDermott, Rouhana, Schmidt, Semour, and Sullivan (2008), titled *Nurses' body size and public confidence in ability to provide health education*, explored the confidence level of individuals who ought to receive health teaching from either an overweight or a weight-appropriate nurse using a replicated quasi-experimental study. A convenience sample of 150 participants consisting of university students, faculty and staff members, and visitors were used for this study. The researchers used an instrument that consisted of two pictures that were created on MyVirtualModel.com. One depicted a weight-appropriated Caucasian woman dressed in a white pantsuit and white shoes while the other portrayed an overweight woman. In addition, each participant's body mass index (BMI) was calculated based on self-reported height and weight.

Demographic comparison of the two groups, one viewing the normal-weight nurse and the other viewing the over-weight nurse, were nearly the same. An independent *t*-test was performed to determine if nurses' body size had any effect on participants' level of confidence in their ability to provide education on diet and exercise. The test was significant (*t=3.74, p=0.00)*, signifying that people felt less confidence in the overweight nurse's capability to provide education on diet and exercise (Hicks et. al, 2008).

Based on the results and conclusion of this study, it is important that nurses make every attempt to understand patients' and their families' perceptions and expectations they bring with them, especially when planning teaching interventions. According to Hicks and colleagues' (2008) discussion, the study had several existing limitations. The review of the literature did not disclose any additional studies appropriate for comparison. Regarding the first study limitation, the participants stated they did not know how qualified that nurse was which made it difficult for them to determine their confidence in the nurse depicted. For the second, the nurse pictured was both the same sex. Third, a small amount of demographic data was collected about the sample population (Hicks et. al, 2008). Thus, further study is indicated to investigate the suggestions of these findings for practice.

An article by Miller, Alpert, and Cross (2008), titled *Overweight and obesity in nurses, advanced practice nurses, and nurse educators*, reported a descriptive study to measure the prevalence of overweight and obesity in nursing professionals and to evaluate nurses' awareness of obesity and associated health risks. The researchers recruited their participants by a mailed survey to 4980 randomly selected registered nurses from each of the six geographic regions in the US. A total of 760 surveys were successfully completed and returned. The respondents answered questions concerning their knowledge level of overweight and obesity, including definition of obesity, identification of obesity-related health risks, and the perception and significance of weight reduction (Miller et. al, 2008).

Out of the 760 total responses, 749 respondents provided their height and weight information, allowing for the calculation of BMI. In general, the grand mean BMI of nurses surveyed was 27.2 *(SD* = 6.56, median = 25.6, range 17-59.8). Thirty percent had an

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overweight BMI, 18.7% an obese BMI, and 5.2 % a morbidly obese BMI. Of the 178 obese respondents, 173 acknowledged their obesity and only 26% of the respondents identified BMI as the criteria by which they make weight-related diagnoses. Even though 93% of nurses reported they acknowledged overweight and obesity as diagnoses involving intervention, 76% specified they do not pursue the topic of overweight and obesity with their patients even when there is a need for it. Lastly, 62% of nurses reported the need for continuing education regarding overweight and obesity health implications, and 78% in the area of intervention. One half of the nurses did not feel competent to provide professional weight-related teaching (Miller et. al, 2008).

Based on the results of this study, an important area of investigation will include identifying motivators for change. Another important area will evaluate how nurses define a healthy diet and regular exercise. As health educators, nurses ideally should be giving and role-modeling accurate evidence-based information (Miller et. al, 2008).

Brown and Thompson (2007) used a qualitative methodology to investigate primary care nurses' attitudes, beliefs and perceptions of their body size in relation to giving advice about obesity. The researchers collected data about clinical activity and also about the participants' height and weight. Sample size consisted of 15 primary care nurses, all female, with a range of 2-27 years of experience working in primary care. The 15 respondents of different body size were interviewed within working hours in a workplace setting in private rooms (Brown & Thompson, 2007).

All the participants identified they were aware of obesity stigma and the sensitivity and awkwardness if the topic was to arrive. Fourteen out of fifteen participants were conscious of their own body size when involved with patients. The one participant that felt her own size was something she was not at all conscious about had the least interaction in clinical practice with the obese patient population. In addition, she had a medium BMI. The study confirms that nurses who are slim think they have to handle the impression that they lack empathy and genuine experience in relation to obesity. While those with a large body size believe they must manage impressions that they are poor role models and are hypocrites (Brown & Thompson, 2007).

