The Effect of Caregiver Feeding Education on Dementia Patient Weight

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Introduction

The diminished cognition associated with dementia often results in patients lacking the comprehension or ability to initiate effective feeding. Eating difficulties include recognizing edible material, bringing food to the mouth, chewing food, and prolonged and poorly coordinated swallowing (Hanson, Ersek, Lin, and Carey, 2013). In addition, the person with dementia frequently presents resistant behaviors such as refusing food, turning away, clamping teeth together, or spitting out food. What appears to be disinterest or rejection of food can progress to weight loss which may lead to terminal decline (Cole, 2012). Effective mealtimes for a dementia patient require a distinctive set of skills: managing swallowing difficulties and risk for aspiration, decoding and managing feeding behaviors, and encouraging independence in eating while providing sufficient assistance to maintain nutritional intake (Batchelor-Murphy et al., 2017). The focus of this quality improvement project is to develop a feeding protocol to assist caregivers in providing optimal nutrient intake of dementia patients to promote weight stabilization or weight gain as appropriate. Nutritional care planning, implementation, monitoring of intake, and evaluating of results will fundamentally improve the care that dementia patients receive (Relph, 2016). The DNP-prepared nurse can act in a leadership role to coordinate efforts of the interdisciplinary healthcare team to establish and implement protocols to monitor residents and to introduce interventions based on best evidence with the goal of improving nutritional intake and reducing unintentional weight loss. Therefore, the purpose of this DNP project is to translate evidence related to weight loss and dementia into policies and practices.

Problem Statement

Dementia is an inclusive term that describes a range of symptoms associated with a decline in memory and cognition severe enough to diminish a person's capacity to perform everyday activities. Alzheimer's disease comprises 60 to 80% of dementia cases, and vascular dementia, which occurs after a cerebral vascular accident (CVA) or stroke, is the second most common dementia type (Alzheimer's Disease International, 2014). An estimated 5.5 million Americans of all ages have Alzheimer's disease, and the number of Americans living with the disease is growing. An estimated 5.3 million of Americans living with Alzheimer's dementia in 2017 are age 65 and older. Because the size of this group increases rapidly as Baby Boomers age, the number of new cases of Alzheimer's and other dementias is projected to soar. Today, someone in the United States develops Alzheimer's dementia every 66 seconds. It is projected that by 2050 someone in the United States will develop the disease every 33 seconds (ALZ.org, 2017).

The cause of weight loss in dementia has been attributed to many factors: failure of body weight regulation mechanisms, higher energy expenditure than adults without dementia, and self-feeding difficulties that make it difficult to provide sufficient calories to these residents. It is suspected that the principal mechanism for dementia-related weight loss will differ depending on the form and stage of the disease, and the living situation (institution versus community-living) of the older adult with dementia (Keller et al., 2003).

Advanced dementia results in limited speech, incontinence, and assistance in all activities of daily living, including eating. Inadequate food intake is routine in advanced dementia. Studies of nursing home residents with dementia reported that over 80% of residents had difficulty with chewing or swallowing. Feeding problems in advanced dementia have various causes: lack of

muscle control affects mechanics of eating, distracting behaviors impair intake, swallowing is poorly coordinated, and dysphagia causes choking or pocketing (Hanson, Ersek, Lin, and Carey, 2013). Interventions for supporting and enhancing dietary intake for nutritionally at-risk adults are frequently recommended. Reviews of controlled trials identified evidence to improve nutritional intake in nutritionally vulnerable individuals and described the effects on cost, nutritional, clinical and patient-centered outcomes (Kimber, Gibbs, Weekes, and Baldwin, 2015). For healthcare staff working with dementia patients, interventions have included consulting with a dietitian to high-calorie, high-protein items, offering finger-foods for patients who cannot sit still for long periods at meal times, providing feeding aids such as scoop plates and large-handled cups, and adjusting the environment to control noise, distractions, and odors (McGinley, 2015). Monitoring weight change is important in elder care because weight fluctuations may reflect unresolved health problems. Several studies in the elderly have reported associations between weight loss and greater mortality (Murphy et al., 2014)

Project Question

The project will address the question: In patients over the age of 65 how can assisted feeding by a trained caregiver influence patient weight compared to standard care over a two-month period?

