

Evaluation of nurses' perceptions of patients' weight status in relation to their own Body Mass

Index (BMI)

by

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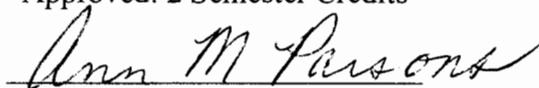
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A handwritten signature in cursive script that reads "Ann M. Parsons". The signature is written in black ink and is positioned above a horizontal line.

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ABSTRACT

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The incidence of overweight and obesity is a rapidly growing issue and concern in our culture. The results of the 1999 to 2000 National Health and Nutrition Examination Survey (NHANES) indicated that 64% of the adult population is overweight or obese. It is well documented that individuals who are overweight or obese often develop chronic health conditions related to their weight. Consequently, these individuals often require more visits to health care professionals and are more likely to be hospitalized. In many hospitals, nurses complete a subjective assessment of the patient's height and weight when they are admitted so BMI can be calculated and appropriate care can be given based on those calculations. There are few studies that have evaluated whether a nurse's own body weight perception affects the accuracy of his or her initial assessment of a patient's height and weight. This study was

designed to evaluate nurses' perception of a patient's weight status in relation to their own weight status and whether it is correlated with perceived patient care. Eighteen nurses participated in the study but only 17 surveys were used due to confidentiality. Each nurse was given a six-question survey and their height and weight was collected using a calibrated scale and stadiometer. The results indicated that 61% of the nurses surveyed felt that their current weight status influences how they classify a patient's weight. The study also revealed that nurses' perceptions of their own weight status are not consistent with their actual BMI classification. About 47% of the nurses classified their BMI incorrectly. This psychological interplay between perceived body size and actual body size can lead to misclassification of patient's BMI and errors in care giving decisions. These misperceptions must be addressed to prevent inconsistencies and poor quality of care.

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## Chapter 1

### Introduction

The increasing prevalence of obesity and other body weight concerns are becoming extremely important health issues. Several national public health campaigns are aimed at combating the issue of obesity, but a large proportion of the U.S. population remains overweight or obese (Chang & Christakis, 2001). Results from a 1999 to 2000 National Health and Nutrition Examination Survey (NHANES) indicated that 64% of the adult population is overweight or obese (Finkelstein, Fiebelkorn, & Wang, 2004). This statistic is of concern because obesity has been associated with an increased risk for various comorbidities, such as heart disease, diabetes, hypertension, stroke, and several types of cancer. Along with being at additional risk for many diseases, obese individuals are often treated differently than non-obese persons in society. "Given our society's preference for slimness, obesity is a condition that is stigmatized." (Drury, 2002, p. 554). This discriminatory behavior is not limited to the general public; health care professionals may also consider society's standards for beauty and demonstrate prejudice against obese people, often unconsciously. This is a concern because health care professionals must look beyond appearance at the whole person, and attempt to discover the reasons the patient is seeking medical treatment. Often, when a person feels stigmatized, they avoid the place or situation that makes them feel uncomfortable (Drury, 2002, p. 554). "Studies suggest an obese woman may delay or avoid health care if she feels a health care provider holds a bias against her because of her weight" (Drury, 2002, p. 554). The increased risk for comorbidities among obese people makes early detection of these risks especially important and can lead to a decrease in both morbidity and mortality.

Body image research that has been completed on adults has focused mainly on gender differences, and the relationship between self-perception and eating disorders (Silberstein, Striegel-Moore, Timko & Rodin, 1988). Concern and dissatisfaction with body shape has been acknowledged among women and teenage girls, with dissatisfaction of specific body parts such as the thighs, abdomen, and hips being the most common complaints. Men also express concern with body shape and size however they normally report less body dissatisfaction than women and are less likely to be involved in weight loss practices.

Our society is also dealing with another issue, intentional weight loss, which is a problem, especially in women. Many people have eating disorders and are excessively concerned with thinness and body shape. These people generally view themselves as overweight, when in actuality they are at a normal weight or underweight. This differs from overweight individuals who tend to underestimate their body weight (Madrigal et al; 2000). The irony is that many who are normal or underweight are trying to lose weight, while many overweight people make no effort to lose weight. These differences could be caused by inaccurate self-perception of body image (Bennett, 1991). One study found that a large percentage of Americans misclassify their own weight status when compared to medical standards (Chang & Christakis, 2001). A large portion of nurses may be included in the group of people who misclassify their weight, which may be a concern in the medical community, especially when nurses assess a patient's height and weight without measuring or weighing them.

In many hospitals, nurses complete an assessment on patients when they are admitted. One important aspect of this assessment is accurately recording the patient's height and weight so their BMI can be calculated and they can be classified underweight, normal weight, or overweight. Often the care the patient receives is dictated by this weight classification; for

example drug doses are usually calculated using body surface area (BSA), which is calculated from height and weight (Leary, Milner, & Niblett, 2000). According to one study, many nurses visually estimate a patient's body weight and height, and medical care was based upon their figures (Leary et al; 2000). The patient may not be receiving appropriate care if his or her body weight and height is estimated incorrectly based on a nurse's perception. If a nurse sees himself or herself as overweight, but according to medical standards is a normal weight, she or he may also classify a patient who is a normal weight as overweight, which could lead to care issues.

It is also documented that many people overestimate their height (Larson, 2002). "Self reported height is consistently over reported, particularly in older adult populations, and men generally over report to a greater degree than women" (Larson, 2002, p. 664). This over estimation of height could be due to error, since adults are not measured frequently or could result from people desiring to appear taller than they actually are in reality. Self reporting of height, if incorrect, could cause a problem during an assessment of a patient. As a nurse is assessing a patient's height, if she overestimates her own height, she may also over estimate the patient's height, which could affect the patient's BMI and care the patient receives during their hospital stay and follow-up care. It is essential for nurses doing the initial patient assessment to correctly estimate the height and weigh of the patient if actual measurements can not be taken.

### *Statement of the problem*

The purpose of this study is to determine whether nurses' perception of their own weight status affects the care that patients of differing weight statuses receive. Data was collected at the Hudson Medical Center in Hudson, WI in March of 2004. A survey was given to the nurses at the hospital. Their weight was collected at that time using a calibrated balance beam scale and

their height was measured using a stadiometer, a device attached to the scale used to measure height, so their Body Mass Index (BMI) could be accurately calculated.

### *Objectives*

There are three objectives this research hopes to accomplish.