The report of Brown and Thompson's (2007) findings is structured around three main themes: sensitivity about obesity, complexity of obesity, and one's own body size. Attitudes and beliefs of primary care nurses are complex, ambivalent and should not be generalized as simply reflecting wider stereotypes. In addition, it is important to consider the effects of one's body size when preparing nurses to advise overweight clients (Brown & Thompson, 2007). The findings of this study recommended that the interactions with obese patients may vary for nurses of different body sizes. It is imperative to consider the effects of body size in educating nurses. As educators to the public, nurses need to remain consistent with a non-judgmental approach. Also, nurses are prospects for patients to make changes.

Drury, Aramburu, and Louis (2002) explored the association between body weight, stigma of obesity, and effect on health care utilization. With a convenience sample of women (*n* =

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21), they examined associations between self-esteem, attribution for weight, BMI, satisfaction with medical care, and the behavior of delaying/avoiding health care. They found an increase in BMI is associated with an increase in the delay/avoidance of health care (Drury, Aramburu, & Louis, 2002).

An article by Zapka, Lemon, Magner, and Hale (2009), titled *Lifestyle behaviors and weight among hospital-based nurses*, illustrated the weight, weight-related perceptions and lifestyle behaviors of hospital-based nurses, and explored the relationship of demographic, health, weight and job characteristics with lifestyle behaviors. The study was conducted in six hospitals in central Massachusetts with a sample size of 194 nurses and excluded nurse practitioner working in outpatient clinics. The researchers obtained demographic measures from human resource files or surveys which included age, gender, race, marital status and education. Health and weight-related measures were self-reported. Job-related factors, eating and physical activity was also assessed (Zapka et. al, 2009).

Overall, the majority of the nurses were overweight and obese, and a large number of them were not actively involved in any weight reduction management. With respect to BMI, 28% were classified as obese and 37% as overweight. Self-reported health, diet, and activity involvement was low. In this study, the researchers found that work characteristics such as reporting job stress and overall job satisfaction was not linked to BMI (data was not provided). Therefore, their findings support the conclusion that participants who reported greater job stress and stressful work environment also reported healthier eating and activity patterns. Seventy-seven percent of the participants agreed or strongly agreed
They were satisfied overall with their job. Rating of perceived organizational support to health had a mean of 2.7 (SD = 0.70) out of a possible range of 1 to 5. Ratings of co-worker eating habits (M = 3.3, SD = 0.74) were higher than ratings of co-worker physical activity behaviors (M = 1.4, SD = 0.87). There were several limitations to this study due to the number of respondents from one geographical area and responses possibly reflecting self-reported error or social desirability bias. One strong point of this study was that BMI was self-reported (Zapka et. al, 2009).

This study validated that a large portion (65.4%) of nurses studied were overweight or obese. Many of the health personnel were not involved in any weight reduction management program or practiced healthy eating behaviors and physical activity. As role models to patients, families and the community, nurses play a substantial role as members of the health care workforce and therefore can be leaders in supporting a systematic approach to obesity prevention.

Rahman and Berenson (2010) examined the accuracy of current BMI obesity classification for white, Black and Hispanic reproductive-age women. They identified 205 (36.9%) and 350 (63.1%) of the women as obese according to the NIH classification (BMI $\geq$ 30 kg/m^2). They determined this recommended current BMI cutoff value failed to identify nearly half of the obese reproductive-age women. Their conclusion was race/ethnic-specific BMI cutoff values should be used to more accurately identify obesity in the population studied (Rahman & Berenson, 2010).

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Kim, and colleagues (2013) conducted a cross-sectional survey with participants in the Korean Nurses' Survey (*n* = 9,989). Evaluating the association between current shift work and BMI among female nurses, the mean BMI was 20.9 ± 2.5 kg/m^2. Multivariate logistic regression analysis revealed no association between current shift work and BMI. However, after adjusting for confounders, the duration of shift work was positively associated with overweight/obesity prevalence in Korean nurses (Kim, Son, Park, Choi, Yoon, Lee,…& Cho, 2013).

Gucciardi, Chan, Manuel, and Sidani (2013) conducted a systematic literature review of diabetes self-management education features to improve diabetes education in women of Black African/Caribbean and Hispanic/Latin American ethnicity. Interventions were analyzed based on their success in producing a significant change in outcomes, including BMI, an anthropometric measure. Of eleven (11) studies, three (3) (Agurs-Collins, et al., 1997; Anderson-Loftin et al., 2005; Mc-Nabb, Quinn, & Rosing, 1993) obtained positive effects. They concluded hospital-based interventions with high-intensity sessions and greater patient-provider contacts are more successful in reducing BMI.