P: healthcare workers at long-term care facilities, long term care patients

I: implement staff in-services to introduce nutrition protocols

C: standard care

O: 20% reduction in number of residents experiencing unintended weight-loss

T: 2 months

Purpose Statement

The purpose of this project is to design and implement a feeding protocol, educate caregivers in its use, and determine if this intervention would increase percentages of meal intake and lessen instances of weight loss in dementia patients in a long-term care facility.

Project Objectives

- Develop a feeding protocol for patients with a diagnosis of dementia with guidelines to improve meal intake percentages
- Present new feeding protocol to healthcare staff and evaluate their understanding of it
- Evaluate changes in staff knowledge regarding current, evidence-based, feeding protocols
- Evaluate impact on patients' weights through chart review of weekly weights with a goal of weight losses of less than 5% in 75% of dementia patients over a period of 2 months

After developing a new feeding protocol, the new guidelines will be presented to caregivers through a Power Point presentation (see Appendix D). Evaluation of understanding will be obtained before education with pretests and after education and a period of implementation through post-tests. Meal intake percentages as recorded by caregivers will be monitored and analyzed for increases in percent consumed at mealtimes. Charts will be reviewed for stabilization or increases in weekly weight measurements.

Search Terms

The articles reviewed were identified by searching several databases including CINAHL, PubMed, ProQuest, and OVID. Search terms were nursing home care, mealtime difficulties, dementia, geriatric, feeding skills, training, anorexia, malnutrition, assisted feeding, environment, eating difficulties, nutrition, and weight loss. The initial literature search was conducted July through August 2017. Eligibility criteria included studies targeting dementia patients aged 65 or above living in long term care facilities. Articles were selected for inclusion

if they a) detailed interventions implemented; b) were specific to long-term care facility residents; c) included the type of study method: systemic literature reviews, randomized controlled trials, qualitative studies, and pilot studies. Articles were excluded if they a) were written prior to 2012, b) were in languages other than English, c) included residents with specific eating diagnoses such as dysphagia, d) did not describe how participants were selected.

Review of Literature

Dementia is caused by numerous diseases that results in impaired memory and cognition. Dementia has powerful effects on health and quality of life for over 5 million Americans and 36 million people worldwide. This terminal condition has an unpredictable life expectancy, progressing to death over 3 to 12 years. In the advanced stages, dementia patients develop problems with gait, continence, self-care, and feeding, with infection and nutritional decline as contributing causes of death (Hanson, Ersek, Lin, and Carey, 2013).

Batchelor-Murphy et al (2017) conducted a pilot study to compare the effectiveness of three handfeeding methods for assisting nursing home residents with dementia with meals: direct hand (DH – the caregiver feeds), over-hand (OH – the caregiver's hand is over the resident's hand as a guide), and under-hand (UH – the caregiver holds the utensil with his/her hand under the resident's hand). The study consisted of 30 residents, with advanced dementia, living in 11 nursing homes in the United States. Residents were assisted with one assigned method for 6 successive meals, changing method every 2 days. The 6-day 540-meal study evaluated the time required for assistance, percent of meal eaten, and feeding behaviors (refusal to eat, spitting out food, turning head, etc.) as measured by the Edinburgh Feeding Evaluation in Dementia (EdFED) scale. The results of the study indicated that while time required for assistance did not differ significantly between techniques, percent of meal eaten was greater for

DH (67 ± 15.2%) and UH (65 ± 15.0%) with both significantly greater than OH (60 ± 15.1%). Feeding behaviors were more frequent with the OH method (8.3 ± 1.8%), relative to DH (8.0 ± 1.8) and UH (7.7 ± 1.8). The study findings suggest that the supportive handfeeding methods can be used when providing meal assistance to increase meal intake with residents with advanced dementia (Batchelor-Murphy et al., 2017).

In a feasibility study conducted by Batchelor-Murphy, Amella, Zapka, Mueller, and Beck, (2015) an evidence-based dementia feeding skills program was introduced for staff in two United States nursing homes. The study consisted of 35 staff members and 10 dementia patients living in two nursing homes in the United States. A randomly selected group of the staff received web-based dementia feeding skills training. Both the intervention and control groups participated in pre-testing and post-tests to assess feeding knowledge; observations measured staff and resident feeding behaviors, time spent on meal assistance, and percent of meal eaten. The results of the study showed an increase in knowledge for the intervention group as measured on the post-tests from 77.1 to 95.6 after training, which remained at 91.8 after eight weeks; the control group scores at baseline were 82.2 and were still 86.7 after eight weeks. Difficult feeding behaviors increased in both groups of residents; however, the trained staff increased the amount of time spent feeding and percent of meal eaten more than doubled from 6.8 to 18.4. In the control group, less time was spent feeding and percent of meal eaten decreased from 29.7 to 13.2. The study findings suggest that training staff to use current practice guidelines improves meal intake among dementia patients.

