ASSESSMENT OF PERCEPTIONS AND PRACTICES OF NUTRITION OF DIFFERENT EDUCATION LEVELS OF NURSES WORKING IN INPATIENT AND LONG TERM CARE SETTINGS

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The purpose of this study is to determine the perceptions and practices of registered and advanced practice nurses on nutrition related issues in inpatient hospital care and long term care settings. It was expected that there would be differences in perceptions and practices between varying levels of degree in nurses and between primary work location. An electronic survey was distributed through social media sites to participants (n=64). An ANOVA was used to determine differences between perceptions and practices by degree, primary work location, and degree by location. The post-hoc analysis showed significant differences between varying levels of degree and practices and primary work location and practices. Interaction effects were found between degree and location. Increased nursing and interdisciplinary team nutrition education needs to be assessed to help bridge healthcare gaps.
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CHAPTER I

INTRODUCTION

Overview of Literature

Nutrition plays an important role in health and has become an increasing topic in the healthcare system. Inadequate nutrition compromises the immune response, weaken respiratory rates and cardiac function, increases complications of disease and surgery, and leads to readmissions and extended hospital stays (Perry, 1997). A multitude of nutrition related issues can cause complications of a disease and the healing process of a patient. For example, disorders of the gastrointestinal tract can lead to dysmotility of the nutrients and impaired ability to absorb causing vitamin and mineral deficiencies (Kubrak & Jensen, 2007). Deficiencies in vitamins and minerals can lead to an increased risk of hip fractures in the elderly as well as development of pressure ulcers or delayed healing of pressure ulcers, increase infections, and create electrolyte imbalances (Morley & Silver, 1995).

The overarching nutrition issue is malnutrition. Malnutrition is defined as being nutritionally insufficient related to inadequate or decreased intakes or inability to digest or absorb nutrients (Kubrak & Jensen, 2007). It is estimated that individuals are diagnosed with protein-energy malnutrition in 17-65% of nursing home patients (Morley & Silver, 1995) and 15-60% of the elderly population develop malnutrition (Kondrup et al., 2003).

Furthermore, dysphagia or difficulty chewing and swallowing can lead to decreased intakes due to stroke or esophageal cancer, anxiety, depression, and lack of
interest in which can lead to weight loss and anorexia food (Smith, Kindell, Baldwin, Waterman, & Makin, 2009). The largest reason for anorexia in the elderly is medication use and depression (Morley & Silver, 1995). Of the residents in nursing homes run by Veterans Affairs, 12% of their population is considered underweight (Abbasi & Rudman, 1993).

The first line of determining risk or development of malnutrition or other nutrition related issues is that of the nurses. At admission and throughout the patients’ stay, the nurses do routine screenings to determine nutrition risks. The nurse plays an intimate role with the patients’ care. As the nurses see patients more frequently and help with nutrition related activities, like eating at meal times, are able to gain a better perspective of changes in patients during their stay that put them at risk for nutrition related issues.

The healthcare team is becoming as important as ever in regards to looking at nutrition related issues and malnutrition. The team approach is becoming more emphasized and has shown to improve the quality of care the patients receive in the healthcare system (Reeves et al., 2009). The interaction of healthcare professionals with physicians has been documented to cause some anxiety for the healthcare professionals though the interaction can help integrate health care for patients (Reeves et al., 2009). The interaction of public health nurses with dietitians have shown that those who interacted with dietitians were better educated on various diet education materials and better equipped to work with the community (Cadman & Findlay, 1998).

It has been found that nurses have limited nutrition related education during their initial training to become a registered nurse. A collection of nursing programs found that
only 54% required at least one nutrition related class. The topics covered focused mostly on nutritional assessment and diet counseling. Furthermore, the individuals that were found to teach these classes were predominantly of a field outside of dietetics (Stotts, Englert, Crocker, Bennum, & Hoppe, 1987). Studies have shown that the nutrition knowledge of nurses is suboptimal but nurses within the United States have a higher level of knowledge (Al-Shwaiyat et al., 2013).

**Statement of the Problem**

With the increasing understanding of nutrition’s role in disease process and decreasing complications such as infections and helping immunity (McWhirter & Pennington, 1994), there is a concern of how nutrition related issues are being managed. The first of the healthcare team to see the patient is the nurse who also sees the patient more than any other healthcare professional. Nurses are typically the first individual to screen the patients for health related problems. In regards to nutrition, there are several nutrition screening tools that have been developed but there is no gold standard used by every institution (Kondrup et al., 2002).

Majority of the studies that have looked at the link of nurses and nutrition have been in other countries, though one study found that the nurses in the United States were more knowledge about nutrition than other countries (Al-Shwaiyat et al., 2013). The perceptions and practices related to nutrition of nurses is a rare subject of research and the studies that have looked at this topic are older and some are not validated. The populations that have been looked at for this type of information have been from other countries such as England, Jordan, and Canada.
Understanding the practices and perceptions of nurses when they encounter nutrition related issues is important as the nurses are the first individual and primary contact within the hospital and long term care facilities to see and care for patients. Current research looking at nurses’ perception and practices of nutrition related issues is needed in the United States. The main articles in reference to the study were produced 10-27 years prior.

The perceptions and practices of nurses with respect to nutrition can help bridge the gap in the health care provided to patients. There is no universal protocol for nurses to assess for nutrition related issues or protocols for handling nutrition issues when they arise. With the knowledge of where the differences lie between healthcare settings and nurses, it will help begin a conversation and education from the dietetics profession.

**Purpose Statement**

The purpose of this study is to determine the perceptions and practices of nutrition in different education levels of nurses working in inpatient hospital care and long term care settings.

**Hypotheses**

H1: Perceptions and practices of nurses in regards to nutrition will differ based on overall level of education they have received

H2: Perceptions and practices of nurses in regards to nutrition will differ between locations of work; inpatient hospital setting and long term care facility
**Operational Definitions**

* Nurses – In regards to this study, nurses will encompass all individuals who are a Registered Nurse by obtaining an Associate’s degree or Bachelor’s degree as well as individuals who have obtained their Master’s degree in nursing and are working as an Advanced Practice Nurse.

* Long-term care facilities – These facilities are settings that individuals are going to be staying long term. This includes assisted living and nursing home facilities.

* Nutrition related issues – The main issue that this covers is that of malnutrition but also various issues that may be seen within the hospital and long term care population like: chewing and swallowing difficulties, those receiving enteral or parenteral nutrition, impaired abilities to digest or absorb nutrients, have vitamin or mineral deficiencies, have weight loss, decreased or changed intakes, or issues with nausea, vomiting, diarrhea, or constipation.

* Perceptions – “the act or faculty of perceiving, or apprehending by means of the senses or of the mind; cognition; understanding” (dictionary.com, 2015). Perceptions will be measured by a modified five point Likert scale of how much participants disagree or agree to a set of statements

* Practices – The actions of nurses taken in long term care facilities and inpatient facilities in situations that are related to nutrition. The nursing practices will be measured by a modified five point Likert scale of how much participants disagree or agree to a set of statement.
CHAPTER II
REVIEW OF LITERATURE

Nutrition Related Issues

A common issue that is seen in all facilities, hospital and long term care facilities, is the development of malnutrition.

What is malnutrition?

Malnutrition is an increasing issue that is being recognized within the healthcare system. Malnutrition is being defined in the instance of nutritional insufficiency that can be due to decreased or inadequate consumption and impaired ability to absorb or digest nutrients (Kubrak & Jensen, 2007). The decrease in nutrition can lead to decrease in weight and muscle loss that affects infection risk, immunity, and healing rates among others (McWhirter & Pennington, 1994).

Malnutrition diagnosis can lead to an increase in health insurance reimbursement for hospitals. Hospitals have documented a loss in revenue when patients are not documented as being malnourished though they meet specific criteria (Barker, Gout, & Crowe, 2011). A hospital could increase its reimbursement by an estimated $86,000 per year by using the diagnosis codes for malnutrition appropriately (Funk & Ayton, 1995).

Epidemiology. According to the World Health Organization, malnutrition is the biggest concern to the public health realm (Imoberdor & Ballmer, 2014). It was estimated that 20-60% of all patients who are admitted to a hospital have malnutrition at the time of admission (Imoberdor & Ballmer, 2014). The average hospital cost per day for patients
who are malnourished is on average $90 higher than those who are not malnourished (Correia & Waitzberg, 2003). There are limited studies on the direct relationship of malnutrition on mortality and morbidity rates but has been shown to greatly increase rate of mortality (Correia & Waitzberg, 2003).

**Causes of Malnutrition.** The causes of malnutrition vary and are widespread. The presence of chronic disease or illness is a common factor among the lifespan. Chronic disease processes can lead to hypermetabolic or catabolic characteristics seen in patients that can cause a depletion of muscle and fat stores (Volkert, 2002). The loss of muscle and fat stores can decrease the ability to fight inflammation and further stresses caused by illness (Volkert, 2002).

Chronic disease, such as diabetes, cancer, and kidney disease, is a major cause of malnutrition but the medications used to treat disease can play a further role in the decrease of the nutritional state. Side effects of medications, such as altered taste changes, nausea, vomiting, diarrhea, dry mouth, and several more, can be responsible for decreased nutritional intakes (Volkert, 2002). Decreased intakes and a catabolic state can lead to a faster decline in nutritional status.

Decreases in physical and mental abilities can be additional causes of decreased nutritional status or secondary malnutrition. With a decline in functional ability, it is harder for individuals to be able to prepare and consume proper nutrition (Volkert, 2002). This is mostly seen in the elderly population or as people age but can also be brought on by chronic disease. Individuals can develop difficulties with chewing and swallowing
impairments through age and specific disease states that promote malnutrition and require alternate forms of nutrition (Volkert, 2002).

**Risk Factors.** The biggest risk factor for development of malnutrition is the severity of the disease state. Those with benign illnesses were less likely to be malnourished than those with malignant disease, such as cancer (Pirlich et al., 2005). With the severity of disease there is an increase in medication prescriptions. As previously mentioned, medications can be a cause of development of malnutrition. It has been seen that an increase in medication use is a risk for the development of malnutrition (Pirlich et al., 2005).

There are social risk factors outside of disease that are risks for development of malnutrition. Educational level of patients can be a risk for the decline in nutritional status. Individuals with lower educational levels tend to be diagnosed more often with malnutrition than those with higher levels of education. This corresponds with profession level. Patients who work in blue collar jobs are more likely to be seen with malnutrition than those in higher level professions (Pirlich et al., 2005).

Age can be an important factor when assessing risks for malnutrition (Pirlich et al., 2005). With age, there can be a decrease in sensory abilities, gastrointestinal absorption, and a decline in oral health care. The elderly population has a decrease in fat and muscle stores naturally coupled with decreased absorption or oral care can further increase the risk for malnutrition. This population has a decline in physical ability to prepare proper nutrition; ability to grocery shop, cook, etc. With the adult population,
especially in the elderly, living on by one’s self increases the risk of developing malnutrition (Pirlich et al., 2005).

**Assessing for Malnutrition.** There is no universal screening process to determine or diagnosis malnutrition. Several techniques and screening processes have been developed and researched for reliability such as the mini nutritional assessment which has been encouraged to be used in the elderly (Kondrup et al., 2003). There has been an increase of using a physical assessment along with questions to the patient to determine risk and level of malnutrition. Some anthropometric measures used in studies and nutrition screening tools to determine malnutrition risk include looking at muscle and fat loss with triceps skinfold measurements, arm circumference, and arm muscle circumference (McWhirter & Pennington, 1994). Other factors assessed for nutrition related issues can include some lab data, weight changes, and daily intakes.

Without a universal screening or assessment protocol and set standards for determining malnutrition, the rates of malnutrition varied depending on the studies though they continue to point to high prevalence within the hospital and long term care facilities. It has been seen that 30-55% of individuals entering an inpatient or acute care facility were malnourished or at risk for developing malnutrition (Kubrak & Jensen, 2007). A study found individuals who were admitted to a specific long term care facility in Canada had a 44% risk of developing malnutrition while 15% of those admitted already were malnourished (Kubrak & Jensen, 2007).
The lack of universal assessment methods makes it difficult to detect malnutrition and convey the importance of the issue. The issue of malnutrition is beginning to come to the forefront in the medical community but there are still issues to overcome. A study found that of 200 admissions from the outpatient side, only 104 had no nutritional related data within the medical chart. Of individuals who had some nutrition related information in their chart, only 31 had anything related to nutritional intakes (McWhirter & Pennington, 1994).

**Nutritional Issues Commonly Found Within Long Term Care**

A long term care facility predominantly houses those who are considered elderly. Due to several factors and causes, a huge nutritional issue seen in this population within nursing homes is malnutrition or undernutrition. It has been documented that protein energy malnutrition is seen in 17% to 65% of the nursing home population. (Morley & Silver, 1995) The prevalence of malnutrition being so high causes higher admissions and an increase in health care costs. Development of protein energy malnutrition is linked to morbidity and mortality (Abbasi & Rudman, 1993). Malnutrition has been linked to causing pressure ulcers, cognitive impairment, infections, and hypotension (Morley & Silver, 1995).