METHODOLOGY

This replicated study used a descriptive design to examine the relationship between weight-related perceptions and lifestyle behavior among surveyed Black nurses living in the US.

Research Setting and Sampling

To gain access to a large sample of nurses, participants (N=41) were recruited from the graduate and undergraduate-nursing program at Kean University, New Jersey. Institutional Review Board (IRB)-approved Informed Consent was obtained from the participants. Data collection occurred in two common areas on the university campus (in the classroom and within the main office of the Nursing Department, located in room T116).

Instrument

The study required the participants to complete a self-administered questionnaire developed by the investigators based on Zapka et. al's (2009) study. A 13-item questionnaire was used to evaluate the participants' knowledge and attitude toward weight-control behaviors. Questions 1 – 3 evaluated participants' level of exercise, Questions 4 – 11 assessed perceptions of obesity, Question 12 explored food choices, and Question 13 appraised level of physical activities. Background information such as: age, education, income, gender, birthplace, and years in the US plus height and weight were also collected.

Procedures for Data Collection

A mass email was sent to the nursing faculty inquiring permission to gain access to classrooms and invite nurses who identified as Black to complete a survey questionnaire. Faculty members were asked to leave the room to avoid coercion. Participants were approached by the researchers in the classroom or in the hallway as they walked to class. The purpose of the study was announced to the group of student nurses; those who identified

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as Black were given the IRB-approved Informed Consent form and then the questionnaire. This method of recruitment and data collection was chosen because it provided more accessibility to the target population. In addition, it was cost-effective and not overly time-consuming. It had a minimal risk of bias. Chance of sampling error was low, and data analysis less complex. It enabled the researchers to acquire information in this unexplored area (Burns & Grove, 2009).

Participants had no prior knowledge of this study; no public notification advertised this study was to be conducted on campus. Classroom recruitment was conducted according to the faculty's instruction, either at the beginning or end of the class. All data were analyzed using Statistical Packages for Social Sciences software (SPSS, Version 20.0). Eligibility for this study entailed students who identified as nurses and as Black, communicated in English and were enrolled either in the masters or baccalaureate degree nursing programs.

Analysis of Data

Frequency distributions, mean, median, mode and standard deviation were computed on all the variables. Continuous variables were expressed as mean ± standard deviation (*SD*) and categorical variables as percentages. The Statistical Package for the Social Sciences (SPSS) version 20.0 was used to determine what percentage of the sample accurately perceived their weight, and the percentage of the sample that practiced lifestyle behaviors to combat obesity. Additionally, Body Mass Index (BMI) was calculated by converting height and weight from inches and pounds to kilogram divided by height squared (kg/m^2) to determine whether there was a relationship between weight-related perceptions and lifestyle behavior within the sample.

RESULTS/FINDINGS

Demographics

A total of 41 nursing students participated. Of these, 8 were men and 33 were women. 19 (46.3%) were US born; 22 (53.7%) were non US born. 23 (56.1%) of the sample were undergraduate students; 18 (43.9%) graduate students. For marital status, 17 (41.5%) were single; 23 (56.1%) married; and, 1 (2.4%) divorced. Regarding weight perception, 41.5% of the study population indicated their weight was normal; 4.9% underweight; 26.8% a little overweight; 17.1% moderately overweight; and, 9.8% as very overweight.

80% reported their spouse or people close to them were pleased with their weight. 70% reported their spouse did not think they needed to lose weight. 68% of the participants reported they are currently trying to lose weight or are planning to lose weight, but only 58.5% are currently exercising, with only 14.6% currently enrolled in a weight reduction program. 73% of the sample reported they exercised 0-2 hours per week; 27% engaged in exercise 3-5 hours/week. 29% of the participants reported they count calories and portion size while 26.8% used the food pyramid in their choices of food selection. See Table 1 for baseline characteristics of the study participants.

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Table 1: *Frequencies*

		Birth place	Education	Gender	Marital Status	Weight in pounds	HEIGHT in inches
N	Valid	41	41	41	41	41	41
	Missing	0	0	0	0	0	0
	Mean	1.5366	1.4390	1.8049	1.6098	168.7073	64.7561
	Median	2.0000	1.0000	2.0000	2.0000	160.0000	65.0000
	Mode	2.00	1.00	2.00	2.00	135.00	65.00
	Std. Dev.	.50485	.50243	.40122	.54213	43.89091	3.23095
	Minimum	1.0	1.0	1.0	1.0	108.00	59.00
	Maximum	2.00	2.00	2.00	3.00	320.00	76.00

The Mean BMI for the male participants was (*M*=26.60, *SD*=5.59) and for the female participants (*M*=28.64, *SD*=7.14). The BMI thresholds were $\geq$ 25 kg/m^2 for overweight and $\geq$ 30 kg/m^2 for obesity. Women had a higher BMI compared to the men. As a group, 41% of the sample perceived their weight as normal; however, 37% had a BMI of 25 or less, 34% were overweight, and 29% were obese. Separated by gender, 61% of the women had a BMI >25, and 62.5% of the men had a BMI >25. See Table 2 for BMI categories.