A systematic literature review conducted by Delwyn Cole (2012) explores the results of 12 studies examining varied interventions to maintain adequate meal intake in older dementia patients. Studies from the UK, Taiwan, Sweden, Canada, France, the United States and the

Netherlands were identified. The participants in these studies were 65 and older, were living in long-term nursing homes, and had varying levels of feeding needs - some participants were able to self- feed, some required minimal assistance, and others required full assistance. Although no uniform intervention was reported nearly all the studies reported positive outcomes following intervention. Collaborating with a dietician, introducing nutritional supplements, and allowing extra time and assistance with feeding were supported by the findings as effective interventions. Articles included in this review also indicate the importance of a relaxed, pleasant environment to motivate staff to spend time with patients and thus improve meal intake. Staff training to implement feeding initiatives was shown to be effective in assisting older people with dementia to maintain adequate nutrition.

Douglas and Lawrence (2015) conducted a systemic literature review to investigate findings related to environmental interventions aimed at influencing meal intake and nutrition status in older adults with dementia. Thirty studies conducted within the past 20 years were included in the review and covered a range of environmental factors. Findings in the studies reviewed indicate that buffet-style and family-style dining can result in increased meal intake among older adults in long-term care. Improved lighting, home-style changes to the dining room, enhanced food aromas, consistent seating plans, and peaceful, familiar music in the dining room have been shown to promote improved meal intake.

A mixed method study was conducted by Hammar, Swall, and Meranius (2016) involving focus group interviews with 12 caregivers and weight and meal intake data collection of 10 elderly dementia patients. The goal of the study was to collect and clarify the experiences and perspectives of the caregivers attempting to implement feeding protocols. The study findings indicate that the caregivers struggle with having the knowledge to enhance nutritional

outcomes but lacking sufficient time and the opportunity to provide optimal feeding experiences to their patients.

Pedersen, Tewes, and Bjerrum (2012) conducted a qualitative study to gauge the effectiveness of training staff in feeding protocols. Using experimental learning theories to develop a nutritional training program, the researchers administered pre-tests and post-test to evaluate the effectiveness of the learning plan. The patient participants, cognitively alert cardiac patients at an acute care facility, were surveyed after the guidelines had been implemented. Patients reported increased satisfaction with the staff solutions to their eating difficulties, better understanding of appropriate meal choices, and improved nutritional intake.

In a randomized controlled trial, Pouyssegur et al. (2015) evaluated the impact of a finger food nutritional supplement on the weight gain of older adults diagnosed with malnutrition living in a care facility. Participants were 175 malnourished older adults in seven nursing homes, aged 86±8 years. All participants received the standard diet; the intervention group participants received eight supplement cookies daily for 6 weeks. Average weight increased in the intervention group (+1.6%) compared with the control group without cookies supplementation (−0.7%). Analysis confirmed the positive impact of cookies on weight increase (P=0.024), appetite increase (P=0.009) and pressure ulcers reduction (P=0.031). The results of this trial suggest that, the stimulation of the senses of touch (finger food) and hearing (crunch sounds) could be valuable alternatives to age-related changes which affect appetite, meal intake, and unintentional weight loss.

Impact of the problem. Ageing is not preventable. The elderly population is susceptible to weight loss due to physiological decline through ageing and degenerative disorders. Chronic diseases and disorders, decreased acuity of taste and smell, and chewing and swallowing

difficulties put older adults at risk of weight loss. Inadequate nutritional support in a care facility is preventable. To meet the nutritional needs of residents, the healthcare team must collaborate to identify and implement feeding protocols which encourage and enhance sufficient nutritional intake. Nurses can play a key role in the assessment of nutritional risk and implementation of evidence-based mealtime strategies (Chang, Brownhill, Bidewell, Johnson, and Ratnayake, 2015).