This research will:

1. Determine if the nurses' perception of their own weight status is in agreement with their actual BMI.
2. Determine if nurses' perception of their own weight status is correlated with how they perceive patient care.
3. Determine if nurses' real BMI is correlated with how they perceive patient care.

### *Significance of the study*

The significance of this study will be to determine nurses' perceptions of a patient's weight status in relation to their own weight status. This will inform health care professionals about whether a nurse's perception of weight influences his or her estimation of a patient's weight during the initial health assessment. A second purpose for this study is to make health care professionals more aware of how nurses' perceptions of weight influence the level of care their patients receive on a daily basis. Thirdly, dietitians will be able to utilize this information to determine if patients are being accurately assessed and receiving the highest standards of nutritional care possible. Finally, this study will assist dietitians to improve nutritional assessment forms being used by nurses and other health care professionals.

### *Assumption of the study*

One assumption being made during the research process is that the nurses are honest when completing the short survey regarding their perceptions on obesity, a patient's weight, and level of care given to patients based upon their weight.

### *Definition of terms*

Definitions of the following terms are provided to make the study clear and understandable.

Body Mass Index (BMI) - a person's relative weight for height. BMI can be used to assess overweight and obesity, and to measure changes in body weight. BMI correlates significantly with total body fat. The BMI calculation is:  $\text{weight (lbs)/height}^2 \text{ (inches)} \times 703$ . Conversion tables are typically used for patient understanding.

Normal Weight - a BMI between 18.6 to 24.9.

Overweight - a BMI between 25.0 to 29.9.

Obesity - a BMI between 30.0 to 39.9.

Severe obesity - a BMI >40.0.

Underweight - a BMI <18.5.

Perceptions – The neurological processes by which a person recognizes and interprets something.

Stadiometer - a device used to measure height.

### *Limitations of the study*

One limitation to this study is the small sample size of nurses from which the data was collected. The Hudson Medical Center is small and has a limited population of nurses, so there was no access to a larger population for this study. Also, the study was completed on a voluntary basis only; therefore some nurses chose not to participate in the study. Finally, male nurses were excluded from this data since only one male nurse participated in the study. This study was

originally constructed to review gender differences. However, to protect the identity of the one male nurse, that data has been excluded from the results and analysis. Therefore, this topic is covered in the literature review.

### *Methodology*

Data was collected at the Hudson Medical Center in Hudson, WI. Participation in the study was on a voluntary basis. Each nurse read a consent form prior to participation to assure informed consent. A six-question survey was given to the nurses at the hospital; their height and weight was collected at that time using a calibrated balance beam scale and a stadiometer. The researcher calculated their Body Mass Index (BMI). The statistical analysis of data was conducted using the Statistical Package for Social Sciences (SPSS) version 11.0

## Chapter 2

### Literature Review

#### *Introduction*

This chapter will discuss several aspects of overweight and obesity. First, an overview of the obesity epidemic will be covered in terms of its impact on chronic diseases, possible causes, and methods for classifying overweight and obese individuals. Next, self perceptions of overweight and obese individuals will be discussed, followed by health professionals' perceptions of obese people and gender differences in self perception. Finally, nurse's assessment of a patient's weight status will be discussed.

#### *The Obesity Epidemic*

The prevalence of overweight and obesity is growing in the United States as well as many European countries. The NHANES III study found that 54.4% of Americans are overweight and 22.5% of those are obese (Flegal, Carroll & Kuczmarski, 1998). This number has grown dramatically in the last 20 years. In addition, obesity has increased 10% - 40% in the majority of European countries over the past 10 years (American Obesity Association, 2002). As a result of this rapid increase in overweight and obesity, the term obesity is frequently used interchangeably or in combination with the term overweight even though they do not actually mean the same thing (Moyad, 2004). Overweight is defined as a BMI between 26 and 29.9; obesity is defined as a BMI greater than or equal to 30 and severe obesity means a BMI if greater than or equal to 40 (American Obesity Association, 2002).

As a person's BMI increases, so does their risk for chronic diseases. "A BMI of 40 or more is associated with approximately a sevenfold increase in the risk of diabetes mellitus, a six fold increase in the risk of hypertension, a fourfold increase in the risk of arthritis, a threefold

increase in the risk of asthma, and a fourfold increase in the risk of having fair or poor health” (Mokdad et al; 2003, p. 77). Obesity increases risks for coronary heart disease, hyperlipidemia, gallstones, type 2 diabetes, and several types of cancer, including breast, endometrial, esophageal, gastric, colon, and renal (Mokdad et al; 2003). Obesity is also associated with greater morbidity and lower health-related quality of life than smoking, drinking alcohol excessively, and poverty (Sturm & Wells, 2003). A correlation between increasing BMI and decreasing physical function, vitality, and quality of life has also been documented (Fine et al; 1999; Coakley et al; 1998). This is a growing epidemic with serious consequences and can lead to premature death.

The obesity epidemic is also affecting children. The prevalence of childhood obesity is higher than it was 20 years ago in all racial, age, and gender groups; 15% of children are overweight, a number that has tripled since the 1970s (Tyre, Scelfo, Ordonez, Shenfeld & Cooper, 2003). That is almost 9 million children in the United States alone. These children are at serious risk for comorbidities such as heart disease, diabetes, hypertension, and stroke. Not all of the problems associated with obesity are physical. In a recent study pediatricians reported that obese adolescents felt more isolated socially than teenage cancer patients receiving chemotherapy (Tyre et al; 2003). This data indicates that in addition to the increased risk for physical comorbidities, children also face possible serious psychological consequences from obesity. Eighty percent of obese 10 to 13 year olds, if left untreated, will become obese adults (Sothorn & Gordon, 2003). This will increase the epidemic of comorbid diseases related to obesity.

The cost of treating obesity related diseases has also been increasing as well (Finkelstein et al; 2004). Recent studies have documented the effect that obesity has on annual medical expenses among adults. Overweight and obese Americans spend approximately \$700 more per

year on medical bills than those who are not overweight (Epperson, 2003). These additional expenses total \$93 billion in extra medical expenses a year, which are passed on to every American in the form of larger premiums and co-payments for health insurance plans. In addition, the average taxpayer pays \$150 to \$200 a year to finance obesity-related medical expenditures for Medicare and Medicaid recipients (Finkelstein et al; 2004). As healthcare costs continue to rise it is imperative to manage costs by proactive management of health.