Table 2: *BMI Categories*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Normal 18.5-24.9	15	36.6	38.5	38.5
	Overweight 25-29.9	12	29.3	30.8	69.2
	Obese 30+	12	29.3	30.8	100.0
	Total	39	95.1	100.0	
Missing	System	2	4.9		
Total		41	100.0		

Pearson Correlation

Pearson correlation statistics revealed a negative correlation (*r*= -.41, *p*=.008) between BMI and the question "Are you currently exercising? Hours of exercise/week were negatively correlated with education (*r* = -.314, *p* = .046), while nurses' attempts or plans to lose weight were positively correlated (*r* = .355, *p* = .023). Similarly, their current engagement in exercise was positively correlated with the hours/week spent exercising (*r* = .503, *p* = .001). See Table 3 below for other significant correlations.

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Table 3: *Significant Correlations*

		r value	*p* value
Birth place	Marital status	*r* = .693**	*p* = .000
Birth place	Count calories	*r* = -.477**	*p* = .002
Marital status	Count calories	*r* = -.432**	*p* = .005
Do you often make negative comments about your own body weight?	Gender	*r* = - .430**	*p* = .005
Do you often make negative comments about your own body weight?	Do you count calories or portion sizes?	*r* = -.415**	*p* = .007
Approximately how many hours/week do you exercise?	Education	*r* = - .314*	*p* = .046
Approximately how many hours/week do you exercise?	Do you often make negative comments about your own body weight?	*r* = .360*	*p* = .021
Does your spouse or the people closest to you think you need to lose weight?	Does your spouse or the people closest to you think you look good at my present weight?	*r* = - .326*	*p* = .038
Does your spouse or the people closest to you think you look good at my present weight?	Do you count calories or portion sizes?	*r* = .317*	*p* = .044
Are you currently trying to lose weight or are you planning on losing weight?	BMI calculated	*r* = .355*	*p* = .023
Are you currently exercising?	Approximately how many hours/week do you exercise?	*r* = .503**	*p* = .001
Are you currently exercising?	BMI calculated	*r* = - .415**	*p* = 0.008
Do you read food labels when grocery shopping?	Are you currently trying to lose weight or are you planning on losing weight?	*r* = .353*	*p* = .024

**Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

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DISCUSSION

Results of this study showed that for the first research question, *Is there a relationship between weight-related perceptions and lifestyle behavior among Black nurses?* the answer was yes. Correlation statistics (r = - .415, p = .008) showed those who reported a "yes, they were exercising" also reported lower BMIs. Although it seems reasonable that increased exercise caused decreased BMI, further statistical analysis such as linear regression is needed to evaluate the prediction of BMI from exercising Black nurses living in the US.

The second research question, *What percentage of Black nurses accurately perceives their weight according to their self-reported height and weight*? found that approximately 40% of the respondents of this survey reported their weights were normal, but 60% of the participants had a BMI >25. Similar to Naidoo and Coopoo's (2007) study findings, our study showed the nurses did not perceive they were overweight or obese. Aligned with Miller, Alpert, and Cross' (2008) findings, our study sample had similar average BMI's indicating the nurses were overweight regardless of race and gender. A significant percentage (68%) reported efforts trying to lose weight. In this study, we found that behavior-related variables such as diet and physical activity were not related to BMI. An important consideration for future research includes the investigation of weight loss in relation to BMI.

The third and final research question, *What percentage of Black nurses practice lifestyle behaviors that combat obesity?* produced findings similar to those of Zapka, Lemon, Magner, and Hale's (2009). Based on BMI, 28% of Zapka et al's (2009) participants were classified as obese, approximating the 29% of our participants. Similarly, 37% of Zapka et al.'s (2009) participants were overweight compared to 34% of the nurses we studied. We also found, as did Zapka et al (2009), that self-reported eating habits and physical activity were low among nurses.