Theoretical Model

Dorothea Orem identifies the Self-Care Deficit Nursing Theory (SCDNT) as a general theory, one that is a descriptive explanation of the nature of nursing. Her work, pertaining to the SCDNT, focuses on the human requirements for nursing and the processes for the production of nursing. Individual and environment are identified as an association characterized by human-environmental interactions and by the impact of one on the other. Persons exist in their environments and are never separate from them (Banfield, 2008).

Orem was born in Baltimore, Maryland, the younger daughter of a construction worker and a homemaker. Her earliest exposure to nursing was through two aunts, both of whom were nurses in the Washington, DC area. She received her diploma in nursing from Providence Hospital School of Nursing in Washington and her Baccalaureate of Science in Nursing in 1939. In 1945, she also earned her master's degree from Catholic University (McEwen, 2014). Her early nursing experiences included operating room nursing, private duty nursing, pediatric and adult medical and surgical units, evening supervisor in the emergency room, and biological science technician. During the 1950s Orem worked for the Division of Hospital and Institutional Services of the Indiana State Board of Health. Her goal was to upgrade the quality of nursing in general hospitals throughout the state. During this time in Indiana, she began to develop her

definition of nursing practice. She noticed the inability of nurses to describe nursing, to clearly define the role of a nurse, and to outline their needs for physicians, the hospital administrators, and boards of trustees (Taylor, 1998). Orem asked the questions, "What is nursing?" and "What condition exists when judgments are made that people need nursing"? She determined that nursing occurred when there are "the inabilities of people to care for themselves at times when they need assistance because of their state of personal health" (Orem, 2001). Orem described the fundamental tenets of nursing, and the relationships between those concepts, to develop a general theory of nursing, the self-care deficit theory of nursing with its related theories of self-care and of nursing systems. While the idea of self-care is not new, Orem was the first to provide a well-defined description of self-care and nursing's relationship to it. Her work helped nurses to comprehend and appreciate their practice and role - to assist persons to manage their own health - by identifying their self-care abilities and limitations, the self-care actions that are required, the various factors acting upon them, and their actual or potential self-care deficits. From this, the type of nursing system needed to overcome, manage, or prevent the identified deficits can be identified. By clarifying the purpose of nursing, Dorothea Orem gave nurses a sense of direction and foundation upon which to design, provide, and manage nursing services for individuals and communities (Clarke, Allison, Berbiglia, and Taylor, 2009).

The use of theory to guide nursing practice brings reason and purpose to professional nursing practice today. Orem's Self-Care Deficit Theory of Nursing provides a descriptive explanation of the elements and relationships that are common to all instances of nursing. SCDNT illuminates the foundation of nursing and how nursing care can be offered and delivered by targeting the clients and their needs, rather than the medical diagnosis. By treating the whole

person and not just the diagnosis, the nurse can provide purposeful therapeutic intervention directly related to the client's specific abilities and needs (Bernier, 2002).

Orem's general theory of nursing is composed of three related theories: self-care, self-care deficit, and the nursing system. Self-care is the practice of activities that individuals initiate and perform on their own behalf to maintain life, health, and well-being. A self-care deficit exists when an adult is incapable or limited in the provision of continuous effective self-care. The nursing system is all of the actions and interactions of nurses and clients in nursing practice situations that meet components of the client's self-care demands and protects and regulates the development of the client's self-care agency ("Nursing Theories", 2017). The Self-Care Deficit Nursing Theory identifies diverse levels of need which may necessitate a person to require nursing care and presents a framework for the preparation of a plan that will allow the individual as much independent functional ability as possible. Orem's SCDNT emphasizes the actions patients take to meet their self-care needs and the role of the nurse in aiding the patients who require assistance to meet these needs (Kumar, 2007).