### *Factors Contributing to Overweight and Obesity*

With the growing overweight and obese population among both children and adults one question remains why obesity is becoming such an epidemic in the United States. There are numerous possible causes and many speculations about that question. Socioeconomic status, poor food choices, larger portion sizes, as well as inactivity appear to contribute to the epidemic of overweight and obese individuals. Some scientists also argue that genetics may play a role in the development of obesity (Racette, Desinger & Desinger, 2003).

One factor contributing to the problem of overweight and obesity is an individual's socioeconomic status. A person who is at a higher socioeconomic status with a greater income has the ability to purchase food in large quantities which can lead to an increased intake of calories (Sobal, 1991). However, people at every socioeconomic status must purchase food. The incidence of obesity seems to be most common among middle class individuals. In a telephone conversation with M. Cannon (personal communication, March 15, 2005), a registered dietitian, often high calorie, high fat and high carbohydrate foods, such as the one dollar hamburgers at fast food restaurants, are inexpensive, filling and easily obtained by everyone. This may be one factor contributing to the obesity crisis. Individuals and families at a higher socioeconomic status are more likely to have money that can be spent on more expensive food items such as a

variety of fresh produce (Manson & Bassuk, 2003). The social hierarchy is further defined, in part, by people's perceptions. Many people think of heaviness as unattractive, which results in the overweight individual being placed at a lower social hierarchy (Sobal, 1991). It is also noted that obese people are at a disadvantage in the workplace (Sarlio-Lahteenkorva, Silventoinen & Lehelma, 2004). Obese workers might suffer from weight-related discrimination at their places of work which can affect their income level, placing them in a lower socioeconomic status.

Another factor that influences obesity is food choices. The number of two-income families in the United States continues to increase, which leads to decreased time spent planning and preparing meals (Racette et al; 2003). Thirty years ago, Americans spent on average, two hours preparing dinner each night, now this meal is usually prepared in just 15 minutes (Stephen, 2003). In addition, thirty years ago most foods consumed were unprocessed whereas today's products are frequently highly processed which decreases both fiber and nutrition (Stephen, 2003). Fast food items and convenience foods seem appealing when time is short (Brownell, 2004). In addition, convenience foods are readily available in many schools, shopping centers and neighborhoods, which makes it easy for an individual to purchase them (Racette et al; 2003). Often these foods are high in fat and calories but easy to consume on the go. This change in eating habits could also be a factor contributing to the problem.

Portion sizes have increased over the past 20 years with fast food chains offering even larger portions for several cents more (Stephen, 2003). Restaurants have also increased serving size considerably. The increased portion size in our society has influenced what many people consider a normal serving, so they consume more at home (Stephen, 2003). "People now consume between 50 and 100 more calories at one sitting than they did 20 years ago" (Stephen,

2003). These changes in eating habits are another part of the reason so many waistlines are expanding.

Inactivity also plays a large role in the development of overweight and obesity since there is a large imbalance between energy intake and energy expenditure (Racette et al; 2003). Manual labor jobs are becoming less common while technological advances are being made daily; many careers now require an individual to sit behind a desk while they work on a computer. Other conveniences such as cable television, microwaves, remote controls and home computers have also contributed to overweight and obesity because they decrease daily physical activity (Jeffery, 2001). The amount of energy spent in physical activity and exercise is often inadequate to counter balance our society's sedentary lifestyle and increase in calorie consumption (Racette et al; 2003). Racette et al also stated the number of people who engage in physical activity on a regular basis is relatively small when compared to our general population.

Genetics is another complex factor contributing to the development of overweight and obesity, however to what extent is still unknown. Gene mutations can directly cause Bardet-Biedl syndrome and Prader-Willi syndrome, which can increase an individual's susceptibility to become overweight or obese, however, these mutations are not common causes of obesity (Centers for Disease Control and Prevention, 2004). Some studies also indicate that genetic variation, which is usually inherited, is an important risk factor for obesity (Centers for Disease Control and Prevention, 2005). There is evidence from twin and family studies that strongly suggests that biological relatives show similarities in maintenance of body weight. These genetic risk factors tend to run in families, and each genetic variation may contribute a small amount of risk to the individual. Learning how genetic variations may affect the likelihood of an individual becoming obese can lead to a greater understanding of how obesity occurs, and could lead to

development of interventions to prevent and treat obesity (Centers for Disease Control and Prevention, 2005).

All of the data indicates that the problem of obesity is very complex and many factors may contribute to the growing obesity crisis. The role of genetics in obesity is still being researched, however other factors such as food choices, larger portion sizes, and lack of physical activity appear to play an important role in overweight and obesity.

#### *Methods of Classifying Overweight and Obesity*

There are several methods that can be used to classify overweight and obesity. The most popular method is the use of body mass index (BMI) (Racette et al; 2003). BMI is determined by dividing an individual's weight in pounds by the square of their height in inches and multiplying by 703. Numerical classification of BMI is as follows: a number between 18.6 and 24.9 is considered normal weight, while a BMI of 25 to 29.9 is overweight, and a number of 30 or greater it is defined as obese (Moyad, 2004). Some organizations define a BMI of 40 or more as morbidly obese (Racette et al; 2003). Determining BMI is popular because it can be performed quickly in a clinical setting by just measuring the height and weight of the individual (Moyad, 2004). However, BMI results can not distinguish between fat and muscle. Therefore if an individual is more muscular from resistance training they may have an increased BMI due to lean muscle mass, not fat, and they could be incorrectly classified as overweight (Moyad, 2004). Even with this limitation, health care professionals can use BMI as a quick and cost effective method to assess a patient's risk for developing health problems associated with obesity.

A second method for determining obesity uses measurement of waist circumference. An individual's waist circumference is determined by using a tape measure to comfortably measure the distance around the smallest area below the rib cage and above the umbilicus (Centers for

Disease Control and Prevention, n.d.). This provides an estimate of abdominal fat, which can be a predictor for risk factors associated with obesity. Women who have a waist circumference greater than 35 inches (88 centimeters) and men who have a waist circumference of 40 inches (102 centimeters) or more are at greater risk for developing weight related health problems. One limitation to this method is assuring proper location of the measurement site. Another limitation is that waist circumference standards applied to the general public may be inaccurate if the individual has a short stature (under 5 feet) (Centers for Disease Control and Prevention, n.d.).