Protein-energy malnutrition can be caused by multiple factors in the nursing home setting. A major player in malnutrition is that of weight loss which is typically seen in the elderly population. With age, there is an increase in the level of cholecystokinin circulating which is known for causing satiety. As people age they have a decrease in metabolism and couple that with an increase in satiety will lead to a decrease in food
intakes (Morley & Silver, 1995). Over time this leads to weight loss and possibly becoming underweight. The Veterans Affairs’ nursing homes have shown that almost 12% of their residents are classified as being underweight (Abbasi & Rudman, 1993).

The population in the nursing home may also have a swallowing disorder or difficulties eating as tooth decay and loss is prevalent among these residents. Elderly individuals may require help with feeding themselves especially those with cognitive impairments or physical ailments. Therapeutic diets may be unpalatable to patients or not meet personal food preferences which can cause a decrease in intakes. The largest reason for weight loss and anorexia in the elderly population is due to depression and medication (Morley & Silver, 1995).

Vitamin and mineral deficiencies are prevalent in the nursing home population but can be remedied by multivitamin and mineral supplementation. Deficiencies in these nutrients can increase the risk for hip fractures, development of pressure ulcers, delayed wound healing, increased rate of infection, and electrolyte imbalances (Morley & Silver, 1995).

**Nutritional Issues Commonly Found in Hospital Settings**

Nutritional issues within the hospital setting can be very similar to those seen in long term care facilities. Malnutrition is a major issue within the hospital and can be caused by several compounding factors. It has been shown that 20-60% of individuals are malnourished at the time of admission (Imoberdor & Ballmer, 2014). Though there has been several advancements in the treatment of nutrition related issues, malnutrition
continues to be a significant issue seen in the acute care settings (Kubrak & Jensen, 2007). The screening process for malnutrition is a continuous work in process as discussed previously. Typical questions and factors looked at to determine malnutrition include dietary intakes, laboratory data, anthropometrics, and physical assessments that are newer into the practice (Kubrak & Jensen, 2007).

Weight loss is a major factor in determining risk and development of malnutrition. Anorexia or the decline in dietary intakes and appetite can lead to sudden and progressive weight loss. Causes for anorexia in the hospital can be due to specific disease states like esophageal which can hinder the mechanical ability to consume adequate dietary intakes (Capra, Ferguson, & Ried, 2001). The same can be seen with patients who have had a stroke and develop dysphagia as 42% of those who have had a stroke developed dysphagia (Kumljen & Axelsson, 2001).

Gastrointestinal disorders and surgeries can lead to an inability to digest and absorb nutrients (Kubrak & Jensen, 2007). The inability to digest and absorb can further lead to anorexia because of the side effects of not being able to digest and in turn leads to weight loss. Gastrointestinal surgeries such as gastric bypass, though can be beneficial, can lead to issues of malnutrition. Gastric bypass surgeries put individuals at risk for vitamin and mineral deficiencies such as iron deficiency as it is absorbed predominantly in the small intestine (Shikora et al., 2007).

Enteral and parenteral nutrition are common forms of nutrition seen within the hospital when oral diets are not appropriate. There are various routes to administer enteral
nutrition such as through a nasogastric feeding tube, gastrostomy, and jejunostomy. (Agarwai et al., 2012). The use of enteral and parenteral nutrition can be seen in individuals who present or are at risk for malnutrition such as individuals who have mechanical disabilities from stroke or cancer as well as those with nutritional deficiencies from surgery like that of gastric bypass among various others.

**Nutritional Screening Process**

The purpose of screening individuals who are at risk for protein-calorie malnutrition (PCM) helps with getting the patient proper care by health care faculty. The malnutrition screening process is typically performed first to determine malnutrition risk (Soeters et al., 2008). With possible PCM risk identified, it can be treated which has been found to help decrease length of stay in the hospital which in turn leads to a decrease in health care costs. The decrease in length of stay and hospital re-admissions helps to provide a higher reimbursement rate for the hospital from insurance companies such as Medicare and Medicaid.

The nutrition screening process can include multiple factors. The screen will look at weight status particularly weight loss. Another factor that is looked at is if the patient has any kind of inflammation; chronic or acute. Dietary behaviors and current intakes compared to normal intakes are recorded in the nutrition screen (Soeters et al., 2008). Some laboratory values may be used in helping determine nutrition related risk.

Besides the actual screen not being universal, there is no universal protocol for when or who does the nutrition screen. Hospitals and long term care facilities may have
their own protocols for nutrition related screens. During the admission, patients can be reassessed but a standard time allotment or protocol is not in place.

**Inpatient Hospital.** As found by several nursing studies, there is no universal protocol in regards to screening and identifying nutritional issues. Several screening tools have been developed to try and identify malnutrition but few are available for deciding when patients need to be seen by a dietitian. Different settings and hospitals use different methods of identifying patients that are in need of a nutrition evaluation.

According to the European Society of Parenteral and Enteral Nutrition (ESPEN) 2002 Guidelines, hospitals should put nutrition screening protocols, screening tool and responsible parties, into place to determine if patients are at malnutrition risk and if a nutritional treatment would improve the medical outcomes for the patients. It is suggested that the individuals who are on staff during admittance of the patient should screen the patient using a quick tool to decide if the patient is not at risk for malnutrition, there is doubt if the patient is at risk, the patient is at risk, or the patient is at risk and a standard plan cannot be determined. If there is doubt or there is a risk identified, a dietetic referral should be ordered (Kondrup et al., 2003).

**Long Term Care.** According to ESPEN, a large portion (15-60%) of the elderly develop malnutrition. A mini nutritional assessment (MNA) gets used in nursing home and elderly programs to determine malnutrition and early stages of malnutrition. It is an eighteen question screening tool that includes questions on dietary habits, anthropometrics, subjective assessment, and additional questions of general health.
(Cowan, Roberts, Fitzpatrick, While, & Baldwin, 2004). It was encouraged that the nursing staff perform the MNA (Cowan et al., 2004). The screening tool is fast (under 10 minutes) and takes into account the individual's mental and physical function ability. It was found that those who were evaluated with the MNA were able to increase in total body weight with increased intakes but data on the total outcomes of the patient’s health status was not available (Kondrup et al., 2003).

An Australian study looked at the consumption of intakes by a population between the ages 70-93 and nurses’ ability of assessment in 1992. It was found that one third of the nurses assessed overestimated the amount consumed by patient or did not know how much the patient consumed. A similar study performed in United States nursing homes in 2000 found that RNs and LPNs were not sufficiently able to meet nutritional needs of their residents in the long term care facilities (Cowan et al., 2004).

Missed Opportunities in Nutrition

As mentioned, a major nutritional issue within the long term care facilities, outpatient setting, and inpatient settings is malnutrition. With the lack of a universal protocol for screening for nutritional issues and malnutrition, it is of concern that nutritional issues or malnutrition is being overlooked in patients.

Studies in regards to missed opportunities in nutrition in the hospital setting are based in other countries than the United States which is similar to the literature about nursing practices and perceptions with nutrition. Majority of the studies look at the
pediatric population in developing countries which have a mortality rate for children under five years of age (Antwi, 2008).

With children, screening for malnutrition is less universal than that of adults but typically growth charts are used. In some developing countries, nutritional screening is missed due to the discontinuation of taking children to outpatient clinics after vaccinations are received. Of children seen in the developing country outpatient clinics, 21.2% of 1182 children were determined to have some form of malnutrition. The patients’ charts when compared to the diagnosis of a physician, found that only 5.9% of the population looked at were identified to have some form of malnutrition risk. Particularly with a large sample size, there is a huge difference between the identifying of nutritional risk for children (Antwi, 2008).

Physicians and nurses are documented to understand that screening and providing an intervention for nutrition problems would result in decreased complications during hospital admissions though it was documented that only 20% of those screened for nutritional issues upon patient admission. The causes for patients not being screened included the lack of universal guidelines, unsure how to perform, and forgetting. In one study at a Dutch hospital, only a quarter of those who were malnourished or at risk for malnutrition were identified. (Kondrup et al., 2002). While another study in Australia found that a dietitian was only consulted in 36% of the identified malnourished or at risk for becoming malnourished cases (Barker, Gout, & Crowe, 2011).
Patients who are malnourished or become malnourished during their hospital admission have an increased length of stay in the hospital which leads to higher medical costs. There has been a documented financial loss from hospitals when looking at the patients who were not documented to have malnutrition though should have been based on specific criteria (Barker et al., 2011). Within the United States, it was found that a singular hospital could have increased its reimbursement by approximately $86,000 per year with appropriate diagnosis codes. The figure is representative of diagnosis of malnutrition 20 years ago. The push for diagnosis of malnutrition has increased and there have been changes in the way of diagnosing malnutrition, so the reimbursement rate, depending on the proper coding, may have changed (Funk & Ayton, 1995).

**Interaction of Healthcare Workers with Nutrition**

Current literature on the interaction of medical professionals look more at the team approach to healthcare. The healthcare team has changed over time. There is more of an emphasis on the team approach in treating patients in all healthcare settings which is showing an increase in the quality of care patients are receiving (Reeves et al., 2009). Clinical outcomes of the team approach are proved to have better outcomes in all healthcare facilities as well as increased patient satisfaction (Lemieux & McGuire, 2006). A need for the team approach is as important as ever as there are so many different specialties in the healthcare setting and within each department.

Medical rounds are being used by the interdisciplinary teams. These are scheduled or formal interactions of multiple professions in discussing current issues, treatments, and
plans for patients. It is found that nurses and additional healthcare providers are anxious with adding to discussion of the physicians (Reeves et al., 2009). Issues or concerns that the patient may be having can lead to additional consults to specific services and direct conversations between specialty services.

The interaction of professionals can be more than just about patient care but also about peer to peer education. Educating fellow healthcare workers encourages the importance of the different fields that come together to provide care and education to patients. Understanding the differences and importance of each health related field can lead to a better interaction and health care team model.

The education provided between healthcare workers can lead to an increase in adequate care and education for the patients. It has been found that public health nurses who provided education to various groups on diet related topics were better educated and equipped to talk with groups after receiving training from a registered dietitian (Cadman & Findlay, 1998). The increase in training from various fields allows healthcare workers better treat and answer questions from patients and public.

**Dietitians**

The dietetic profession has been rapidly changing and growing. The role of the dietitian has changed and evolved over the years.

**Background and Education**
Nurses and dietitians have similar backgrounds in their education as both professions require individuals to have knowledge in science. To begin the track into the world of dietetics, an individual must receive a minimum of a bachelor’s degree from an accredited university or college (Commission on Dietetic Registration, 2015). Common core classes required for students studying dietetics and human nutrition are chemistry, organic chemistry, biochemistry, statistics, macronutrients, micronutrients, and clinical nutrition, etc. (University of Illinois).

Once a bachelor’s degree or a Didactic Program is completed, to be eligible for the Commission on Dietetics Registration (CDR) examination a supervised practice must be completed. According to the CDR, current standards indicate a total of 1200 hours of supervised practice are required. Supervised practice programs are detailed through the CDR. The application process for acquiring a spot in a supervised practice program is often compared to that of the medical school application process (Commission on Dietetic Registration, 2015).

Along with applications some programs require interviews, audio recordings, written essays, and etc. The application process culminates to a day deemed “Match Day” in which students from across the country learn where they will be spending their supervised practice hours based on their rankings of programs and the programs rankings of applicants.

An alternative route to completion of a degree and supervised practice is a coordinated program. These programs can be completed after receiving a bachelor’s or
higher degrees but require individuals to take further classes. Typically, these programs allow for completion of a bachelor’s degree and the 1200 hour required supervised practice (Commission on Dietetic Registration, 2015).

A newer option for current students or those looking to be eligible for the CDR examination are Individualized Supervised Practice Pathways (ISPP). It was created to protect individuals coming into the profession from the possibility of shortages in the supervised practices. The ISPP model helps individuals reach their required hours through programs at ACEND accredited programs (Commission on Dietetic Registration, 2015).

Supervised practice hours can be accumulated in a variety of fields within dietetics. Programs can have a focus area or an area that is heavier in one field than others. The best practice for individuals applying for practice programs is to find those that best fit their interests. Programs can be individualized according to each person’s interest.

With completion of supervised practice, individuals become eligible to sit for the registration exam. The exam can be taken at a multitude of times at places across the country. Upon taking the exam it provides the results of pass or fail. In the insistence of passing, the individual will be contacted by the CDR to provide maintenance fees (Commission on Dietetic Registration, 2015). Depending on the state of practice, once registered one must become licensed by the state board of dietetics in that state.
Locations of Practice

The scope of practice for the dietitian has been increasing over the last several years while opening doors into new areas of practice and expertise. The typical setting known for dietitians is in a healthcare facility counseling in the outpatient area. Areas that are usually seen when counseling outpatient include but are not limited to Diabetes, obesity, cardiovascular disease, kidney disease, high blood pressure, and high cholesterol (Academy of Nutrition and Dietetics, 2015).