Orem's theory supports the work of nurses to promote primary healthcare and education to maintain one's health within one's home and community, deliver acute nursing care when patients are acutely ill and need to be supported until they are restored to a level of self-care to be able to return home, and provide dignified, supportive care, and caring through the end of life ("Use of Orem's", 2016). In a broad sense, nursing practice refers to interventions taken by nurses on behalf of or in collaboration with people who need nursing care. The Self-Care Deficit Nursing Theory refers more specifically to nursing practice as interventions taken by nurses to help individuals and groups who pursue and/or can benefit from nursing care because of health-related self-care deficits. Self-Care Deficit Nursing Theory-guided practice incorporates five

areas of interventions: initiating and maintaining nurse-patient relationships until patients can safely be discharged from nursing care; identifying if and how patients can be helped through nursing; responding to patients requests and needs for nursing care and assistance; providing direct nursing care to patients; and integrating nursing with the patient's daily living, including other health care, social, and educational services needed or being received (Fawcett, 2001).The need for nursing care for dementia patients and other dependent adults is related to the health-associated conditions which lead to an inability to continuously maintain self-care which is necessary for sustaining life and health or dealing with disease or injury throughout the lifespan (Fawcett, 2003). The cognitive and physical changes which are characteristic of dementia can impact many aspects of life, causing a decline in the individual's functioning including memory, thinking, orientation, understanding, learning, and judgment. The affected adults, therefore, develop increasing limits on their ability for self-care. Studies have demonstrated that Orem's self-care theory can be directly applicable to the professional nursing of dementia patients. The theory provides the framework for defining the role of the nurse in identifying self-care deficits and then in meeting the self-care demands through the relationships and interactions of nurses, caregivers, and clients (Mir and Cuk, 2010).

Project and Study Design

The project design will focus on the development and implementation of an assistive feeding protocol for dementia patients based on current research. Research findings suggest that interventions to encourage weight gain and weight maintenance could be effective if included in a facility feeding protocol introduced to the caregivers who have been adequately trained (McGinley, 2015). Staff knowledge of the feeding protocols will be measured by pre-test and post-test to analyze the effectiveness of education and training and results evaluated to determine

the effect of training on procedural knowledge. In addition to the staff, the population of interest are caregivers who are responsible for feeding dementia patients over the age of 65 who are living in a long-term care facility. Although there will be no direct patient contact, patient weight and percentage of meal consumption will be tracked to determine changes in food consumption.

Quality assessment and assurance have long been required activities for nursing homes participating in federal Medicare and Medicaid nursing home programs. These quality measures were selected because they are important and quantifiable indicators of the health of long-term care residents. One of these indicators is percent of residents who lose too much weight (Dellefield, Kelly, and Schnelle, 2013). The administrators of the facility have an interest in maintaining the quality reputation and rating they have acquired and thus have a stake in monitoring and improving this indicator. The cooperation of the staff has been ensured both by the commitment of the Director of Nursing Services, who has previously agreed to assist with this project, and by the ongoing interest of the caregivers who have been encouraged to provide ideas and input during the weeks of preliminary preparation.

Population of Interest, Setting, and Stakeholders

Population of Interest

The direct population of interest are the healthcare workers who care for dementia residents at a long-term care facility. The certified nursing aides (CNAs) serve and feed the 98 residents while the nurses feed and assess as needed for feeding difficulties or swallowing problems. The residents have been noted to have weight loss issues and project participants will include CNAs and nurses who feed and who will be trained to implement the practice change. Although not the direct population of interest, charts audits will be conducted on residents living at the facility aged 65 years old and up with a diagnosis of dementia. Charts will be excluded if

residents have a diagnosis of dysphagia, anorexia, or bulimia. Temporary workers or agency caregivers were excluded due to their unfamiliarity with the residents or the facility and unavailability for follow-up.

Setting

The practice setting in which the project will take place is a long-term care facility in an urban setting in Connecticut. The 98-bed facility, currently 96% occupied, serves a population of long-term care patients, most with cognitive impairment diagnoses, and short-term rehabilitation patients which comprise approximately one-fourth of total patients. Caregivers include four to six nurses in a direct care role, two to four nurses in a supervisory or administrative role, a physical therapist, and 10-15 CNAs.

Stakeholders

The Agency for Healthcare Research and Quality (AHRQ) defines stakeholders as the persons or groups that have a vested interest in evidence that supports a clinical decision, the implementation of the clinical intervention, and the eventual outcome. Stakeholders may be patients, caregivers, clinicians, researchers, advocacy groups, policymakers, or others (AHRQ, 2014). The stakeholders who have an interest in this project and improving feeding protocols and outcomes include the patients and families, the caregivers who strive to provide optimal care, and the administrators of the facility who have an interest in maintaining a quality reputation and favorable rating. Key stakeholders include the Medical Director, Director of Nursing, speech therapist, registered dietician, and staff development director. The feeding protocol will be developed collaboratively with the director of nursing services, assistant director of nursing services, nursing unit managers, and the registered dietitian.