A third method health professionals can use for classifying obesity is the skinfold thickness test. This method requires an experienced individual to accurately measure the thickness of the skin and fat on a number of sites on the body. For example, on a woman the skinfold thickness test should be performed on the triceps, abdomen and upper thigh. This method is appealing because it is quick, inexpensive and provides a direct measure of an individual's body fat. However, there are limitations to the skinfold thickness test. First, this method is inaccurate when performed on extremely obese or dehydrated individuals (Racette et al; 2003). In addition, this method can vary if the individual measuring the thickness does not consistently measure from the same site on the individual being assessed. "A small difference of only 2.5 cm in the site of measuring the triceps skinfold actually resulted in a difference as great as 50% in the average skinfold" (Moyad, 2004). Since there are some limitations with the skinfold thickness test, it is best to use it in combination with BMI (Moyad, 2004).

Professionals may use a number of other methods to classify an individual's weight. Bioelectrical impedance analysis, densitometry and dual energy X-ray absorptiometry (DEXA) are some of the ways to classify weight. However, these methods require specialized equipment, are expensive to perform and necessitate hiring trained personnel to do them (Moyad, 2004).

### *Health Professionals Attitudes and Perceptions of Obese Individuals*

Given our society's preference for slenderness, obesity is a condition that is often stigmatized (Drury & Louis, 2002). This stigmatization is not limited only to lay people; many health care professionals also seek out society's standards of beauty. This prejudice against overweight and obese individuals can produce discrimination. Many overweight and obese individuals avoid situations where they feel uncomfortable about their weight. A study conducted by Olson, Schumaker and Yawn (1994), found that obese women may delay or avoid health care if they feel the health care professional holds a bias against them because of weight. This avoidance might potentially cause harm to the overweight or obese individual, since they are at risk for chronic health conditions that often require frequent visits to health care facilities.

When an overweight or obese individual does seek out health care, a registered nurse is frequently the one who conducts the initial assessment. Studies have looked at nurses' beliefs and perceptions about obese individuals and the care that is provided to them. One particular study conducted in London researched nurses' beliefs about obesity of the patients they cared for and the advice the nurses provided about weight loss. The study found that most nurses consider obesity more related to lifestyle factors than biological factors (Hoppe & Ogden, 1997). It also suggested that the nurses were confident about the weight loss advice they were giving but less confident about the patients actually losing weight because of the lifestyle changes needed to make a difference. Another study indicated that many health care professionals and nurses have biases against overweight and obese individuals (Maroney & Golub, 1992). Research found that 25% of the nurses polled strongly agreed with the statements, "Caring for an obese patient repulses me" and "I'd rather not touch an obese patient" (Maroney & Golub, 1992). Since obese people tend to have more medical problems that necessitate frequent health care, they are more

likely to come into contact with nurses who may share society's perceptions and prejudices against them. Nurses may find it challenging to care for obese patients and may be reluctant to provide health services to them.

### *Self Perceptions of Overweight and Obese Individuals*

Our society sends constant messages about ideal body size and how people should look. Slimness is portrayed as the ideal and society tends to discriminate against overweight individuals who do not fit into the preferred mold. As people evaluate themselves against the ideals and determine that they are not the size that society mandates, their body image may become distorted. Over the past 20 years there have been studies completed about body image which focused on differences between genders and the relationship between self perception and eating disorders (Rosen, 1990; Silberstein et al; 1988). These earlier studies indicated that men generally reported less body dissatisfaction (Silberstein et al; 1988). Males and females focus on different aspects of their bodies as they complete self analysis. However, newer studies indicated that physical appearance or attractiveness has been rated especially important to females, whereas physical effectiveness or successfulness of body parts working together, has been rated a concern for males (Stanford & McCabe, 2002). Men have a desire to be larger, and more muscular than they actually are, especially in the upper arms, chest, and shoulders (Stanford & McCabe, 2002). This does not mean males are not concerned with being overweight. Research has indicated that males are just as concerned with being overweight as they are with being underweight, which shows that they feel the same pressures women feel, and they also want a perfect body (Stanford & McCabe, 2002). Men also believe that women prefer a body that is larger, when in actuality women's preferences are compatible with most males' current body shape (Stanford & McCabe, 2002).

On the other hand, research has demonstrated that most females desire a body that is smaller than their current size (Stanford & McCabe, 2002). Females feel more pressure to conform to a specific standard which is set by their same sex peers. Women also believe men prefer very thin women, which suggests the opposite sex also contributes to the pressure women feel to be thin, however in reality men state they prefer larger figures. These misconceptions lead to distortion in self-perception for both men and women.

One study chose to investigate body image for both males and females. The researchers found strong correlations between BMI and overall ideal body image ratings for both males and females (Stanford & McCabe, 2002). As males BMI increased, they perceived that their actual body size was more closely aligned with their ideal size. The opposite occurred for females; as they increased in size, they thought that they were larger than their ideal size. “Interestingly, 90% of males and 100% of females demonstrated some level of discrepancy between their actual and ideal body, which corresponds to the finding that males and females experience similar problems in this area” (Stanford & McCabe, 2002, p. 681). This should not come as a surprise given the research that has already been conducted. This idealistic vision of body size can lead to distorted body images that can affect an individual’s self-esteem and diet practices.

Many overweight and obese people experience discrimination and prejudice from society, which may affect their own self perception. Several studies have been conducted to evaluate overweight and obese individuals self perceptions. A study conducted in the European Union used body image as an indicator of weight status (Sanchez-Villegas et al; 2001). Participants were grouped into four categories: underweight, normal weight, overweight, and obese according to their BMI. Once grouped the participants were asked to choose their perceived body image from a group of silhouettes. The results indicated that women classified themselves more

accurately than men. Overweight men and women tended to choose normal figures. 18% of the overweight men underestimated their weight by choosing the slim figure (Sanchez-Villegas et al; 2001). Obese men and women also underestimated their weight and tended to classify themselves as overweight subjects.

Another study, evaluating the Spanish population, evaluated self perception of being overweight (Gutierrez-Fisac, Garcia, Rodriguez-Artalejo, Banegas & Guallar-Catillon, 2001). The study was conducted during three different years, 1987, 1995 and 1997 using data from the national health surveys which were carried out by the Ministry of Health (Gutierrez et al; 2001). Findings of the study indicated that the percentage of individuals with a BMI over 25 increased from 35.7% in 1987 to 48.6% in 1995/1997. The results from the 1995/1997 surveys indicated that 50% of men and 30% of women with a BMI from 25-26.9 did not see themselves as overweight. For the same time period, 31% of men and 18% of women with a BMI between 27 and 28.9 did not see themselves as overweight.

Both studies indicate that many overweight and obese people do not recognize that they have a weight problem. "Messages regarding the importance of avoiding weight gain may go unheeded if individuals believe their own weight falls well below that which constitutes overweight" (Crawford & Campbell, 1999).