Food service companies are a huge employer of dietitians. The role of the dietitian in the food service area is that of management (Academy of Nutrition and Dietetics, 2015). In the management role, dietitians help to create menus for various areas (schools, daycares, hospitals, companies, etc.). They must take into consideration special diets (such as heart healthy, diabetic, etc.) and food allergies. During their supervised practices and education, they have learned how to use food service programs to determine portion sizes, recipe quantification, cost of recipes and per serving, and food purchasing (Academy of Nutrition and Dietetics, 2015). Those in the dietetic field have had education on proper food handling and safety as well as the knowledge of food and food substitutes in recipes.

Corporate wellness programs have been a new program that companies are starting to use for employee wellness, giving dietitians a role in the corporate world (Academy of Nutrition and Dietetics, 2015). Employee wellness programs have been found to decrease absenteeism and improve health. The dietitian is often used for food
service programs, individual counseling, seminars, and weight based programs that employees can enroll.

Dietitians are also found in the inpatient side of the hospital which is ever expanding (Academy of Nutrition and Dietetics, 2015). Responsibilities in the hospital includes education like outpatient dietitians focusing on therapeutic diets such as diabetic, renal, and nutrient drug interactions to name a few. Duties are not limited to just that of diet education. Health care professionals are now relying on dietitians to provide recommendations on vitamin and mineral amounts prescribed and understanding the relationship between medications being administered and effects on nutritional status.

A similar role to the inpatient and foodservice dietitian is the dietitian who works in long term care. In the long term care setting dietitians can be responsible for menu and meal preparation based on different therapeutic diets including altered consistencies. Patients at long term care facilities are evaluated by a dietitian on a regular basis. The main goals in long term care are to prevent malnutrition or treat malnutrition. Dietitians can work with a variety of issues such as tube feeding and preventing pressure wounds.

A major concern that dietitians are focusing on in the hospital and long term care is malnutrition. Dietitians have knowledge of enteral and parenteral nutrition. They provide recommendations for concentrations, types of formula, water flushes, and additional additives depending on the individual's needs and ability to digest and absorb. Knowing the digestive system and nutrient absorption locations are key for dietitians in helping to prevent deficiencies and malnutrition. There is no set protocol or standard at
this time for the nutrition assessment for malnutrition but several studies have been done on various methods in ability to predict and diagnose malnutrition.

It is important to build relationships with other healthcare workers, particularly nurses, as some of the information found within nutritional assessments can be duplicated. Discussion between the nursing staff and the dietitian in regards to the screening and assessment findings or findings from the nursing physical exam can help identify malnutrition risks and what to pay attention to with that particular patient.

Who are Nurses?

Nursing is a growing field. Nurses are the individuals who tend to patients on a more regular basis in nursing homes and hospital settings. They act as an extension of the physician. The increase in the role of the nurse has led to nurses to have more freedom and play a higher role in arguing for the patient (Busby & Gilchrist, 1992).

Background and Education

The background and education of nurses is science and clinically based. There are a variety of types of nurses based on degree and specialized certifications. Nurses work in a variety of fields within the healthcare system and required to have knowledge in numerous areas. This section will discuss various types of nurses though the research study will focus only on Registered Nurses (RN) and individuals with a Bachelor’s of Science in Nursing (BSN).
Nursing assistants or State Tested Nursing Assistant (STNA) works very closely with the registered nurse. STNAs provide work closely with the patient to provide daily living care like bathing, grooming, feeding, and walking among others. The STNA is very similar to those who are home health aides (HHA). The HHAs provide routine care but at the patient’s home. They do similar duties of the STNA but also help with house related issues such as cleaning and cooking (Owens Community College, 2015).

The education and training of Licensed Practical/Vocational Nurses (LPN) varies depending on the program in which someone is enrolled. Training programs are offered at a variety of locations including vocational schools and community colleges (National Federation of Licensed Practice Nurses). Depending on the program, an individual may have to take an entrance exam. The programs are comprised of in class learning and supervised practice (National Federation of Licensed Practice Nurses).

In the field, LPNs work as part of the healthcare team alongside registered nurses. Their responsibilities include observation of the patients and recording or reporting any changes in patient status. The LPN helps to comfort the patient and to help for safety purposes. More extensive responsibilities may include providing medications to patients and helping with rehabilitation (National Federation of Licensed Practice Nurses).

There are multiple steps to becoming a registered nurse (RN). There are programs available through colleges and hospitals that provide a three-year training program. In the instance of a hospital program, the individual will receive a diploma at the time of completion. The number of hospital based programs has declined and there has been an
increase in programs at colleges and university. Another track to become a RN is through a four-year bachelor’s degree. (American Association of Colleges of Nursing, 2015). Majority of RNs, 42.2%, receive their training through obtaining an associate’s degree, with over 940 associate’s programs being available (Raines & Taglaiireni, 2008).

Another route to becoming a registered nurse is to complete a four-year degree at accredited universities or colleges to receive a bachelor’s of science in nursing (BSN). According to the American Nurses Association (ANA) courses include human growth, biology, nutrition, chemistry, chronic and acute diseases in adult and pediatric populations, community nursing, and psychiatry as well as several other topics. The BSN delves deeper into the theory of nursing and the social and political issues associated with nursing (American Nursing Association, 2015).

Programs for RN and BSN nurses varies depending on the college (American Nursing Association, 2015). The BSN program at University of California, Los Angeles (UCLA) boasts that the graduates of the four-year program are trained to be able to work in various settings. Students will have the ability to understand health problems and collaborate with the healthcare team. They are encouraged to participate in nursing and community organizations to better the profession and to become leaders. Communication between the nursing graduate and clients and other professionals is taught (UCLA, School of Nursing).

After graduation from a training program or a college, an individual must apply for licensure through the National Council of State Boards of Nursing (NCSBN). The
licensure process varies per state regulations. Nationally all RN, BSN, and LPNs must have graduated or be eligible from a nationally accredited program and submit to a criminal background check. It is required to pass the National Council Licensure Examination (NCLEX) in order to receive licensure. The NCLEX exam measures the ability of the individual to practice at the entry level. The entry level standard is updated every three years by a panel of judges and was last updated on April 1, 2014 (National Council of State Boards of Nursing, 2015).

To become an Advanced Practice Nurse (APN) it is required to have a master’s or doctoral degree. Those with APN degrees can work in the field as nurse practitioners, clinical nurse specialist, certified midwives, and certified nurse anesthetists. The master’s programs allow the nurse to specialize in their advanced degree. The advanced degree can allow certified nurse practitioners to examine, diagnose, and treat patients. They are allowed to prescribe medications and order lab tests. Clinical nurse specialists have a variety of areas they are able to specialize in (American Nursing Association, 2015).

**Locations of Work and Daily Nutrition Related Activities**

The nursing profession has been ever expanding like the current dietetic profession. The LPN nurses are used in the hospital to help the healthcare team. They help with determining changes in patient’s health and helping to report to the RN and physicians. In some settings they are able to administer oral medications. Their responsibilities can include helping with rehabilitation in the hospital as well as nursing homes (National Federation of Licensed Practice Nurses).
Registered Nurses are being used in a variety of settings. The most common or known jobs for RNs is in the inpatient hospital setting. While being in the inpatient setting, nurses are responsible for the numerous patients admitted to the hospital. Their responsibilities include doing daily tasks of taking care of the patient (feeding, bathing, etc.). Nurses are there to support and comfort patients during their time in the hospital. A nurse is also a key link between the patient and other healthcare professionals in updated changes in health status and current medical treatment. The nurses are able to give medications orally and through intravenously (IV) and are required to carry out medical treatment (such as enteral and parenteral nutrition orders) (American Nursing Association, 2015).

Nurses have an increased presence in the outpatient setting. They can help take blood pressure and initial assessment. As an outpatient nurse, they are able to triage with the physician and provide updates of the initial assessments to the other healthcare workers. As well as the inpatient RN, the outpatient RN is able to provide health education. Registered nurses are being used in the initial assessment and as coordinators (American Nursing Association, 2015).

Other settings for RNs includes nursing homes in providing similar care to the inpatient and outpatient RN. Elementary and secondary schools can employ nurses to help with student care. Nurses are in the research areas in preparing subjects and triaging with research coordinators (American Nursing Association, 2015).
Certified nurse practitioners (CPN) are used in family health centers. During appointments CPNs can evaluate and treat patients similarly to a physician but with some limitations. They are allowed to prescribe medications and order labs. In the hospital setting, CPNs work closely with the physician and help to order medications and labs while also triaging with other services (American Nursing Association, 2015).

**Literature on Nurses’ Practices and Perception of Nutrition**

Current research on the topic of nurses’ practices and perception of nutrition or when they encounter nutrition is limited. Most common research done between nurses and nutrition are looking at the amount and type of nutrition education nurses have received during their training programs as well as continuing education. The interaction of nursing with nutritional issues is limited to specific diseases or populations (pediatrics, intensive care units, etc.). The American Nursing Association has position statements on their website about nursing interactions with specific nutrition related issues (American Nursing Association, 2015).

The American Nursing Association (2015) finds that the delivery of nutrition by a nurse to the patient links to the feeling of compassion and being nurtured. Food and mealtimes are related to events, holidays, and memories that can be a symbol to patients. Nurses not only have to help with mealtimes assistance and being responsible for providing enteral and parenteral nutrition, but also working with the patient and family in regards to nutrition in end of life care. The position of the ANA is to assist the decision makers with the understanding of the healthcare status and the role nutrition will play.
while supporting the decision to forego hydration and nutrition (American Nursing Association, 2015).

Majority of research that is published regarding nurse practices with nutrition are greater than 18 years old with a few exceptions. With the healthcare system and interaction of healthcare workers changing over the years, the results of published research may or may not have changed or be applicable. Studies that have been produced in regards to the topic are mostly seen in other countries with no study on nurses within the United States.

As stated earlier, the majority of research on nurses is that of their education and knowledge of nutrition. Nurses in the United States as well as Scotland have been shown to have a higher knowledge in nutrition relating to therapeutic diets and disease correlation than other countries, such as Australia and Korea. As it is known, the nurse helps to take the role of the dietitian when the dietitian is unavailable for the patient, so it is important for nurses to understand nutrition education (Al-Shwaiyat et al., 2013).

One study of Jordanian nurses used questions that were disease related to determine amount of nutrition knowledge. The questions that were asked were specific to diet consumption and diseases as well as prevention and treatment. Questions were formed with responses of agree, disagree, and don’t know. The resulting information showed that the level of education a nurse had received played no part in the amount of nutrition education the nurses knew. The study called for additional continuing education opportunities for nursing (Al-Shwaiyat et al., 2013).
Other studies have used questionnaires that allow public health nurses to respond true or false with a rating scale of 1-4 of how certain they were with their responses. The questions ranged from knowledge, to personal and professional attitudes, and professional practices. Majority of public health nurses (61.9%) did not have the availability to meet with a Dietitian; showing that nurses have to take on the dietitian's role in some instances (Schwartz, 1976).

With nurses taking over the role of the dietitian in the public setting, as well as the clinical setting, can cause issues if the individual does not have the correct information. Areas that have been identified in Canadian public health nurses to be insufficient in knowledge are particularly important topics, such as nutrition and pregnancy, nutrition requirements, functionality of nutrients, and meal planning to name a few. Though some areas are lacking, it is found that nurses who have been taught by a dietitian or nutritionist rather than a nurse tested higher in nutrition knowledge and practices (Schwartz, 1976). Even though this is in regards to public health nurses, a lot of the educational pieces carry over to the clinical setting.

Additional forms of evaluation of nursing practices entailed a questionnaire of how often particular duties were being performed; such as admission weights, how often diet was discussed upon admission, nutritional problems being identified, and nutritional assessments being performed among many others. The questionnaires were then compared to specific units within a hospital in London to see the accuracy of the results.
It was found that there were significant differences between attitudes and beliefs of what was being done compared to documented activities (Perry, 1997).

While the impact and growing concern of malnutrition, 12% of nurses interviewed answered that they believed patients within the hospital could not become malnourished. As nutritional problems are being identified not all are being evaluated or monitored. Information missing from admission, such as diet appraisal (8.5%) and weight (31%), can hinder the identification of nutrition related issues. There was a clear issue between nursing attitudes and practices. As there is no universal protocol for nutrition assessment in patients it can be challenging for nursing to identify patients who are or are at risk for malnutrition (Perry, 1997).

The limited amount of research in this area shows a lack of understanding of how nursing and nutrition interact. The lack of knowledge of the topic could lead to issues in patient care and increased healthcare costs for hospitals and long term care facilities.

**Nutrition Education for Nursing**

Each state licensure has different requires when an individual becomes an RN. It has been reported that nurses within the United States have a higher knowledge of nutrition than other countries (Al-Shwaiyat et al., 2013). Schooling practices, especially between an associate’s degree and a bachelor’s degree, can cause a difference in education. In 1987 the Journal of Parenteral and Enteral Nutrition (JPEN) (Stotts et al., 1987) published a research article looking at different aspects and levels of nutrition education in nursing programs throughout the United States. A total of 264 National
League for Nursing (NLN) accredited schools provided feedback about their curriculum (Stotts et al., 1987).