Recruitment Methods

The Director of Nursing Services (DNS) held a staff meeting to introduce the project facilitator and to explain the importance of collaboration while maintaining the setting, workflow, and activities of staff and residents. The caregiver participants were recruited by the DNS who asked that all staff who feed residents on a regular basis make themselves available to the project facilitator for observation, mandatory in-service training, and surveying. Caregiver selection was based on regular assignments to feed residents. Due to the focus on in-service training to implement the feeding protocol and initiate the quality of care improvement, temporary workers or agency caregivers were excluded due to their unfamiliarity with the residents or the facility and unavailability for training and follow-up.

Tools/Instrumentation

Tools for project implementation will include a facility feeding protocol for residents (Appendix A), a questionnaire to test knowledge of caregivers based on the protocol (Appendix C), and a data base of weight and meal intake percentage for both pre-implementation and post-implementation. Each caregiver taking part in the project will be tested by the project facilitator at the beginning and at the end of the project, before and after the presentation of the new feeding protocol. The pre-post assessment will measure caregivers' knowledge of the feeding protocol that was in place at the time of the pre-test (former or new). Intervention assessment results will compare the staff knowledge pre-education and post education.

Data Collection

Data measuring meal intake percentages will be recorded by caregivers per current policy and 25-30 patient records will be analyzed to compare percent consumed at mealtimes before and after implementation of the feeding protocol. Pre- and post-implementation data will be

collected on the same patients to compare changes in those patients. Likewise, weekly weights will be recorded and analyzed for changes pre- and post- implementation. The data collected will be evaluated using the Statistical Package for the Social Sciences (SPSS) Survival Manual (Pallant, 2013).

Intervention/Project Timeline

Week One

During week one of the project, audits will be conducted prior to implementation of the intervention to record weights and meal intake percentages from thirty resident charts. Staff participants will be asked to complete pre-tests before training sessions. The training will consist of a short (15-30 minute) narrated PowerPoint presentation (Appendix D) of the feeding protocol followed by a question and answer period. Training sessions will be offered during the morning and evening shifts over week one until participants have been trained on the protocol. Copies of the feeding protocol will be distributed to the nursing stations, filed in the policy and procedures manual, and posted in the dining areas.

Week Two

During week two, implementation of the new feeding protocol will begin. Staff participants will be asked to complete post-tests to gauge understanding of the protocol after training and application. Rounds will be conducted to observe staff and determine if training protocol is being utilized.

Week Three

Periodic site visits will be conducted by the project lead. Staff nurses will be observed during mealtimes with special attention to compliance with new procedure. In informal interviews with both mealtime shifts, questions and any needed review of the protocol will be

addressed with staff. Weekly weights and meal intake percentages will be monitored from resident electronic records.

Week Four

Weekly monitoring of weights and meal intake percentages will continue as will observations of caregivers to note compliance with the feeding protocol. The project lead will maintain contact with stakeholder by face-to-face meetings, phone calls, and/or email to keep them informed about compliance with the protocol and weight and meal intake trends.

Weeks Five and Six

Meetings will be held with DNS to report interim weight and mealtime intake progress and to review staff perception and performance of protocol. Weekly weights and meal intake percentages will be monitored from resident electronic records. After week six, audits will be conducted after protocol implementation to record weights and meal intake percentages from the initial 30 resident charts.

Ethics/Human Subjects Protection

This DNP project will be a quality improvement project and will involve observation of staff feeding techniques, in-service education, pre and post questionnaires to gauge learning, and chart audits. It will pose minimal risk to participants who will not be identified by name; nor will the long-term care facility. No patient identifiers will be collected, and variables will be coded to maintain confidentiality and to allow pre and post comparisons. Staff are eligible to participate in the DNP project if they currently work the shifts when meals are served and are permanent staff as opposed to temporary or agency workers. Employees will be excluded if they were unable to read English. Participants will not be compensated.