The most recent reports from the CDC suggest that being slightly overweight can lead to longer lifespan (Overweight People May Live Longer, n.d.). Those who lived the longest had a BMI of 25 which is at the lowest end of the overweight BMI. There could be several reasons for this finding. Perhaps people are getting earlier treatment for obesity related conditions such as heart disease. Medical management of diseases associated with obesity has also improved over

the past decade. Education of the public and healthier lifestyles may also play a part in these new findings. Continued research is needed to clarify the issues surrounding this research.

#### *Nurse's Assessment of a Patient's Weight Status*

Very few studies have been conducted to evaluate a nurse's assessment of a patient's weight status. Research by Leary et al (2000) looked at the accuracy of the estimation of height and weight in an intensive care unit. It stated that most of the doctors and nurses visually estimated body weight and height, and the clinical approach to treat these patients was based on these estimations. The study found that the patients are frequently not weighed or measured and estimates made by doctors and nurses were significantly inaccurate.

Another study conducted in the United Kingdom discovered that nurses who worked in the emergency or intensive care units did not assess a patient's height or weight at all (Wright, 1998). If a weight was required for treatment it was taken from previous records. Height also was not measured. The findings of the study indicate nurses' frequently use subjective information provided by the patient which can be extremely inaccurate for most assessments. Studies have indicated that obese women underestimate their weight, whereas, underweight women tend to overestimate their weight (Kuskowska-Wolk, Karlsson, Stolt, & Rossner, 1988; Monteath & McCabe, 1997). They also found that most women overestimate their height; self reported height and weight values could lead to BMI miscalculation.

Research conducted by Zasoski (2004) also found that nurses who perform the initial patient assessment on hospitalized patients did not accurately assess the weight of the majority of patients. The study found that the nurses incorrectly classified a patient's BMI and many of the underweight and overweight patients were classified as having a normal weight. Both types of

patients are at risk for developing health conditions due to their weight and the care the patients were receiving was based on their BMI.

## Chapter 3

### Methodology

#### *Introduction*

This chapter includes information about how the sample was selected, a description of the sample, and the instruments used. In addition, data collection and data analysis procedures will be given. This chapter will conclude with the methodological limitations.

#### *Subject Selection*

Nurses at the Hudson Medical Center in Hudson, WI were asked to participate in the study. The researcher attended a meeting on February 26, 2004 with the dietitian, nurse manager, and some of the nurses to discuss the intent of the study. During the meeting it was explained that participation in the study was voluntary. There were 70 full time, part time and float nurses working at the hospital. All nurses, including males and females, and all categories above were invited to participate. *Instrumentation*

The survey portion of the study was designed to be short and easy to fill out (Appendix D). Since there were no instruments which met the specific needs of this study, an original survey, comprised of six questions, was designed. Because the survey was designed specifically for this study, there are no documented measures for validity or reliability.

Each survey was marked with a random number so the researcher could track the surveys. Along with the survey, a table was made to record the participant's gender, body weight, height, and BMI (Appendix E). Each table was marked with a random number that matched the survey so the researcher could match the survey with the corresponding table.

The second part of the study included taking the nurse's height and body weight. This was done on a calibrated balance beam scale. A stadiometer which was attached to the scale was used to measure each nurse's height.

#### *Data collection*

Before completing any data collection, approval from the University of Wisconsin-Stout Institutional Review Board (IRB) was received (Appendix A). Data collection took place over three days, March 10 – 12, 2004 at the Hudson Medical Center in Hudson, WI after permission from the site had been granted from the Director of Quality and the Nutritional Services Manager (Appendix B).

Eighteen nurses (25% of those on staff) volunteered to participate in the study. The scale was placed in a private room on the main level of the hospital. Initially, each participant came into the room and read the consent form (Appendix C). Due to the small number of participants they were asked not to sign the consent form so they could remain anonymous. If, after reading the consent form, the nurse agreed to participate, he or she then completed the survey. When the survey was finished, the participant placed the survey into a large manila envelope. In preparation to be weighed, the participant removed his or her shoes and each participant stepped on the balance beam scale to be weighed. The researcher recorded his or her weight in the table. The participant remained on the scale and the researcher measured his or her height. The height was then recorded on the same table the body weight was recorded. The researcher then recorded the gender of the participant. Once the table was completed it was placed into the same large manila envelope with the surveys. As a thank you for taking part in the study each participant was given a bottle of water. Since the survey and table were inserted into the manila separately

the three digit random code in the right hand corner allowed the researcher to match them so statistics could be performed on the data.

### *Data analysis*

The information for the study was computed by Christine Ness, Research and Statistical Consultant at the University of Wisconsin-Stout. All questionnaire information was coded and responses were analyzed using Statistical Package for Social Sciences (SPSS) version 11.0. Because of the small number of participants in the study, statistically significant statistics could not be performed. The data was analyzed using crosstabulation.

### *Limitations*

Limitations in this study included the following: First, data was collected from a small sample size of nurses from the Hudson Medical Center. Second, the medical center has a small population of nurses and the study included only nurses who volunteered to participate. Due to time constraints, each nurse's body weight and height could only be measured once. Third, only nurses who were working were asked to participate, and their time to spend getting weighted and measured was limited due to their other responsibilities. A fourth limitation was that some of the nurses had keys and equipment in their lab coat pockets, which may have increased their body weight. Finally, male nurses were excluded from this data since only one male nurse participated in the study.

## Chapter 4

### Results

#### *Introduction*

This chapter will include the results of this study. Demographic information will be discussed as well as item analysis and descriptive statistic results.

#### *Demographic Information*

When the data was collected there were 70 nurses employed at the hospital which included full time, part time and float nurses. Of these 70 nurses, 18 (25.7%) participated in the study with 17 (94%) female and 1 (6%) male. Due to confidentiality, data on the male participant was not reported so only 17 of the surveys were used for data analysis in this study.

Of the 17 female nurses who participated in the study, the mean height and weight was 64.8 inches (SD 2.60) and 169.7 pounds (SD 43.53), respectively (Table 1). Calculated BMI's for all of the female nurses ranged from 19.5 to 42.9. The mean BMI for the female nurses was 28.36 (SD 7.20).

Table 1

Descriptive Statistics of Female Nurses

	Height (inches)			Weight (pounds)			BMI (calculated)		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
Female	64.8	60-70	2.6	169.7	129-280	43.53	28.36	19.5-42.9	7.20

### *Item Analysis of Survey*

Item number one on the survey asked “How would you classify your current weight status?” No one responded that they were underweight, 41.2% (n = 7) responded they were a normal weight, 41.2% (n = 7) responded they were overweight and 17.6% (n = 3) responded they were obese.