During the study it was found that 54% of the responding schools required at least one class in nutrition to be taken by the nursing students (Stotts et al., 1987). Sixty-one percent of schools had a class that nutrition was integrated into the content of the class (Stotts et al., 1987). Though 70% of the nursing programs did not have laboratory or clinical hours devoted to nutrition (Stotts et al., 1987).

The type of faculty teaching nutrition classes in nursing programs varied. Sixty-seven percent of schools had a registered dietitian teaching the classes while 1.2% reported that physicians or pharmacists were required to cover nutrition content with students. Additional faculty that were reported to teach nutrition education content included those from home economics, physiologist, and biochemists (Stotts et al., 1987).

Of the topics covered in the nutrition education, nutritional assessment is covered the most frequently. This may be due to the fact that nurses are responsible for the initial nutrition assessment when a patient is admitted into the hospital to determine malnutrition risk or need for a consultation to a registered dietitian. The second most common topic covered is that of diet counseling with enteral and parenteral nutrition following behind. The least covered topic is the differences in roles of each healthcare provider as part of the medical team and was only taught in about 50% of nutrition specialties (Stotts et al., 1987).
The National Heart, Lung, and Blood Institute (NHLBI) recognized in 1997 the deficiency of nutrition education in the studies of those in healthcare. A National Nutrition Award was developed to provide five year grants to institutions to create and implement education programs for medical students and other health care workers including nurses. Since 1997, ten medical schools and eleven other programs have been awarded the grant money to provide nutrition education. Various barriers have been found in the teaching of nutrition as there was found to be a perception that nutrition was not relevant in the clinical setting by many in the medicine field (Pearson et al., 2001).

Studies on nursing attitudes have found that 68% of nurses believe that the nutritional care of a patient is part of their responsibility while the patient is in their care and 9% believe it was a joint effort being the nurse and the dietitian (Perry, 1997).

**Nurses’ Knowledge of Nutrition**

In several studies, the overall consensus of the nursing community throughout the world is that they need and want more education in regards to nutrition related issues. As stated within a previous section, the level of education that is provided is minimal and provided by a variety of healthcare professionals. There has been an increased understanding and concern for the nutrition education received for not only nurses but physicians as well.

Numerous studies have looked at the knowledge of nurses in a variety of topics from public health to clinical care. Of the different countries studied, it has been found that nurses within the United States have more knowledge of nutrition related issues compared to Australia and Korea (Al-Shwaiyat et al., 2013).
Canadian public health nurses were surveyed to determine the knowledge in various categories in the nutrition field. They were asked about topics on nutrient functions, nutrient requirements, value of foods, and pregnancy. Of 352 participants there was a mean score of 74.9%. The topics that nurses felt more coverage over were about nutrient requirements and nutrition requirements for pregnancy (Schwartz, 1976).

In regards to nutritionally specific diets, nurses were found to have a better understanding of diabetic diets compared to those for cardiovascular disease or for weight loss (Al-Shwaiyat et al., 2013). Diabetic diets are typically more controlled especially within a healthcare system. Protocols may be in place in regards to blood glucose checks and coordinating snacks that have led to a higher education in this field.

The question that the most of nursing asked about therapeutic diets answered correctly was about recommending a diet that was high in fiber to help obesity. Nurses were able to link obesity and hypertension and that lower sodium diets are recommended. Only 50% of nurses surveyed were able to answer at least 20 out of 31 questions correctly (Al-Shwaiyat et al., 2013).
CHAPTER III

METHODOLOGY

Study Design

The study was a comparative, post-test only comparative study. The study was approved by the Kent State University’s Internal Review Board (IRB) (Appendix A). The purpose of this study was to determine the perceptions and practices of registered and advanced practice nurses on nutrition related issues in inpatient hospital care and long term care settings. The independent variable were nurses, in which there are multiple groupings based on education (associate’s degree, bachelor’s degree, or master’s degree) and work environment (inpatient care settings and long term care facilities). The dependent variables are the practices and perceptions of the nurse participants on the nutrition related material.

Sample

The study used a convenient sample. The participants were individuals who held a degree in nursing and were recognized as a registered nurse or nurse practitioner. The study allowed for individuals with an Associate’s degree in nursing or Registered Nurse (RN) credential, a Bachelor’s degree in Nursing or Bachelor's of Science in Nursing (BSN) credential, and Master’s degree in Nursing and registered as an Advanced Nurse Practitioner (NP). The participants also needed to be practicing nursing predominantly in the inpatient acute care setting or in a long term care facility.
The survey link was made available through social media sites such as Facebook as well as posting on several medical and nursing social media pages. The social media sites it was originally posted besides the investigators’ pages included: Cleveland Nursing Association, Ohio Nursing Association (multiple postings), Ohio Association of Advanced Practicing Nurses, Kent State University, Kent State University College of Nursing, University of Toledo College of Nursing, Owens Community College of Student Nurses Association of Toledo Campus, American Nursing Association (multiple postings), University of Toledo Health, Promedica Toledo Hospital, Cleveland Clinic for Medical Professionals (multiple postings), College of Nursing at Michigan State University, Promedica Flower Hospital, Promedica Cancer Center, Case Western Reserve, Promedica Children’s Hospital, Florida Nursing Association, Illinois Nursing Association, Academy of Nutrition and Dietetics, Texas Nurses Association, California Nurses Association, Cleveland Clinic Foundation, and Montana Nurses Association.

**Survey Instrument**

The survey was created and available online through the use of Qualtrics (Kent State University, 2016). The questionnaire that was available and seen by participants can be seen in Appendix B. The questions within the survey were created by the researcher who utilized previous research surveys (Perry, 1997) with regards to nutrition perceptions and practices as well as statistical counseling and consulting with collegiate nutrition educators.
Part I: Demographics

To begin the survey, participants must give consent to participate. The first two questions were required to be answered to move on to the survey. After the individual agreed to consent they were asked about the highest level of education. This initial question provided a hard stop for any participant who was not a registered nurse. The second question asked primary location of work which eliminated participants who did not work in long term care facilities or in acute care inpatient settings.

The second set of questions the participant encountered involved demographics. Participants were able to give their age and years as a practicing nurse through an open text box. Additional questions asked about the participants’ ethnicity (white, Hispanic or Latino, black or African American, Native American or American Indian, Asian or Pacific Islander, or other) and gender (male, female, or prefer not to answer). Participants were not required to answer demographic questions.

Part II: Perceptions of Nutrition at Initial Screening

The first section of questions involving the study topic focus on how nurses perceive nutrition and nutrition related issues when first screening the patient. Questions ask about the responsibility of the nurse for the nutrition related screening and when it is felt necessary to do a nutrition related screening. One question asks how the nurse feels
The question set up for this section involved ten questions in a table. The table was set up in a modified Likert scale. The scale ranged from strongly agree, somewhat agree, neutral, somewhat disagree, and strongly disagree. Participants were instructed to choose the best option that corresponds to how they felt about each statement. If the participant did not feel that the statement pertained to their current position, there was a not applicable response for each statement. It was not required for each statement to have a response. A text box was available at the end of the first section to allow for additional comments.

**Part III: Practices of Nutrition at Initial Screening**

This section of questions focused on the practices taken by nurses at the time of admittance or screening of patients. The questions focused on the actions nurses were taking to screen patients. The majority of the section asks about specific nutritional status measurements and who was using them.

The questions were set up in two tables with a modified Likert scale with a total of twelve questions. Participants were to answer each statement to how they feel about the practices. The modified Likert scales ranges from disagree to agree. Participants are given an option to answer not applicable if the action does not relate to their responsibilities. Additional comment boxes were available for participants.
Part IV: Perceptions of Nutrition at Re-Assessment

Similar to part II, these questions focus on perception. The set of statements look at how participants perceive nutrition related issues while patients have been staying or during reassessment. Questions ask about the importance of re-assessing of nutrition related issues. Participants were instructed to use the modified Likert scale for ten questions and had space for additional comments if necessary.

Part V: Practices of Nutrition at Re-Assessment

Participants were asked about their actions and practices when encountering nutrition related issues during the assessment or the patients’ stay in the facility. The questions focused on how they agree or disagree with an action. The modified Likert scale was used for ten questions and an open text box was available for comments.

Procedures

The survey was created through the Qualtrics Development Company, 2016 that was available via Kent State University. The first round of recruitment was through social media sharing and posting on Ohio Nurses Association page. The social media post (Appendix C) asked for participants to take a survey that lasted approximately five minutes in regards to nurses’ perceptions and practices when encountering nutrition related issues. The original social media post was available for four weeks in which participants could take the survey at any time. Every week the social media post was re-posted to the Ohio Nurses Association page.
During the second round of recruitment, the link and social media post was posted on additional nursing, medical, and university social media pages as well as being shared by the population. The survey was open for additional five days for participants to complete the survey.

**Data Analysis**

The study was a quantitative descriptive, post-test only design. The data was analyzed through the Statistical Package for the Social Sciences version 21.0 (SPSS). Responses were compared in a 3x2 Factorial ANOVA, which looked at the comparison of results between not only degree but also by location. Significance for the study was set at $p \leq 0.05$. 
CHAPTER IV

JOURNAL ARTICLE

Introduction

Nutrition plays an important role within the healthcare of patients. Those with inadequate nutrition can be seen to have decreases in fat and muscle stores as well as decreased intakes. Suboptimal nutrition can delay the healing process from surgery or infection, and lead to formation of open wounds or sores among other complications. A multitude of nutrition related issues can cause complications of a disease and the healing process of a patient. For example, disorders of the gastrointestinal tract can lead to dysmotility of the nutrients and impaired ability to absorb causing vitamin and mineral deficiencies (Kubrak & Jensen, 2007). Deficiencies in vitamins and minerals can lead to an increased risk of hip fractures in the elderly as well as development of pressure ulcers or delayed healing of pressure ulcers, increase infections, and create electrolyte imbalances (Morley & Silver, 1995). Malnutrition, the degree of inadequate nutrition, is a common occurrence in long term care facilities and inpatient hospital settings. It has been shown that up to 55% of patients in an inpatient hospital setting are malnourished (Kubrak & Jensen, 2007) and up to 65% of nursing home patients are malnourished (Morley & Silver, 1995).

The first line in finding and treating nutrition related issues are the nurses. Nurses are the first individuals to come in contact with a patient when admitted to a facility and are the first to examine the patient. The screening process for malnutrition is not
universal and several tools have been created. According to European Society for Parenteral and Enteral Nutrition (ESPEN), a screening process should be put in place by the hospital or facility to determine nutrition risk and if a nutrition treatment plan would improve outcomes (Kondrup et al., 2003).

Studies have shown that the nutrition knowledge of nurses is suboptimal but nurses within the United States have a higher level of knowledge. It has been found that nurses have limited nutrition related education during their initial training to become a registered nurse. A collection of nursing programs found that only 54% required at least one nutrition related class. The topics covered focused mostly on nutritional assessment and diet counseling. The individuals that were found to teach these classes were predominantly of a field outside of dietetics (Stotts, Englert, Crocker, Bennum, & Hoppe, 1987). The research looking at the practices of nurses in regards to nutrition related activities is limited with the look at perceptions even more limited.

Increased education about nutrition related topics has been encouraged and asked for by nursing staff but limited opportunities have been available in other countries (Al-Shwaiyat et al., 2013). Most research dated back to 18 years and does not look at nurses within the United States. Majority of research conducted has measured the nutrition education nurses have received during their education rather than the use and understanding of nutrition principles.

Without the proper communication and understanding between two professions, inadequate patient care within the hospital and long term care settings could lead to increased length of stay and healthcare costs. It also showed the lack of universal
protocols in regards to nutrition. The variability in the methods regarding nutrition screening and treatment leads to missed opportunities creates inconsistencies in care and missed opportunities for nutrition interventions that could potentially reduce morbidity, mortality, and healthcare costs.

The purpose of this study was to determine the perceptions and practices of registered and advanced practice nurses on nutrition related issues in inpatient hospital care and long term care settings. The hypothesis of this study was that there would be a difference in practices and perceptions of nurses based on their education level as well as their place of employment (long term care facility vs. acute inpatient care).

Methodology

Study Design

The study was a comparative, descriptive study of a post-test design only. The study was approved by the Kent State University’s Internal Review Board (IRB) (Appendix A). The independent variable were nurses, in which there are multiple groupings based on education (associate’s degree, bachelor’s degree, or master’s degree) and work environment (inpatient care settings and long term care facilities). The dependent variables are the practices and perceptions of the nurse participants on the nutrition related material.

Sample
The study used a convenient sample. The participants were individuals who held a degree in nursing and was recognized as a registered nurse or nurse practitioner. The study allowed for individuals with an Associate’s degree in nursing or Registered Nurse (RN) credential, a Bachelor’s degree in Nursing or Bachelor's of Science in Nursing (BSN) credential, and Master’s degree in Nursing and registered as an Advanced Nurse Practitioner (NP). The participants also needed to be practicing nursing predominantly in the inpatient acute care setting or in a long term care facility.