Plan for Analysis/Evaluation

The Wilcoxon- Signed Rank Test is designed to be used for repeated measures and the result of the analysis would reveal if there was a statistically significant result after implementation of an intervention. A paired samples t-test is used when comparing one group of people, and data is collected from them on two different occasions (Pallant, 2016). To evaluate the effectiveness of the feeding protocol intervention, a paired samples t-test test will be used to compare the patients' weights and meal intake percentages from chart audits before the introduction of the feeding protocol to the patients' weights and meal intake percentages recorded after six weeks. Staff knowledge of feeding protocol guidelines will be measured by pre-tests before the education intervention is administered. After the implementation of the education program the same staff would again be tested, and results analyzed using Wilcoxon-Signed Rank.

Analysis of Results

Calculations and analysis of the results were performed using Statistical Package for the Social Sciences (SPSS). A comparison of the pre-questionnaire results and post-questionnaire results was completed. A Wilcoxon Signed Rank Test revealed a statistically significant increase in awareness of the feeding protocol following participation in the education intervention: $z=-4.40$, $p<.001$ with a large effect size ($r=.61$). The median score on the post questionnaire increased from 4 points out of a possible 10 points to 7 points.

A paired-samples t-test was conducted to evaluate the impact of the education intervention on percentage of meal consumption, collected through chart audits, before and after the education intervention was implemented. There was a statistically significant increase from a mean percentage of meal consumption score at time 1 of 81.70% ($M=81.70$, $SD=22.77$) to a

mean percentage of meal consumption score of 90.80% at time 2 (M=90.80%, SD=17.74) – the increase in mean percentage of meal consumption was 9.10%. The eta squared statistic (.061) indicated a moderate effect size.

A paired-samples t-test was conducted to evaluate the impact of the education intervention on patient weight before and after the education intervention was implemented. The mean patient weight increased from 163.00 pounds at time 1 to 163.41 pounds at time 2, but it was not statistically significant. The mean patient weight increased 0.41 pounds. The eta squared statistic (.0048) indicated negligible effect size.

Discussion of Findings

The purpose of this project was to design and implement a feeding protocol, provide education training to caregivers on how to use the protocol, and determine if this intervention would increase percentages of meal intake and lessen instances of weight loss in dementia patients in a long-term care facility. Thirty patient charts were reviewed in the intervention period, and although all patient records noted that meal intake percentage did not decrease (thirteen patient charts reflected a meal intake percentage increase, 17 patient charts reflected no meal intake percentage change), 11 of the patient charts showed a decrease in patient weight.

After implementation of the education intervention the results indicated there was no statistically significant relationship between awareness of the feeding protocol and patients' weight gain or maintenance - the caregivers' participation in the education program resulted in a no significant change in mean patient weight. The results identified a statistically significant relationship between awareness of the feeding protocol and patients' percentage of meal consumption - the increase in mean percentage of patient meal consumption following the caregivers' participation in the education program was 9.10%

Significance/Implications for Nursing

The objectives of this DNP project were to develop a feeding protocol for dementia patients with guidelines to improve meal intake percentages, educate the staff on the use of the new feeding protocol, and evaluate the impact of the education program on patients' weights. The post-education questionnaire results indicate that staff awareness of best-evidence feeding techniques increased significantly - program median score on the post questionnaire increased from 4 points out of a possible 10 points to 7 points. After the implementation of the education intervention, the impact of the increased awareness of feeding protocols on meal percentage intake was statistically significant: the mean percentage of meal consumption for the 30 patient charts that were examined increased by 9.10% from 81.7% to 90.8%. The increased awareness of feeding protocols did not have a significant impact on weight which increased from a mean of 163.00 pounds to 163.41 pounds over the four-week period of chart review.

Abbott et al (2013) conducted a meta-analysis of 36 studies which examined the effectiveness of mealtime interventions to improve mealtime intake and weight maintenance or gain as appropriate, for elderly patients in residential facilities. The findings of the meta-analysis suggested that increased patient meal intake percentages do not always translate into weight gain or weight maintenance. Raised metabolism and increased energy expenditures have been explored as reasons why weight loss is more common in dementia, especially in later stages of the disease (Abbott et al, 2013).