The second question the survey asked “How physically active are you?” The results are as follows: 41.2% (n = 7) responded they were very active, 58.8% (n = 10) responded they were somewhat active and no participants responded that they were not active.

Question number three on the survey inquired “Do you feel a nurses weight influences how he/she classifies a patient’s weight?” The results are as follows: 64.7% (n = 11) stated yes and 35.3% (n = 6) responded no. If the participants answered yes to question number three, they were asked the additional question “How influential is a nurse’s weight in his/her classification of a patient’s weight.” 18.1% (n = 2) answered it was very influential, 36.3% (n = 4) answered it was somewhat influential and 45.4% (n = 5) answered it was slightly influential. No participant selected that it was not influential.

The fourth question on the survey asked “Do you feel that all patients receive the same level of care?” The results are as follows: 70.5% (n = 12) responded yes and 29.5% (n = 5) responded no. If the participant answered yes to question four they were asked to stop filling out the survey. If they answered no to question four they were asked to answer questions five and six.

Question number five asked “Do you feel that an overweight patient receives the same care as a normal weight patient?” The results are as follows: 0 responded yes and 100% (n = 5) responded no.

The last question, number six, on the survey asked “Do you feel that an underweight patient receives the same care as a normal weight patient?” The results are as follows: 60.0% (n = 3) responded yes and 40.0% (n = 2) responded no.

### *Research Objectives*

The first research objective was targeted to determine:

- If the nurses’ perception of their own weight status is in agreement with their actual BMI (Table 2).

Table 2

### Accuracy of Nurses’ Own Weight Classification

Perceived Weight Status	Number of Nurses	Classified Correctly		Classified Incorrectly	
		Number	Percent	Number	Actual BMI Category
Normal	7	6	85.7	1	Overweight
Overweight	7	0	0.00	3	Normal Weight
				4	Obese
Obese	3	3	100	0	

Survey question number one examined the first objective. Out of the 17 nurses who participated in the study 47.1% (n = 8) classified themselves incorrectly. One participant who classified herself as a normal weight was actually overweight by BMI standards. All seven nurses (100.0%) who perceived themselves as overweight classified themselves incorrectly - three nurses were actually normal weight by BMI and four were actually obese by BMI. Last, 100% (n = 3) of the obese nurses classified themselves as obese. According to BMI calculations 52.9% (n = 9) of the nurses were normal weight, 5.9% (n = 1) was overweight and 41.2% (n = 7) were obese.

The next research objective was targeted to determine:

- If the nurses' perception of their own weight status is correlated with how they perceive patient care is given.

This objective examines how a nurse's perception of his/her own weight status and perceived BMI classification affects how he/she classifies a patient's weight. Questions three through six on the survey examined this objective.

Table 3

Question 3: Does A Nurses' Weight Status Influence How She Classifies a Patient's Weight?

Perceived Weight Status	Number of Nurses	Answered "Yes"		Answered "No"	
		Number	Percent	Number	Percent
Normal	7	4	57.1	3	42.9
Overweight	7	4	57.1	3	42.9
Obese	3	3	100.0	0	0.0

The results indicate that over half of the nurses, 61.1% (n = 11) felt that their current weight status does influence how they classify a patient's weight. The eleven nurses that felt their current weight influences how they assess a patient's weight were asked how influential their weight is during a patient assessment (Table 4).

Table 4

Question 3A: How Influential is a Nurse's Weight During a Patient Assessment?

Perceived Weight Status	Number of Nurses	Very Influential		Somewhat Influential		Slightly Influential	
		Number	Percent	Number	Percent	Number	Percent
Normal	4	2	50.0	1	25.0	1	25.0
Overweight	4	0	0	2	50.0	2	50.0
Obese	3	0	0	1	33.3	2	66.7
Total	11	2	18.2	4	36.4	5	45.5

The results indicate 45.5% (n = 5) of the nurses think their own body weight is slightly influential when classifying a patient's weight, 36.4% (n = 4) think it is somewhat influential and 18.2% (n = 2) think it is very influential.

Table 5

Question 4: Do Patients Receive the Same Level of Care?

Perceived Weight Status	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	7	4	57.1	3	42.9
Overweight	7	6	85.7	1	14.2
Obese	3	2	66.7	1	33.3
Total	17	12	70.5	5	29.4

The results show that 70.5% (n = 12) of nurses think all patients receive the same level of care, and only 29.4% (n = 5) of the nurses surveyed thought that not all patients receive the same

care. The five nurses who did not agree that all patients receive the same level of care were asked two additional questions (Table 6 and 7).

Table 6

Question 5: Do Overweight Patients Receive the Same Care as a Normal Weight Patient?

Perceived Weight Status	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	3	0	0	3	100.0
Overweight	1	0	0	1	100.0
Obese	1	0	0	1	100.0
Total	5	0	0	5	100.0

The result indicate 100% (n = 5) of the nurses do not think an overweight patient receives the same level of care as a person who is a normal weight.

Table 7

Question 6: Do Underweight Patients Receive the Same Care as a Normal Weight Patient?

Perceived Weight Status	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	3	1	33.3	2	66.7
Overweight	1	1	100.0	0	0
Obese	1	1	100.0	0	0
Total	5	3	60.0	2	40.0

The results show that 60.0% (n = 3) of the nurses thought that an underweight person does receive the same level of care as a person of a normal weight. Only two nurses did not agree with that statement. Thus, nurses who thought patients do not receive the same level of care reported that overweight persons are likely to receive different care than underweight persons as compared to the care received by normal weight patients.

The last research objective was targeted to determine:

- If the nurses' real BMI is correlated with how they perceive patient care is given.

This objective examines the nurse's responses under their real BMI. The nurses who classified themselves incorrectly have been placed into the correct BMI category they should be under. Again, questions three through six on the survey examined this objective.

Table 8

Does A Nurses' Weight Status Influence How She Classifies a Patient's Weight?

Actual BMI	Number of Nurses	Answered "Yes"		Answered "No"	
		Number	Percent	Number	Percent
Normal	9	6	66.7	3	33.3
Overweight	1	0	0	1	100.0
Obese	7	5	71.4	2	28.6
Total	17	11	64.7	6	35.3

When placed in the correct BMI category, the results indicate that over half of the nurses, 64.7% (n = 11) felt their weight status does influence how they classify a patient's weight, only 35.3% (n = 6) did not think their weight had an influence. The eleven nurses that felt their

weight influences how they assess a patient's weight were asked how influential weight is during a patient assessment (Table 9).