The survey link was made available through social media sites such as Facebook, as well as posting on several medical and nursing social media pages. The social media sites it was originally posted besides the investigators’ pages included: Cleveland Nursing Association, Ohio Nursing Association (multiple postings), Ohio Association of Advanced Practicing Nurses, Kent State University, Kent State University College of Nursing, University of Toledo College of Nursing, Owens Community College of Student Nurses Association of Toledo Campus, American Nursing Association (multiple postings), University of Toledo Health, Promedica Toledo Hospital, Cleveland Clinic for Medical Professionals (multiple postings), College of Nursing at Michigan State University, Promedica Flower Hospital, Promedica Cancer Center, Case Western Reserve, Promedica Children’s Hospital, Florida Nursing Association, Illinois Nursing Association, Academy of Nutrition and Dietetics, Texas Nurses Association, California Nurses Association, Cleveland Clinic Foundation, and Montana Nurses Association.
Instrument

The survey Assessment of Perceptions and Practices of Nurses was available electronically through Qualtrics (Kent State University, 2016). The survey was developed by the researcher with consultation of nutrition advisors at Kent State University and through the Research Bureau for the Department of Education, Health, and Human Services. A previous study was also used to help create the survey (Perry, 1997).

**Part I: Demographics.** To begin the survey, participants had to give consent to participate. The first two questions were required to be answered to move on to the survey. After the individual agreed to consent they were asked about the highest level of education. This initial question provided a hard stop for any participant who was not a registered nurse. The second question asked primary location of work which eliminated participants who did not work in long term care facilities or in acute care inpatient settings.

The second set of questions the participant encountered involved demographics. Participants were able to give their age and years as a practicing nurse through an open text box. Additional questions asked about the participants’ ethnicity (white, Hispanic or Latino, black or African American, Native American or American Indian, Asian or Pacific Islander, or other) and gender (male, female, or prefer not to answer). Participants were not required to answer demographic questions.

**Part II: Perceptions of Nutrition at Initial Screening.** The first section of questions involving the study topic focused on how nurses perceived nutrition and
nutrition related issues when first screening the patient. Questions asked about the responsibility of the nurse for the nutrition related screening and when it was felt necessary to do a nutrition related screening. One question asked how the nurse felt qualified to perform a nutrition related screening and how they felt about the screening process itself.

The question set up for this section involved ten questions in a table. The table was set up in a modified Likert scale. The scale ranged from strongly agree, somewhat agree, neutral, somewhat disagree, and strongly disagree. Participants were instructed to choose the best option that corresponds to how they felt about each statement. If the participant did not feel that the statement pertained to their current position, there was a not applicable response for each statement. It was not required for each statement to have a response. A text box was available at the end of the first section to allow for additional comments.

**Part III: Practices of Nutrition at Initial Screening.** This section of twelve questions focused on the practices taken by nurses at the time of admittance or screening of patients. The questions focused on the actions nurses were taking to screen patients. The majority of the section asked about specific nutritional status measurements and who was using them.

The questions were set up in two tables with a modified Likert scale. Participants were to answer each statement to how they felt about the practices. The modified Likert scales ranged from disagree to agree. Participants were given an option to answer not
applicable if the action does not relate to their responsibilities. Additional comment boxes were available for participants.

**Part IV: Perceptions of Nutrition at Re-Assessment.** Similar to part II, these questions focused on perception. The set of statements looked at how participants perceived nutrition related issues while patients have been staying or during reassessment. Questions asked about the importance of re-assessing of nutrition related issues. Participants were instructed to use the modified Likert scale for ten questions and had space for additional comments if necessary.

**Part V: Practices of Nutrition at Re-Assessment.** Participants were asked about their actions and practices when encountering nutrition related issues during the assessment or the patients’ stay in the facility. The questions focused on how they agree or disagree with action. The modified Likert scale was used for ten questions and an open text box is available for comments.

**Procedures**

The survey was created through the Qualtrics Development Company, 2016 that was available via Kent State University. The first round of recruitment was through social media sharing and posting on Ohio Nurses Association page. The social media post (Appendix C) asked for participants to take a survey that lasted approximately five minutes in regards to nurses’ perceptions and practices when encountering nutrition related issues. The original social media post was available for four weeks in which
participants could take the survey at any time. Every week the social media post was re-posted to the Ohio Nurses Association page.

During the second round of recruitment, the link and social media post was posted on additional nursing, medical, and university social media pages as well as being shared by the population. The survey was open for additional five days for participants to complete the survey.

**Data Analysis**

The study was a quantitative, descriptive, post-test only design. The data was analyzed through the Statistical Package for the Social Sciences version 21.0 (SPSS). Responses were compared in a 3x2 (degree by location) Factorial ANOVA. Significance was set at $p \leq 0.05$.

**Results**

**Demographics**

The sample size for the questionnaire was relatively small. One hundred and forty electronic surveys were compiled. Of the 140 surveys, 76 were not used in the data analysis for a 45.7% response rate. Of the participants that did not qualify for the survey, 19 responded with having a degree other than an associate, bachelor, or master’s. Twenty-seven participants were not included as the primary location of work was indicated as other. Additional surveys were excluded if they were not completed past the demographic questions.
Table 1 represents the demographics of the participants. Two male participants held a master’s degree and also worked in an inpatient hospital setting. The additional male had an associate’s degree and also worked in the inpatient setting.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>n (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>60 (95.2)</td>
</tr>
<tr>
<td>Male</td>
<td>3 (4.8)</td>
</tr>
<tr>
<td>Prefer Not to Answer</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Highest Nursing Degree</td>
<td></td>
</tr>
<tr>
<td>Associate's Degree</td>
<td>26 (40.6)</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>28 (43.8)</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>10 (15.6)</td>
</tr>
<tr>
<td>Primary Work Location</td>
<td></td>
</tr>
<tr>
<td>Inpatient Hospital</td>
<td>54 (84.4)</td>
</tr>
<tr>
<td>Long Term Care</td>
<td>10 (15.6)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>61 (95.3)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>1 (1.6)</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>1 (1.6)</td>
</tr>
<tr>
<td>Native American or American Indian</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>1 (1.6)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

*Not required to respond
**Only 63 participants responded for gender

**Perceptions and Practice by Degree**

The data was analyzed to determine differences between the three nursing degrees who were participants of the study. Tables 2 and 3 show the comparisons of response for perception and practice (respectively) based on degree alone. The comparison of the three nursing degrees with their perceptions when encountering nutrition related issues can be found in Table 2. No significant differences (p ≥ 0.05) between the associate degree, bachelor degree, and master degrees where found in their responses to nutrition related issues. Table 3 shows a significance F=(2,50) = 3.39 p=0.042 for “When screening for
nutrition related issues and malnutrition, I assess the following criteria: albumin” and \( F = (2,44) = 5.14 \ p=0.01 \) for “When a patient has weight changes while in the facility, the nutrition department is always consulted”.

**Perceptions and Practice by Location**

The data collected was also analyzed to determine differences between responses and primary location of work (inpatient hospital setting and long term care facilities). The following tables (Tables 4 and 5) demonstrate the average responses to the statements regarding perceptions and practices by location and are organized by perceptions and practices of the nurses.

In Table 4 focuses on the perceptions of nurses when encountering nutrition related issues in the different locations of work and comparing responses between the two locations. No significant difference \( (p \geq 0.05) \) was found between the perceptions of nurses and their primary location of work. Table 5 shows a significant main effect \( F (1, 42) = 5.03 \ p = 0.03 \) for the statement “Tube feeding rates and amount provided are documented”. The data shows that participants in the hospital inpatient setting agreed more to the statement than those in long term care facilities.

**Interaction of Degree and Location**

The data was analyzed to determine significant interactions with respect to degree and location. The perception statement “I can provide adequate dietary education for my patients” proved to have a significant interaction \( (F (2, 49) = 3.41 \ p = 0.04) \) (Figure 1).
No other perception question was found to have an interaction effect (p≥0.05). Of the practice questions in the survey, the statement “Tube feeding rates and amount provided are documented” was found to have a significant interaction $F(2, 42) = 5.82 \ p = 0.01$. Figure 2 shows the interaction. When looking at the practice statement “Time plays a factor in documentation of intake” there was significant interaction $F(2, 47) = 5.21 \ p = 0.01$. Figure 3 represents the significant interaction.
### Table 2

<table>
<thead>
<tr>
<th>Statement</th>
<th>Associate's Degree</th>
<th>Bachelor's Degree</th>
<th>Master's Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a nurse it is my responsibility to screen a patient for nutrition</td>
<td>26 (41.9)</td>
<td>26 (41.9)</td>
<td>10 (16)</td>
</tr>
<tr>
<td>related issues</td>
<td>4.42 ± 1.03</td>
<td>4.50 ± 0.81</td>
<td>4.90 ± 0.32</td>
</tr>
<tr>
<td>Nutritional Screenings should be done for every patient admitted</td>
<td>26 (40.6)</td>
<td>28 (43.8)</td>
<td>10 (15.6)</td>
</tr>
<tr>
<td>The screening process for nutrition related issues is only administered</td>
<td>4.73 ± 0.67</td>
<td>4.75 ± 0.84</td>
<td>4.40 ± 0.97</td>
</tr>
<tr>
<td>if a nutrition issue arises</td>
<td>24 (42.9)</td>
<td>24 (42.9)</td>
<td>8 (14.3)</td>
</tr>
<tr>
<td>The screening process used in our facility is very time consuming</td>
<td>2.17 ± 1.37</td>
<td>2.29 ± 1.46</td>
<td>2.63 ± 1.06</td>
</tr>
<tr>
<td>As a nurse it is not my responsibility to screen a patient for nutrition</td>
<td>26 (41.3)</td>
<td>27 (42.9)</td>
<td>10 (15.9)</td>
</tr>
<tr>
<td>related issues</td>
<td>1.23 ± 0.59</td>
<td>1.74 ± 1.35</td>
<td>1.70 ± 1.25</td>
</tr>
<tr>
<td>A weight should be taken for every patient at admission</td>
<td>25 (39.7)</td>
<td>28 (44.4)</td>
<td>10 (15.9)</td>
</tr>
<tr>
<td>The weight of a patient plays an important role in the nutrition</td>
<td>4.96 ± 0.20</td>
<td>4.96 ± 0.19</td>
<td>5.00 ± 0.00</td>
</tr>
<tr>
<td>related process</td>
<td>25 (40.3)</td>
<td>27 (43.5)</td>
<td>10 (16.1)</td>
</tr>
<tr>
<td>The screening process used in our facility is only administered</td>
<td>4.12 ± 1.30</td>
<td>4.56 ± 1.01</td>
<td>4.40 ± 0.97</td>
</tr>
<tr>
<td>A nutrition screen that shows a nutrition related issue always results</td>
<td>26 (40.6)</td>
<td>28 (43.8)</td>
<td>10 (15.6)</td>
</tr>
<tr>
<td>in a consult to the nutrition department</td>
<td>3.54 ± 1.56</td>
<td>3.75 ± 1.58</td>
<td>3.80 ± 1.32</td>
</tr>
<tr>
<td>If a patient does not have a nutrition related issue associated with</td>
<td>26 (41.3)</td>
<td>28 (44.4)</td>
<td>9 (14.3)</td>
</tr>
<tr>
<td>their diagnosis, a nutrition screening is not performed</td>
<td>1.77 ± 1.28</td>
<td>2.07 ± 1.46</td>
<td>2.56 ± 1.24</td>
</tr>
</tbody>
</table>

*Statements did not require responses by participants.*
### Table 3: Mean, Standard Deviations, and Differences in Perception of Nutrition at Re-Assessment of Registered Nurses by Educational Level in Inpatient Hospital Settings and Long Term Care Facilities (N=57)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Associate's Degree</th>
<th>Bachelor's Degree</th>
<th>Master's Degree</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who are considered to be malnourished do not need to be re-assessed for nutrition related issues again during their stay</td>
<td>24 (42.1) 1.38 ± 0.92</td>
<td>25 (43.9) 1.04 ± 0.20</td>
<td>8 (14.0) 1.13 ± 0.35</td>
<td>0.80</td>
</tr>
<tr>
<td>I can provide adequate dietary education for my patients</td>
<td>22 (40.0) 3.45 ± 1.47</td>
<td>25 (45.5) 3.64 ± 1.41</td>
<td>8 (14.5) 3.38 ± 1.51</td>
<td>0.69</td>
</tr>
<tr>
<td>The documentation of dietary intakes helps with assessing the patient's nutritional status</td>
<td>24 (42.1) 4.79 ± 0.42</td>
<td>25 (43.9) 4.84 ± 0.62</td>
<td>8 (14.0) 4.50 ± 0.54</td>
<td>0.69</td>
</tr>
<tr>
<td>My education and training has prepared me to determine the appropriate energy needs of my patients</td>
<td>24 (42.1) 2.63 ± 1.50</td>
<td>25 (43.9) 3.16 ± 1.60</td>
<td>8 (14.0) 3.00 ± 1.60</td>
<td>0.14</td>
</tr>
<tr>
<td>I am aware of the protocols to contact the nutrition department within my work facility</td>
<td>23 (41.1) 4.87 ± 0.34</td>
<td>25 (44.6) 4.52 ± 1.05</td>
<td>8 (14.3) 4.63 ± 1.06</td>
<td>0.96</td>
</tr>
<tr>
<td>Malnutrition is a common issue in our facility</td>
<td>22 (41.5) 1.50 ± 0.60</td>
<td>23 (43.4) 1.39 ± 0.89</td>
<td>8 (15.1) 1.25 ± 0.46</td>
<td>0.76</td>
</tr>
<tr>
<td>Development of malnutrition within the facility is common</td>
<td>23 (41.1) 2.52 ± 1.47</td>
<td>24 (44.4) 2.48 ± 1.50</td>
<td>8 (14.8) 3.75 ± 0.71</td>
<td>0.45</td>
</tr>
<tr>
<td>It is my responsibility to manage nutrition related issues</td>
<td>24 (42.1) 3.83 ± 1.05</td>
<td>25 (43.9) 3.68 ± 1.22</td>
<td>8 (14.0) 4.00 ± 1.31</td>
<td>0.71</td>
</tr>
<tr>
<td>When a tube feeding regimen is interrupted, it does not play a significant role in nutrition status</td>
<td>22 (41.5) 1.50 ± 0.60</td>
<td>23 (43.4) 1.39 ± 0.89</td>
<td>8 (15.1) 1.25 ± 0.46</td>
<td>0.76</td>
</tr>
<tr>
<td>Weights should be taken and documented regularly</td>
<td>24 (42.1) 1.38 ± 0.92</td>
<td>25 (43.9) 1.04 ± 0.20</td>
<td>8 (14.0) 1.13 ± 0.35</td>
<td>0.80</td>
</tr>
</tbody>
</table>

* Statements did not require responses by participants.