STUDY LIMITATIONS

The first study limitation is sample size. More data should have been collected with a larger sample size, in general, and with male nurses, in particular. Due to the ever-increasing number of men in the nursing profession, a larger sample size would be beneficial to compare the similarities and differences in perceptions of both sexes. A second limitation is the homogeneous sample composed of only one racial group. Research has shown that members of different racial groups may have varying perceptions of overweight and obesity (Hicks et al, 2008). A more heterogeneous sample will allow future study findings to be more generalizeable to other university students and ethnic groups. Thirdly, the method of statistical analysis, using only correlation, imposed a study limitation. More advanced statistical techniques, such as linear regression, are needed to evaluate the prediction of BMI from exercising Black nurses living in the US.

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IMPLICATIONS FOR RESEARCH AND PRACTICE

Research

Given the importance of the nursing profession as a role model to patients, families, and the community, nurses are leaders who play a significant role in encouraging obesity prevention. Factors that influence nurses' perception of overweight and obesity need further investigation.

This study did not reveal significant differences between increase in BMI and exercise, presumably due to the limited sample size. Studies, including prospective studies, with larger sample sizes need to be conducted.

A significant consideration for future research also includes the importance of weight loss in relation to BMI, especially for Black nurses. Although it seems reasonable that increased exercise caused decreased BMI, advanced statistical analysis is needed to evaluate the prediction of BMI from exercising Black nurses living in the US. Furthermore, since white and Hispanic women have demonstrated significantly higher percent body fat (%BF) for a given BMI than black women, future data should be collected on accurate, race-specific BMI cutoff values (Rahman & Berenson, 2010).

In future research, the effectiveness of expanded counseling interventions extended over a longer period of time should be examined. Interventions should be high-intensity and provide greater patient-provider contact (Guccciardi, Chan, Manuel, & Sidani, 2013). The encouragement of physical activity within the hospital or clinic setting should occur, and then be evaluated (Pbert et al., 2013). Black nurses who utilize NPs should be surveyed for comparison results.

Additionally, Black nurses in this study reported a higher percentage of lack of exercise and healthy eating. When the study data was compared to those of previous studies, described in the literature review, findings specified the need for intervention tools in the form of educational programs, quality food, and monitoring of health statuses of nurses, especially Black nurses. Future program evaluations should also entail a gender-based analysis so that delivery services can be better tailored.

Practice

According to Chandler-Laney et al. (2009), "the potential role for social perception on body weight regulation is suggested by the mere perception of overweight as common in the general society…This may itself sabotage weight loss and weight maintenance success" (p. 418). The implication of this study's finding for public health therefore is that the increasing prevalence of obesity may be facilitating weight gain among individuals; in turn, exacerbating the obesity epidemic. Obesity researchers need to consider the importance of the social and cultural environment when designing weight loss interventions. Models are needed for implementing weight management programs in readily accessible settings (Pbert et al., 2013). Consistent with the US Preventive Services Task Force's recommendations, comprehensive behavioral interventions coupled with substantial contact time, and guided

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by expert committee input need to be designed in order to have an impact on BMI and effect weight loss.

Nurse practitioners (NPs) are well-positioned to contribute to the design and delivery these services. Gucciardi, Chan, Manuel and Sidani (2013) have found that hospital-based interventions appear more successful across outcomes due to the inclusion of more high-intensity sessions and increased patient-provider contact. Additionally, when psychosocial content includes discussion of quality of life issues, empowerment, and motivational interviewing a positive rate difference of 80% with diet outcomes has been shown (Gucciardi et al., 2013).

Another practice implication is the use of community peer workers, known to be effective interventionists for women in ethnic minorities. Providing social support, they also act as a liaison with health care professionals (Gucciardi, Chan, Manuel, & Sidani, 2013).
Finally, the use of telephone for delivery of obesity self-management coaching is a convenient, simple and inexpensive method that can easily be employed by NPs (Gucciardi, et al., 2013).

Since the obese are a stigmatized and vulnerable population, NPs need to be aware of stigma in order to promote continuity of care and regular health maintenance; thereby, helping to meet the national goals of *Healthy People 2010* (Drury, Aramburu, & Louis, 2002) and *Healthy People 2020* (https://www.healthypeople.gov/; Koh, Blakey, & Roper, 2014), they need to be aware of their own biases related to weight, and hear and respect clients' biases and beliefs (Drury et al., 2002). Using non-judgmental caring and optimum communication skills, a focus on health and well-being, rather than on weight, must be employed.

CONCLUSION

This study allowed us to discover that overweight Black nurses in the US may have skewed perceptions of their weight. Even health care providers need further education on the significant role of BMI in weight loss regimens. Furthermore, correlation between BMI and currently exercising does not mean BMI predicts who will exercise.

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