Table 9

How Influential is a Nurse's Weight During a Patient Assessment?

Actual BMI	Number of Nurses	Very Influential		Somewhat Influential		Slightly Influential	
		Number	Percent	Number	Percent	Number	Percent
Normal	6	2	33.3	2	33.3	2	33.3
Obese	5	0	0	2	40.0	3	60.0
Total	11	2	18.2	4	36.4	5	45.5

When placed in the correct BMI category, the results indicate 45.5% (n = 5) of the nurses think self perception of body weight is slightly influential when classifying a patient's weight, 36.4% (n = 4) think it is somewhat influential and 8.2% (n = 2) think it is very influential. The nurse whose actual BMI fell under the overweight category is not represented because she did not feel that her weight influenced how she classifies a patient's weight.

Table 10

Do Patients Receive the Same Level of Care?

Actual BMI	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	9	5	55.6	4	44.4
Overweight	1	1	100.0	0	0
	7	6	85.7	1	14.3

Obese					
Total	17	12	70.6	5	29.4

When placed into the correct BMI category, the results show that 70.6% (n = 12) of nurses think all patients receive the same level of care, and 29.4% (n = 5) of the nurses surveyed thought that not all patients receive the same care. The five nurses who did not agree that all patients receive the same level of care were asked two additional questions. The nurse who has an actual BMI in the overweight category was not represented because she did not feel that her weight influenced how she classifies a patient's weight. The results are found in Tables 11 and Table 12.

Table 11

Do Overweight Patients Receive the Same Care as a Normal Weight Patient?

Actual BMI	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	4	0	0	4	100.0
Obese	1	0	0	1	100.0
Total	5	0	0	5	100.0

When placed into the correct BMI category, the results indicate 100% (n = 5) of the nurses do not think an overweight patient receives the same level of care as a person who is a normal weight.

Table 12

Do Underweight Patients Receive the Same Care as a Normal Weight Patient?

Actual BMI	Number of Nurses	Yes		No	
		Number	Percent	Number	Percent
Normal	4	2	50.0	2	50.0
Obese	1	1	100.0	0	0
Total	5	3	60.0	2	40.0

When placed into the correct BMI category, the results show that 60.0% (n = 3) of the nurses thought that an underweight person does receive the same level of care as a person of a normal weight. Two nurses (40%) disagreed with that statement.

## Chapter 5

### Discussion

#### *Introduction*

This chapter includes a comparison and discussion of the research objectives and the data collected. Conclusions are based on the results of the study. Recommendations for future use of the results as well as gaps in the data and the need for further studies will be addressed. Finally, an overall summary of the study related to the recommendations will be included in this section.

#### *Discussion*

There are many studies that have researched body image and self perception. As noted in the literature review of this paper, society looks favorably on slimness and tends to discriminate against overweight individuals who do not fit into society's mold. This can lead to misperceptions when people evaluate themselves as larger or smaller than they really are; the effect is a distorted body image. Several studies have attempted to evaluate weight perception. In one study Chang & Christakis (2001) found that a large percentage of Americans misclassify their own weight status when compared to medical standards. Some people who are actually at a normal weight or underweight may view themselves as overweight. At the same time, overweight individuals may tend to underestimate their body weight. In another study, Sanchez-Villegas et al. (2001) found that overweight women who were asked to classify their body size tended to choose normal figures and obese women also underestimated their weight and classified themselves as overweight. This study noted similar findings (Table 2). When the nurses were grouped according to their BMI the only nurse who's BMI was actually in the overweight category classified herself as normal weight. Over half of the nurses whose BMI indicated they were in the obese category classified themselves incorrectly in the overweight

category. This study also found that three nurses who were of normal weight classified themselves incorrectly by putting themselves in the overweight category.

There are several possibilities for the inaccurate weight classifications. One possibility is that the nurses are not aware of what constitutes underweight, normal weight, overweight and obese using BMI standards. This lack of knowledge could lead to incorrect self classification. Another possibility is that our society looks favorably on slimness and tends to discriminate against overweight and obese individuals. Some obese and overweight nurses may have a distorted weight perception and think of themselves as thinner than they actually are so they will feel better about themselves. Another possibility is that nurses who are confident in their skills and have a high self esteem may have a faulty self perception and view themselves as thinner than they actually are. On the other hand, the nurses who are a normal, healthy weight may also have distorted perceptions and think they are overweight when they are not. A third possibility is that weight gain often occurs slowly over a period years and the nurses may continue to think of themselves as being the weight they were several years ago. This allows them to feel that they continue to fulfill society's expectations by being smaller. Although these are several possible explanations for the inaccuracies in self weight assessment, the actual reasons are still undetermined.

Previous research on the subject of nurse's assessment and perception of a patient's weight status in a hospital status is limited. As noted in the literature review, few studies have been conducted on this topic. Research conducted by Zasoski (2004) found that nurses who perform the initial patient assessment on hospitalized patients did not accurately assess the weight status of the majority of patients. One possible reason for these inaccurate assessments is that the nurses' perception of their own weight influences their ability to accurately determine a

patient's BMI in an initial hospital assessment. When evaluating perceived weight status and patient care, over half of the nurses felt that their weight influenced how they evaluate a patient's weight. This number increased to almost two-thirds when the nurses were placed into their correct BMI category. This is an important finding because over half of the nurses in this study feel their weight status affects how patients are classified. In Zasoski's study many underweight and overweight patients were inaccurately classified as having a normal weight and both of these types of patients are at risk for developing health conditions due to their weight. Furthermore, patient care is frequently based on weight. For example, Leary et al. (2000) found that at some hospitals drug doses are calculated using body surface area (BSA), which is determined by the patient's height and weight. If inaccurate initial weight and height estimates are recorded, patient care could be adversely affected. Nurses should not estimate weight and height in patients they are assessing because their judgment may be based on their own inaccurate perceptions.