** Significance of p ≤ 0.05
### Table 4

<table>
<thead>
<tr>
<th>Statement</th>
<th>Associate's Degree</th>
<th>Bachelor's Degree</th>
<th>Master's Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the time of admission, I screen the patient for nutrition related issues</td>
<td>23 (40.4)</td>
<td>4.26 ± 1.14</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>When possible at admission, I obtain the weight of the patient</td>
<td>23 (39.0)</td>
<td>5.00 ± 0.00</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: changes in weight status</td>
<td>14 (40.7)</td>
<td>4.87 ± 0.45</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: body mass index</td>
<td>20 (39.2)</td>
<td>3.10 ± 1.43</td>
<td>23 (45.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: albumin</td>
<td>22 (39.3)</td>
<td>3.64 ± 1.56</td>
<td>25 (44.6)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: prealbumin</td>
<td>22 (39.3)</td>
<td>3.55 ± 1.60</td>
<td>25 (44.6)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: muscle loss</td>
<td>21 (39.6)</td>
<td>3.62 ± 1.60</td>
<td>24 (42.9)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: chewing and/or swallowing difficulties</td>
<td>23 (39.7)</td>
<td>4.91 ± 0.29</td>
<td>26 (44.8)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: impaired mobility</td>
<td>23 (39.7)</td>
<td>4.61 ± 0.76</td>
<td>26 (44.8)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: nausea and/or vomiting</td>
<td>24 (40.7)</td>
<td>4.96 ± 0.20</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: diarrhea or constipation</td>
<td>24 (40.7)</td>
<td>4.96 ± 0.20</td>
<td>26 (44.1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P-Value</th>
<th>Associate's Degree</th>
<th>Bachelor's Degree</th>
<th>Master's Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teams did not require responses by participants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significance of p ≤ 0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Mean, Standard Deviation and Differences in Practices of Nutrition at Initial Screening of Registered Nurses in Inpatient and Long Term Care Facilities (n=59)
<table>
<thead>
<tr>
<th>Statement</th>
<th>n (%)</th>
<th>X ± SD</th>
<th>n (%)</th>
<th>X ± SD</th>
<th>n (%)</th>
<th>X ± SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I provide dietary education for my patients when it is needed</td>
<td>24 (43.6)</td>
<td>4.69 ± 0.50</td>
<td>24 (43.6)</td>
<td>4.72 ± 0.53</td>
<td>7 (12.7)</td>
<td>4.55 ± 0.53</td>
</tr>
<tr>
<td>Patients' weights are taken everyday</td>
<td>22 (41.5)</td>
<td>3.62 ± 1.74</td>
<td>24 (45.3)</td>
<td>4.04 ± 1.55</td>
<td>7 (13.2)</td>
<td>3.14 ± 1.86</td>
</tr>
<tr>
<td>Documenting of intakes are done at meal times</td>
<td>23 (43.4)</td>
<td>4.35 ± 0.83</td>
<td>23 (43.4)</td>
<td>4.74 ± 0.45</td>
<td>7 (13.2)</td>
<td>4.14 ± 0.90</td>
</tr>
<tr>
<td>I follow the protocols to contact the nutrition department within my work</td>
<td>23 (44.2)</td>
<td>4.83 ± 0.39</td>
<td>22 (42.3)</td>
<td>4.73 ± 0.70</td>
<td>7 (13.5)</td>
<td>4.86 ± 0.38</td>
</tr>
<tr>
<td>When a patient has weight changes while in the facility, the nutrition department is always consulted</td>
<td>21 (42.0)</td>
<td>3.57 ± 1.40</td>
<td>22 (44.0)</td>
<td>4.14 ± 1.25</td>
<td>7 (14.0)</td>
<td>2.29 ± 1.38</td>
</tr>
<tr>
<td>After 5 days of being on a liquid diet or NPO, the nutrition department is always consulted</td>
<td>20 (40.8)</td>
<td>3.30 ± 1.66</td>
<td>22 (44.9)</td>
<td>4.23 ± 1.27</td>
<td>7 (14.3)</td>
<td>2.57 ± 1.51</td>
</tr>
<tr>
<td>Weights are taken and documented frequently</td>
<td>22 (41.5)</td>
<td>4.27 ± 1.20</td>
<td>24 (45.3)</td>
<td>4.58 ± 1.14</td>
<td>7 (13.2)</td>
<td>3.71 ± 1.70</td>
</tr>
<tr>
<td>Tube feeding rates and amount provided are documented</td>
<td>20 (40.0)</td>
<td>4.75 ± 0.55</td>
<td>22 (44.0)</td>
<td>4.95 ± 0.21</td>
<td>8 (16.0)</td>
<td>4.50 ± 0.84</td>
</tr>
<tr>
<td>Patients are reassessed for nutrition related issues during their stay</td>
<td>24 (43.6)</td>
<td>4.00 ± 1.35</td>
<td>24 (43.6)</td>
<td>4.42 ± 1.06</td>
<td>7 (12.7)</td>
<td>4.00 ± 1.00</td>
</tr>
<tr>
<td>Time plays a factor in documentation of intake</td>
<td>23 (43.4)</td>
<td>4.17 ± 1.27</td>
<td>23 (43.4)</td>
<td>4.39 ± 1.23</td>
<td>7 (13.2)</td>
<td>4.14 ± 1.07</td>
</tr>
</tbody>
</table>

The table above shows the mean, standard deviation, and differences in practices of nutrition at re-assessment of registered nurses by educational level in inpatient and long-term care facilities (n=55).
<table>
<thead>
<tr>
<th>Statement</th>
<th>Inpatient (n=56)</th>
<th>Long Term Care (n=6)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>As a nurse it is my responsibility to screen a patient for nutrition related issues</td>
<td>32 (57.1) ± 2.78</td>
<td>4 (66.7) ± 1.00</td>
<td>0.43</td>
</tr>
<tr>
<td>The education and training I have received as a nurse makes me feel competent to complete a nutrition screening process</td>
<td>64 (93.0) ± 1.97</td>
<td>4 (66.7) ± 1.00</td>
<td>0.01</td>
</tr>
<tr>
<td>A nutrition screening should always be done after a patient's condition is assessed</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The weight of a patient plays a major role in the nutrition screening process</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>A weight should be taken for every patient at admission</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The education and training I have received as a nurse makes me feel competent to complete a nutrition screening process</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The screening process is administered only if a nutrition risk is identified</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>A nutrition screening should always be done after a patient's condition is assessed</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The education and training I have received as a nurse makes me feel competent to complete a nutrition screening process</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The weight of a patient plays a major role in the nutrition screening process</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>A weight should be taken for every patient at admission</td>
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<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The education and training I have received as a nurse makes me feel competent to complete a nutrition screening process</td>
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<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>The weight of a patient plays a major role in the nutrition screening process</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
<tr>
<td>A weight should be taken for every patient at admission</td>
<td>58 (96.4) ± 1.59</td>
<td>2 (33.3) ± 1.00</td>
<td>0.001</td>
</tr>
</tbody>
</table>

*Significant at p ≤ 0.05
**Significance of p

Mean, Standard Deviation, and Differences in Perceptions of Nutrition at Initial Screening of Registered Nurses by Primary Location (n=64)
<table>
<thead>
<tr>
<th>Statement</th>
<th>Inpatient</th>
<th>Long Term Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who are considered to be malnourished do not need to be re-assessed for nutrition related issues again during their stay</td>
<td>1.11 ± 1.17</td>
<td>1.11 ± 1.08</td>
</tr>
<tr>
<td>I can provide adequate dietary education for my patients</td>
<td>3.58 ± 1.92</td>
<td>3.26 ± 1.63</td>
</tr>
<tr>
<td>The documentation of dietary intakes helps with assignment of patients nutrition status</td>
<td>5.00 ± 0.00</td>
<td>5.00 ± 0.00</td>
</tr>
<tr>
<td>I can provide adequate dietary education for my patients</td>
<td>1.42 ± 1.42</td>
<td>1.42 ± 1.42</td>
</tr>
<tr>
<td>Development of malnutrition within the facility is common</td>
<td>2.99 ± 1.69</td>
<td>2.99 ± 1.70</td>
</tr>
<tr>
<td>When a tube feeding regimen is interrupted, it does not play a significant role in nutrition status</td>
<td>4.72 ± 0.57</td>
<td>4.72 ± 0.57</td>
</tr>
<tr>
<td>As a nurse, it is my responsibility to manage nutrition related issues</td>
<td>3.67 ± 1.17</td>
<td>3.67 ± 1.17</td>
</tr>
<tr>
<td>There are no issues that could be taken and documented accurately</td>
<td>4.89 ± 0.33</td>
<td>4.89 ± 0.33</td>
</tr>
<tr>
<td>Malnutrition is a common issue in our facility</td>
<td>2.77 ± 1.44</td>
<td>2.77 ± 1.44</td>
</tr>
<tr>
<td>Weights should be taken and documented frequently</td>
<td>6.89 ± 0.89</td>
<td>6.89 ± 0.89</td>
</tr>
<tr>
<td>I am aware of the protocols to contact the nutrition department within my work area</td>
<td>4.65 ± 0.65</td>
<td>4.65 ± 0.65</td>
</tr>
<tr>
<td>My education and training has prepared me to determine the appropriate energy needs of my patients</td>
<td>2.29 ± 1.62</td>
<td>2.29 ± 1.62</td>
</tr>
<tr>
<td>Documentation of dietary intakes helps with assignment of patients nutrition status</td>
<td>4.73 ± 0.57</td>
<td>4.73 ± 0.57</td>
</tr>
<tr>
<td>It can provide adequate dietary education for my patients</td>
<td>3.25 ± 1.41</td>
<td>3.25 ± 1.41</td>
</tr>
<tr>
<td>When a tube feeding regimen is interrupted, it does not play a significant role in nutrition status</td>
<td>4.72 ± 0.57</td>
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<tr>
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<tr>
<td>Documentation of dietary intakes helps with assignment of patients nutrition status</td>
<td>4.73 ± 0.57</td>
<td>4.73 ± 0.57</td>
</tr>
<tr>
<td>It can provide adequate dietary education for my patients</td>
<td>3.25 ± 1.41</td>
<td>3.25 ± 1.41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statement</th>
<th>Inpatient</th>
<th>Long Term Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients who are considered to be malnourished do not need to be re-assessed for nutrition related issues again during their stay</td>
<td>1.11 ± 1.17</td>
<td>1.11 ± 1.08</td>
</tr>
<tr>
<td>I can provide adequate dietary education for my patients</td>
<td>3.58 ± 1.92</td>
<td>3.26 ± 1.63</td>
</tr>
<tr>
<td>The documentation of dietary intakes helps with assignment of patients nutrition status</td>
<td>5.00 ± 0.00</td>
<td>5.00 ± 0.00</td>
</tr>
<tr>
<td>I can provide adequate dietary education for my patients</td>
<td>1.42 ± 1.42</td>
<td>1.42 ± 1.42</td>
</tr>
<tr>
<td>Development of malnutrition within the facility is common</td>
<td>2.99 ± 1.69</td>
<td>2.99 ± 1.70</td>
</tr>
<tr>
<td>When a tube feeding regimen is interrupted, it does not play a significant role in nutrition status</td>
<td>4.72 ± 0.57</td>
<td>4.72 ± 0.57</td>
</tr>
<tr>
<td>As a nurse, it is my responsibility to manage nutrition related issues</td>
<td>3.67 ± 1.17</td>
<td>3.67 ± 1.17</td>
</tr>
<tr>
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<td>4.89 ± 0.33</td>
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<td>6.89 ± 0.89</td>
</tr>
<tr>
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<td>4.65 ± 0.65</td>
</tr>
<tr>
<td>My education and training has prepared me to determine the appropriate energy needs of my patients</td>
<td>2.29 ± 1.62</td>
<td>2.29 ± 1.62</td>
</tr>
<tr>
<td>Documentation of dietary intakes helps with assignment of patients nutrition status</td>
<td>4.73 ± 0.57</td>
<td>4.73 ± 0.57</td>
</tr>
<tr>
<td>It can provide adequate dietary education for my patients</td>
<td>3.25 ± 1.41</td>
<td>3.25 ± 1.41</td>
</tr>
<tr>
<td>Statement</td>
<td>Inpatient</td>
<td>Long Term Care</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>At the time of admission, I screen the patient for nutrition related issues</td>
<td>48 (84.2)</td>
<td>9 (15.8)</td>
</tr>
<tr>
<td>When possible at admission, I obtain the weight of the patient</td>
<td>50 (84.7)</td>
<td>9 (15.2)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: changes in weight status</td>
<td>49 (84.5)</td>
<td>9 (15.5)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: body mass index</td>
<td>45 (88.2)</td>
<td>6 (11.8)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: albumin</td>
<td>47 (83.9)</td>
<td>9 (16.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: prealbumin</td>
<td>47 (83.9)</td>
<td>9 (16.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: changes in dietary intakes</td>
<td>49 (84.5)</td>
<td>9 (15.5)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: muscle loss</td>
<td>45 (84.9)</td>
<td>8 (15.1)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: chewing and/or swallowing difficulties</td>
<td>49 (84.5)</td>
<td>9 (15.5)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: impaired mobility</td>
<td>49 (84.5)</td>
<td>9 (15.5)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: nausea and/or vomiting</td>
<td>50 (84.7)</td>
<td>9 (15.2)</td>
</tr>
<tr>
<td>When screening for nutrition related issues and malnutrition, I assess the following criteria: diarrhea or constipation</td>
<td>50 (84.7)</td>
<td>9 (15.2)</td>
</tr>
</tbody>
</table>
### Table 9: Documentation of Intake vs. Discharge of Patients