Many health care professionals are also influenced by society's standards of beauty. The stigma against overweight and obese individuals can produce prejudice and discrimination. This study found that 70.5% of the nurses surveyed do not feel that all patients receive the same level of care based solely on the nurse's perception of patient weight. The nurses with misperceptions of their own weight status were less likely to think that patient care is different. Only one nurse who classified her BMI incorrectly thought care was different between patients with different weight statuses. The other ten nurses classified their BMI correctly but still thought patient care was different between underweight and overweight patients. This percentage did not change when participants were placed into their correct BMI category. One study that assessed nurses' attitudes toward obese individuals indicated that nurses hold negative attitudes toward obese individuals (Maroney & Golub, 1992). This study had similar findings; 100% of the nurses

surveyed thought that an overweight individual does not receive the same level of care as a person of normal weight. This number dropped to 60% when the same question was asked about an underweight individual. Neither percentage changed when the nurses who were surveyed were placed into their correct BMI category.

### *Conclusion*

This study indicates the nurses' perceptions of their own weight status are inconsistent with their actual BMI classification. About 47% of the nurses who participated in the study classified their own BMI incorrectly. Results also indicated that 61% of the nurses surveyed felt that their current weight status influences how they classify a patient's weight and affects their perception of how patient care is provided. The results of this study indicate that many nurses incorrectly identify their own BMI which may in turn affect how they classify their patient's BMI status at the time of a hospital admission. The results of Zasoski's (2004) study also found that in over half of the patient charts that were examined the patient's BMI's was recorded incorrectly. Although there are many possibilities for these misclassifications, at this time the actual reasons for the errors remain unknown. However, the fact remains that quality patient care relies on an accurate BMI assessment. If a nurse is incorrectly assessing a patient's BMI, the care that is given can be adversely affected. This study also found that nurses perceive that not all patients receive the same level of care based on the patient's weight. There are possible reasons for this, such as discrimination from health care professionals, but the real reasons for these differences in care are unknown and must be addressed.

### *Recommendations*

Additional studies on this subject should be conducted at larger hospitals with a larger sample size of nurses. Further studies in other hospital facilities would be beneficial in

determining the factors that contribute to inaccurate BMI classifications and inconsistent care among hospital patients. Institution of a BMI table that is readily available to admitting nurses could help them to accurately determine a patient's BMI when completing the initial screen. In addition, education of the nursing staff would be helpful in improving the accuracy of weight assessment. It is critical that health care institutions look into the perception that people of different weight statuses receive a different level of care. Is this just a perception or is it a reality? If it is reality, then significant and meaningful changes need to be made.

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Appendix A: IRB Approval

**Date:** May 15, 2003

**To:** Elizabeth Zasoski  
Tammy Klink

cc: Ann Parsons  
Biology

**From:** Sue Foxwell, Research Administrator and Human  
Protections Administrator, UW-Stout Institutional  
Review Board for the Protection of Human  
Subjects in Research (IRB)

**Subject:** **Protection of Human Subjects--Expedited Review**

Your project, "Evaluation of nurses' perceptions of patients' weight status in relation to their own Body Mass Index (BMI)," has been approved by the IRB through the expedited review process. This protocol has been approved provided the following items are addressed. Then the measures you have taken to protect human subjects are adequate to protect everyone involved, including subjects and researchers.

- On #10 strike the words "unless otherwise agreed upon by the participating nurse. Anyone with additional weight related questions or concerns will be referred to one of the dietitians on staff at the medical center." No hospital staff should know who volunteer nurses are. This referral, if written, will identify them. Also, the presence of others during measurement recording could put them at additional risk of being identified.
- Hospital staff can not know who volunteers are for this research. Hospital staff should not be present when volunteers are asked for. They should not see the researchers with only these nurses (volunteers) or see any list of names of those who volunteered.
- Every possible effort should be taken to conceal the identity of the nurses who volunteer. Not only in the data, but especially in the selection process of asking for volunteers and the weighing process. For example; because your sample is voluntary, if only one overweight nurse volunteers, and she is seen by hospital staff with the researchers; and if the resulting data shows negative reactions by her toward patients, the hospital may unwittingly put undue negative pressure on her.

This project is approved through May 14, 2004. Research not completed by this date must be submitted again outlining changes, expansions, etc. Annual review and approval by the IRB is required.

Thank you for your cooperation with the IRB and best wishes with your project.

**Appendix B: Hudson Hospital Project Approval Letter**

Nutrition Services  
Hudson Hospital  
400 Wisconsin St.  
Hudson, WI 54016

May 11, 2003

Tammy Klink  
S4355 Oak Knoll Rd.  
Fall Creek, WI 54742

Dear Sir or Madam:

Tammy Klink and Liz Zaroski met with me to discuss a project for their Dietetic Internship Program. Tammy and Liz will review weights in Patient Care records and note the caregiver's perception of the patient's weight. I have asked our Director of Quality, Louise Cunningham about the Interns doing this project and was given a verbal approval. Tammy and Liz plan to complete this project over the summer. If additional information needs to be provided for Tammy and Liz to proceed, please contact by phone at 715-386-0159 or e-mail [jweiler@hudsonhospital.org](mailto:jweiler@hudsonhospital.org).

Sincerely,

Jean Weiler M.Ed., RD  
Manager, Nutrition Services

## Appendix C: Consent Form

### Consent Form

I understand that my participation in this study is strictly voluntary and I may discontinue my participation at any time.

The purpose of this study is to evaluate nurses' perceptions of a patient's weight in relation to their own weight. The significance of this study is to gain an increased awareness of nurses' perceptions and evaluations of the patients they care for on a daily basis.

I further understand that any information about me that is collected during the study will be held in the strictest confidence and will not become part of my permanent record. I understand that in order for this research to be effective and valuable certain identifiers need to be collected. I also understand that the strictest confidentiality will be maintained throughout this study and that only the researchers will have access to the confidential information. I understand that at the conclusion of this study all records, which identify individual participants, will be destroyed. I am aware that I have not and am not waiving my legal or human rights by agreeing to this participation.

## Appendix D: Nurses Survey

### Weight Perceptions Questionnaire

Please respond to the following questions by placing an "X" in the box that best represents your response.

1. How would you classify your current weight status?

- Overweight       Normal       Underweight

2. Currently, how physically active are you?

- Very Active       Somewhat Active       Not Active

3. Do you feel a nurse's weight status influences how they classify a patient's weight?

- Yes       No

If **yes**, how influential is the nurse's weight in their classification of a patient's weight?

- Very       Somewhat       Slightly       Not

4. Do you feel that all patients receive adequate care?

- Yes       No

5. Do you feel that an overweight patient receives the same level of care as a normal weight patient?

- Yes       No

6. Do you feel that an underweight patient receives the same level of care as a normal weight patient?

- Yes       No

## Appendix E: Data Collection Form

Code ID	Sex	Height	Weight	BMI