<table>
<thead>
<tr>
<th>Statement</th>
<th>Inpatients (n=46)</th>
<th>Long Term Care (n=49)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I provide dietary education for my patients when it is needed</td>
<td>46 (83.6) 4.65 ± 0.55</td>
<td>46 (83.6) 4.70 ± 0.51</td>
<td>0.65</td>
</tr>
<tr>
<td>Patients' weights are taken everyday</td>
<td>44 (83.0) 3.77 ± 1.00</td>
<td>44 (83.0) 3.17 ± 1.64</td>
<td>0.25</td>
</tr>
<tr>
<td>Tube feeding rates and amount provided are documented</td>
<td>44 (83.0) 4.90 ± 1.32</td>
<td>44 (83.0) 4.30 ± 1.23</td>
<td>0.03**</td>
</tr>
<tr>
<td>Weights are taken and documented frequently</td>
<td>44 (83.0) 4.56 ± 0.88</td>
<td>44 (83.0) 4.60 ± 0.79</td>
<td>0.46</td>
</tr>
<tr>
<td>The planning of tube feeding is always consulted</td>
<td>42 (84.0) 3.55 ± 1.46</td>
<td>42 (84.0) 4.65 ± 1.94</td>
<td>0.45</td>
</tr>
<tr>
<td>When a patient has weight changes while in the facility, the nutrition department is always consulted</td>
<td>41 (83.7) 3.59 ± 1.18</td>
<td>41 (83.7) 3.72 ± 1.49</td>
<td>0.57</td>
</tr>
<tr>
<td>After 5 days of being on a liquid diet or NPO, the nutrition department is always consulted</td>
<td>44 (84.6) 4.75 ± 0.90</td>
<td>44 (84.6) 4.50 ± 0.58</td>
<td>0.15</td>
</tr>
<tr>
<td>I follow the protocols to contact the nutrition department within my work</td>
<td>44 (83.0) 3.70 ± 0.57</td>
<td>44 (83.0) 3.55 ± 0.73</td>
<td>0.03**</td>
</tr>
<tr>
<td>Documentation of intake is done at meal times</td>
<td>44 (80.0) 4.17 ± 1.12</td>
<td>44 (80.0) 4.00 ± 0.88</td>
<td>0.46</td>
</tr>
<tr>
<td>Patients are reassessed for nutrition related issues during their stay</td>
<td>42 (83.7) 3.35 ± 1.33</td>
<td>42 (83.7) 3.57 ± 1.55</td>
<td>0.94</td>
</tr>
<tr>
<td>Time plays a factor in documentation of intake</td>
<td>44 (83.6) 4.32 ± 1.00</td>
<td>44 (83.6) 4.22 ± 1.30</td>
<td></td>
</tr>
<tr>
<td>Patients are reassessed for nutrition related issues during their stay</td>
<td>46 (83.6) 4.22 ± 1.18</td>
<td>46 (83.6) 4.17 ± 1.11</td>
<td></td>
</tr>
<tr>
<td>The planning of tube feeding is always consulted</td>
<td>44 (83.0) 4.90 ± 1.32</td>
<td>44 (83.0) 4.30 ± 1.23</td>
<td></td>
</tr>
<tr>
<td>When a patient has weight changes while in the facility, the nutrition department is always consulted</td>
<td>42 (84.0) 4.65 ± 1.94</td>
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<td></td>
</tr>
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<td>After 5 days of being on a liquid diet or NPO, the nutrition department is always consulted</td>
<td>41 (83.7) 3.72 ± 1.49</td>
<td>41 (83.7) 3.13 ± 1.63</td>
<td></td>
</tr>
<tr>
<td>I follow the protocols to contact the nutrition department within my work</td>
<td>44 (84.6) 4.50 ± 0.58</td>
<td>44 (84.6) 4.90 ± 0.78</td>
<td></td>
</tr>
<tr>
<td>Documentation of intake is done at meal times</td>
<td>44 (80.0) 4.00 ± 0.88</td>
<td>44 (80.0) 4.50 ± 0.57</td>
<td></td>
</tr>
<tr>
<td>Patients are reassessed for nutrition related issues during their stay</td>
<td>42 (83.7) 3.57 ± 1.55</td>
<td>42 (83.7) 3.35 ± 1.33</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1. Interaction effect of degree by location of nurses of all educational levels regarding “I can provide adequate dietary education for my patients”
Figure 2. Interaction effect of degree by location for nurses of all education levels of "Tube feeding rates and amount provided are documented"
Figure 3. Interaction effect of degree by location for nurses of all education levels for “Time plays a factor in documentation of intakes”
Discussion

The investigation assessed associate, bachelor, and master’s degree nurses’ perceptions and practices of nutrition related issues working in long term care facilities and inpatient hospital settings. The hypotheses were accepted whereby significant differences and interactions were found in nutrition related practices between both degrees and locations.

Perceptions and Practices by Degree

No significant differences were found between nurses of varying levels of degrees on perceptions of nutrition related issues. A common theme seen throughout the perceptions between the level of degrees was concerning malnutrition whereby nurses didn’t demonstrate concern or perceive malnutrition as a problem within their facilities.

This finding is concerning that participants because previous literature has shown 20-60% of patients admitted to the hospital are malnourished at time of admission (Imoberder & Ballmer, 2014) and of those admitted to long term care facilities, 15% are already malnourished (Kubrak & Jensen, 2007). Malnutrition is one of the biggest threats to public health, according to the World Health Organization (Imoberder & Ballmer, 2014) and the awareness and perception of malnutrition needs to be addressed with nurses because of both its frequency and related morbidity and mortality.

Participants who commented on the malnutrition screening process reported. Increased education on recognizing the signs of malnutrition and universal screening
methods can increase the awareness of this condition and help to prevent or treat at early stages. Guidelines by ESPEN in 2002, recommended nutrition screening protocols in place to determine malnutrition risks (Kondrop et al, 2003). having a very basic tool or not sure what their screening tool was in their facility.

Similarities between varying levels of nursing degrees in responses about malnutrition may to the education process of nurses. Research has shown that the nutrition related education in nursing programs is lacking and taught predominantly by medical or science professionals other than dietitians (Stotts et al., 1987). Nurses of all education levels within the study reported feeling that their education and training did not prepare them enough to screen for nutrition related issues and predicting estimated needs. The education process of nurses needs to be adapted to address these findings.

One significant finding related to malnutrition in the current investigation was advanced practice nurses (master’s degrees) agreed more to the use of albumin when assessing patients’ nutritional status than the other nurses surveyed. Research shows that albumin is a poor marker for patients’ nutrition status and better at predicting morbidity and mortality (Vanek, 1998) because the serum marker fluctuates due to a variety of factors, such as inflammation, dehydration, and stress state, which are commonly seen in healthcare and leads to being a poor marker of visceral protein stores (Vanek, 1998). Nurses with master’s degrees may be looking at the albumin lab due to their increased responsibilities of assessing for inflammation and stress states in these individuals while misusing albumin as a nutrition status marker.
A difference was seen between master’s degree nurses’ responses and the other educational levels responses to the statement “When a patient has weight changes while in the facility, the nutrition department is always consulted”. Weight changes in the hospital can be due several reasons. Disease processes can lead to hypermetabolic or catabolic states which present with decreased protein and fat stores (Volkert, 2002) impacting weight status. Advanced practice nurses may be consulting less than other education levels due to their background and education. These individuals may feel more qualified to treat weight changes or better understand weight changes that are not nutritionally related.

Though a significant difference was found in regards to consulting the nutrition department when there was a weight change, nurses of all degrees indicated weights should be taken at admission, as often as possible, and indicated that it was important for nutrition assessment. The responses show that nurses are highly educated on the importance of weight and trained to obtain weights throughout admissions. Education and training should be shifted to focus on causes of weight changes and the outcomes if untreated.

**Perceptions and Practices by Location**

Within the practice statements a significant difference was found between inpatient hospital settings and long term care facilities for the statement “Tube feeding rates and amounts provided are documented”. There are various ways to provide enteral
nutrition (Agarwai et al., 2012). Enteral nutrition is seen in individuals who are malnourished or at risk of being malnourished.

The difference between locations could be related to the presence of nutrition professionals. Comments by participants in the inpatient hospital settings mentioned more interaction with dietitians and the dietitians being present on the interdisciplinary teams. Individuals with increased interactions with dietitians may be documenting intakes more frequently as they are more directly involved in the nutritional care. It was mentioned that nursing aides were typically documenting intakes of patients in some settings. The use of nursing aides could explain the differences as some nurses are not documenting intakes as often and have different levels of responsibilities.

**Interactions by Degree and Location**

A significant interaction was found for degree by location for the statement “I can provide adequate dietary education”. The statement ties back to several studies that have looked at the nutrition education nurses receive during their training. The second most covered topic of nutrition for nurses is diet counseling and it has been shown that majority of nutrition classes are not taught by a nutrition expert (Stotts et al., 1987). A study participant commented that they felt their education did not provide them the ability to determine the needs of specific populations of patients.

The significant interaction for degree by location was demonstrated for “Tube feeding rates and amounts provided are documented”. The interaction occurs in long term care facilities between nurses with associate and master’s degrees. Advanced practicing
nurses, nurses with master’s degrees, have different responsibilities than registered nurses. Advanced practice nurses are working in conjunction with physicians to order labs and medications as well as triaging with other services (American Nursing Association, 2015). The interaction may be seen in long term care facilities as the study had a limited amount of advanced practice nurses who were working in long term care.

“Time plays a factor in documentation of intakes” showed an interaction for degree by location. Differences in responsibilities could be playing a factor. As stated previously, advanced practice nurses are working with physicians and may find intakes to be more tedious. Licensed practice nurses (LPN) may be playing a role. Comments within the study show that nursing aides are responsible for documentation of intakes in long term care facilities. Bachelor’s degree nurses could be relying on LPNs or other staff to help with intake documentation. It is part of the responsibility of the LPN to document changes daily (National Federation of Licensed Practice Nurses).

**Additional Comments by Nurses**

The participants that left comments provided much insight into nursing interactions with nutrition. A theme of the importance of nutrition and nutrition related activities within these settings is seen. The need for the interaction between medical professionals seems to be something that is known to by important. “I believe many nutrition related issues fall through the cracks in hospitals. A good cohesive interdisciplinary team is necessary but not always in place for patients”. Examples in the comments showed several instances of dietitians being a part of the team and how nurses
are interacting with them. “Nutritionists are at morning [rounds] everyday and assess every patient's nutritional status”.

Additional themes seen in comments are the lack of nutritional professionals at facilities either not having one on staff or having limited availability. “Our facility has no nutritionist on staff. It is up to the nurses to regulate the dietary needs of the residents according to physician orders”.

**Strengths**

The power of social media proved to be a strength and a limitation. Through comments left in the survey, it proved that the survey reached a broad range, geographically, of nurses. Social media allowed for a more diverse population to have access to the survey instead of in one location. It also allowed for a larger range of nurses to be contacted rather than looking at one particular state.

Allowing for additional comments in the survey after each section was a strength not only for this survey but for future research. The comments gave insight to the direct interactions of nursing with nutrition and how nurses feel about nutrition. It was able to show reported differences in facilities where dietitians are members of the healthcare team to facilities without nutritional professionals.

**Limitations**

A major limitation of the study included the recruitment process. Social media allows for access to thousands of individuals and a diverse population but there are...
limitations to using the popular social media sites when trying to recruit participants for a research survey. The sharing of the survey link proved to be the best method of recruitment as the amount of participants greatly increased in a short span of time as the survey began to circulate through social media.

Social media sites of medical professionals and nursing associations is limited as some do not allow for additional posts outside of the association administration. The sites that did allow for additional outside postings shared those on the side in a condensed version of the post. In the condensed versions of the post, the survey link was not visible for those interested in taking the study and had to be added on in the comments section of the post. The condensed post on the side of the social media sites did not draw attention and made the survey link hard to find.

With the study focusing only on registered and licensed nurses who have an associate’s, bachelor’s, or master’s degree limited the population of the nursing individuals that were able to participate in the study. Individuals who are not a registered nurse do interact with nutrition on a daily basis alongside their nursing counterparts and contribute to the screening processes and are another population that need to be surveyed to understand what role and perceptions they are playing.

One limitation found from the data analysis showed there was a limited amount of variance in the majority of the responses. The distribution of participants between the groups (by degree and primary work location) were not equal. There was a disproportionate amount of individuals who worked in the inpatient hospital setting
versus the long term care facility and who had an associate’s or bachelor’s degree compared to participants with a master’s degree.

Applications

Training and education programs for nurses need to be changed to address issues found regarding perceptions and practices of nutrition related issues. All groups found that they were neutral with feeling that their training and education made them feel competent to complete a nutrition screen. Having this information can help to look at education and training programs and focus more time in the understanding of how to do a nutrition screen and why it is important. The increase in education regarding nutrition and nutrition related issues can help to bridge the gap between healthcare workers.

Furthermore, collaboration between healthcare workers gives a better understanding of malnutrition can lead to increased conversation and contact between medical professionals and an increased understanding between professionals considering malnutrition issues in their patients. The patients will be the beneficiaries of this increased education and interaction because of potential early identification of nutrition related issues thereby preventing and/or treating the issues yielding positive outcomes for the patients. It has been showed that the team approach in all facilities has led to better clinical outcomes (Lemieux & McGuire, 2006).

Further studies need to look at nutrition issue identification in healthcare systems. As well as researching the understanding healthcare team of interactions concerning nutrition issues.
The information from the study can be used to help develop training and education programs based on the specific areas that are weaker. Areas can include performance of nutrition screens as well as the importance of monitoring the weight of patients. The development of a universal screening tool can help to eliminate some of the confusion and differences of screening processes in facilities. The shift of education could lead to an increase in consultations to nutrition professionals and a decrease in missed opportunities to treat malnutrition.

The shift in education should address malnutrition as nurses were neutral about malnutrition being prevalent in their facilities contrary to research studies showing high amounts of malnutrition being present. Education should not only concentrate on when to consult nutrition professionals, but also how to identify malnutrition and prevalence of malnutrition in the healthcare settings. With an increase in awareness of malnutrition within the facilities, earlier detection of malnutrition and treatment by nutrition professionals maybe possible. The early detection and treatment of malnutrition can lead to increased hospital revenue and a decrease in healthcare costs.

**Conclusion**

The study has shown there are differences in perception and practice regarding nutrition related issues between varying level of degree and location. Differences were found during the practice of nutrition screens and consultation when encountering weight changes as well as timing to perform nutrition related functions.
APPENDICES
APPENDIX A

IRB APPROVAL
Appendix A
IRB Approval

RE: Protocol #16-034 - entitled “Assessment of Perceptions and Practices of Nurses in Regards to Nutrition in Inpatient and Long Term Care Settings”

We have assigned your application the following IRB number: 16-034. Please reference this number when corresponding with our office regarding your application.

The Kent State University Institutional Review Board has reviewed and approved your Application for Approval to Use Human Research Participants as Level I/Exempt from Annual review research. Your research project involves minimal risk to human subjects and meets the criteria for the following category of exemption under federal regulations:

- Exemption 2: Educational Tests, Surveys, Interviews, Public Behavior Observation

This application was approved on January 27, 2016.

***Submission of annual review reports is not required for Level 1/Exempt projects. We do NOT stamp Level I protocol consent documents.

If any modifications are made in research design, methodology, or procedures that increase the risks to subjects or includes activities that do not fall within the approved exemption category, those modifications must be submitted to and approved by the IRB before implementation. Please contact an IRB discipline specific reviewer or the Office of Research Compliance to discuss the changes and whether a new application must be submitted. Visit our website for modification forms.

Kent State University has a Federal Wide Assurance on file with the Office for Human Research Protections (OHRP); FWA Number 00001853.

If you have any questions or concerns, please contact us at Researchcompliance@kent.edu or by phone at 330-672-2704 or 330.672.8058.

Doug Delahanty | IRB Chair | 330.672.2395 | ddelahan@kent.edu
Tricia Sloan | Administrator | 330.672.2181 | psloan1@kent.edu
Kevin McCreary | Assistant Director | 330.672.8058 | kmccrea1@kent.edu
Paulette Washko | Director | 330.672.2704 | pwashko@kent.edu
APPENDIX B

CONSENT FORM
Appendix B
Consent Document

Consent Document

The following is a sample informed consent document to be used as a template for the investigator in writing the study consent form. This template includes instructions and guidelines for the investigator as well as suggested language to be used in the actual document. The instructions to the investigator are italicized and enclosed in parentheses. The informed consent document must be printed on university letterhead. Letterhead is not required for web-based consent documents and statements. Please include the Study Title on each page of the consent form.

Informed consent is an ongoing process by which participants are provided an explanation of the research in terms that they understand. This process must provide adequate information to allow individuals the ability to make a decision to participate based on knowledge of all relevant aspects of the study. It is important that investigators make a realistic assessment of the potential risks and benefits. It is a common mistake for researchers to “over-state” the benefits of their project; it must be clear that the identified benefits are potential. Federal regulations outline required elements of informed consent. These required elements are included in the consent template, as well as information required by the University. The use of bolded headings is recommended.

All prospective research participants must be given adequate time to read the consent and have any questions answered prior to signing the consent document. The subject signature on the informed consent form documents that they have been fully informed about the research project. A copy of the informed consent document must be provided to the subject.

**Once your study has been reviewed and approved by the Office of Research Compliance, you will receive an “IRB approved stamped” copy of the consent form. This “stamped” consent form is the document that you should use to consent your participants into your study. It is important for you to also keep an unstamped text copy (i.e., Microsoft Word version) of your consent form for subsequent submissions.**

Informed Consent to Participate in a Research Study

**Study Title:** ASSESSMENT OF PERCEPTIONS AND PRACTICES OF NURSES IN REGARDS TO NUTRITION IN INPATIENT AND LONG TERM CARE SETTINGS
Principal Investigator: Natalie Caine-Bish Ph.D RD LD, Kate Ormiston RD LD

You are being invited to participate in a research study. This consent form will provide you with information on the research project, what you will need to do, and the associated risks and benefits of the research. Your participation is voluntary. Please read this form carefully. It is important that you ask questions and fully understand the research in order to make an informed decision. You will receive a copy of this document to take with you.

Purpose: The purpose of this study is to determine what the perceptions and practices of nurses in regards to nutrition in inpatient hospital care and long term care facilities. The secondary purpose of this study is to determine differences in perception and practices between levels of nurses and environment of practice.

Procedures

Participation in the study typically takes 15 minutes and is strictly anonymous. Participants begin by answering a series of questions about their current job and demographics. The questions then turn to look at various points of interaction nurses have with the patients and during different scenarios. The ability to provide additional comments or answers is provided for each section.

Benefits

The possible benefits of this survey is to understand gap in relationships between the healthcare team and help to provide better patient care.

Risks and Discomforts

Individuals may feel some discomfort answering questions as it directly asks about tasks performed while employed as well as perceptions of various activities.

Alternatives
For each question there is a choice to opt to not answer and to provide additional comments or concerns for each section.

**Privacy and Confidentiality**
Date will be anonymous and confidential. Information will be on a secure database. No identifying information will be collected for the study and the information will only be available to the principal investigator and co-investigator. As no identifying information will be collected, it will not be used in any publication or presentation.

**Voluntary Participation**
Taking part in this research study is entirely up to you. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. You will be informed of any new, relevant information that may affect your health, welfare, or willingness to continue your study participation.

**Contact Information**
If you have any questions or concerns about this research, you may contact Natalie Caine-Bish or Kate Ormiston at 330- . This project has been approved by the Kent State University Institutional Review Board. If you have any questions about your rights as a research participant or complaints about the research, you may call the IRB at 330.672.2704.

**Consent Statement and Signature**
My completion of the survey indicates my consent to be a participant in this research study. I voluntarily agree to participate in this study. I understand that I may copy or print the consent form for future reference.

________________________________________   ____________________
Participant Signature                          Date
APPENDIX C

SOCIAL MEDIA POSTING
Hello, my name is Kate Ormiston RD,LD. I am a nutrition student at Kent State University working on my master’s research. I am interested to learn about nurses in the inpatient and long term care settings on how you interact and perceive nutrition on a daily basis. The hope for this research is to better understand nutrition related practices and bridge the gap in care between nurses and dietitians. I appreciate your time in participating in this short survey.
APPENDIX D
SURVEY QUESTIONNAIRE
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SURVEY QUESTIONNAIRE

Survey Questions
1. Please indicate the highest level of education you have obtained:
   1. Associate’s Degree in Nursing
   2. Bachelor’s Degree in Nursing
   3. Advanced Nurse Practitioner (Master’s Degree)

2. Please indicate primary location of work:
   1. Hospital: Inpatient care (regular nursing floor or intensive care unit)
   2. Long term care facilities: (such as a nursing home)
   3. Other: Public health, outpatient clinic, etc.

3. Age: (To be given in years)

4. Ethnicity:

5. Gender
   1. Male
   2. Female
   3. Prefer Not to Answer

6. How many years have you worked as a nurse? (To be given in years)

Screening
Perceptions - Modified Likert Scale Disagree to Agree
- As a nurse it is my responsibility to screen a patient for nutrition related issues
- Nutritional screenings should be done for every patient admitted
- The screening process for nutrition related issues is only administered if a nutrition issue arises
- The screening process used in our facility is very time consuming
- As a nurse it is not my responsibility to screen a patient for nutrition related issues
- A weight should be taken for every patient at admission
The weight of a patient plays an important role in the nutrition screening process
If a patient does not have a nutrition related issue associated with their diagnosis, a nutrition screen is not performed
A nutrition screen that shows a nutrition related issue always results in a consult to the nutrition department
The education and training I have received as a nurse makes me feel competent to complete a nutrition screen for a patient

Practices - Modified Likert Scale Disagree to Agree
- At the time of admission, I screen the patient for nutrition related issues - skip additional screening question if they never do this
- When possible at admission, I obtain the weight of the patient
- When screening for nutrition related issues and malnutrition, I assess the following criteria:
  - Changes in weight status
  - Body Mass Index
  - Albumin
  - Prealbumin
  - Changes in dietary intakes
  - Muscle loss
  - Chewing or swallowing difficulties
  - Impaired mobility
  - Nausea and/or vomiting
  - Diarrhea or Constipation

Assessment
Perceptions - Modified Likert Scale Disagree to Agree
- Patients who are considered to be malnourished do not need to be re-assessed for nutrition related issues again during their stay.
- I can provide adequate dietary education for my patients.
• The documentation of dietary intakes helps with assessing the patient’s nutritional status

• My education and training has prepared me to determine the appropriate energy needs of my patients
• I am aware of the protocols to contact the nutrition department within my work facility
• Malnutrition is a common issue in our facility
• As a nurse, it is my responsibility to manage nutrition related issues
• When a tube feeding regimen is interrupted, it does not play a significant role in nutrition status
• Development of malnutrition within the facility is common
• Weights should be taken and documented frequently

Practices - Modified Likert Scale Disagree to Agree
• I provide dietary education for my patients when it is needed
• Patients’ weights are taken everyday
• Documenting of intakes are done at meal times
• I follow the protocols to contact the nutrition department within my work facility
• When a patient has weight changes while in the facility, the nutrition department is always consulted
• After 5 days of being on a liquid diet or NPO, the nutrition department is always consulted
• Weights are taken and documented frequently
• Tube feeding rates and amount provided are documented
• Patients are reassessed for nutrition related issues during their stay
• Time plays a factor in documentation of intakes
REFERENCES
References


University of Illinois Urbana-Campaign, K. *Dietetics curriculum*. [http://fshn.illinois.edu/undergraduate/dietetics/curriculum](http://fshn.illinois.edu/undergraduate/dietetics/curriculum)