In a review of 20 studies which examined the link between advanced dementia and weight loss, Sergi et al (2013) reported that study findings suggest that weight loss is so closely connected to dementia that it can be considered as one of its clinical signs and is associated with the progression of the dementia. Weight loss has numerous causes in various stages of dementia

including hypermetabolism, a lower energy intake, and greater physical activity, in addition to the nutritional problems commonly associated with cognitive and physical decline. It is consequently important to focus not only on dementia patients' cognitive status, but also on their nutritional assessment and dietary interventions to identify and treat nutritional problems with a view to limiting weight loss and its consequences (Sergi et al, 2013). While nutritional support will likely not change the eventual course of the underlying disease, the DNP-prepared nurse can act in a leadership role to establish and implement protocols to monitor residents and to introduce interventions based on best evidence with the goal of improving nutritional intake and reducing unintentional weight loss related to inadequate meal intake.

In the advanced stages, dementia patients develop problems with self-care, and feeding, with infection and nutritional decline as contributing causes of death (Hanson, Ersek, Lin, and Carey, 2013). Many health benefits have been associated with good nutrition in this population, including less risk of pressure ulcers, better healing of existing wounds, fewer hospital admissions, shorter lengths of stay in hospital, and ultimately, a lower mortality risk (Blaikley, 2015). In addition to the impact poor nutrition has on patients, there are also reimbursement implications associated with patient nutrition. Excessive weight loss of long stay residents is one of many quality measures used by Medicare to measure the quality of nursing home care. Medicare uses weight loss assessment information in their nursing home ratings, and families evaluate nursing homes by the five-star ratings available on Medicare.gov. Low Medicare ratings can impact the viability of a LTC facility as families choose higher rated facilities (Medicare.gov, n.d.). Advanced nursing practice requires the clinical and collaborative skills to develop and implement effective practice initiatives that will improve the quality of health care

outcomes while at the same time employing principles of finance and health policy that will improve the quality of care delivery (AACN, 2006).

Limitations

There were several limitations of this project. One limitation is the lack of consistent confirmation of the meal intake percentage data. The collection of dietary intake was closely observed when the project leader was on-site during the study period but otherwise no consistent observer was overseeing meal intake. Although the documentation was recorded by certified nursing assistants, there was no multi-observer assessment to establish reliability and consistency of the meal intake percentage calculations.

An additional limitation of the project was that the stage of dementia, length of diagnosis and comorbidities, underlying disease states, and activity levels were not considered, raising the possibility that these factors may have impacted the weight outcomes. Populations of long term care facilities are likely to be suffering from a range of illnesses, many of which would affect the body's ability to gain weight (Abbott et al, 2013).

Lastly, the short time period of the intervention and the focus on a single long term care facility which limited the sample size were limitations of the project. The project took place over a six-week period. Meal intake percentage and weight data were collected for five weeks after the education program was implemented. The project did not investigate the long-term effect of the caregivers new awareness of the feeding program or the sustainability of the project over time.

Areas for Further Dissemination

Project findings are anticipated to be shared within the practice site and disseminated externally to foster practice change and policy improvements on a global scale. The project

intervention will become part of the annual in-service training indicating sustainability at the host site facility. The project intervention has potential at other long term care facilities which participate in new-hire orientation training and continual staff education.

Current clinical practice environments continue to challenge nurses the due to the increasing complexity of health care, constraints on resources, and diversity of patient needs (Timmins, 2015). Dissemination of information at a conference via a verbal or poster presentation can be an effective method of sharing innovation and advancing best practice from the practice site into the healthcare community. Choosing professional organizations' audience targets that can benefit from information opens a possibility for collaboration and feedback. (Bemker and Schreiner, 2016). Presenting at conferences offers the project facilitators opportunities to discuss their research with a wider community, to appreciate the research methodologies of other presenters, and to further develop their own approaches to research (Joshua, 2017)

The Sigma Theta Tau International Nursing Honor Society (STTI) calls for authors to submit abstracts and articles to their on-line repository. This is an excellent source to disseminate study findings for access by the STTI Geriatric and Dementia Care Community of Interest (STTI, 2018). The results of this study project will also be disseminated by submission to the project depository at Doctor of Nursing Practice, Inc. After graduation, this project will be submitted for publication to various peer-reviewed journals such as Journal of Gerontological Nursing, the American Journal of Nursing, and the American Nurses Association.

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Appendix A

FEEDING and NUTRITION POLICY

GOAL

All residents will have an enjoyable, dignified and safe dining experience. The nutrition and hydration status of each resident will be maintained as close to optimal level as possible.

FEEDING POLICY

- Residents will be properly positioned, and clothing protectors will be offered to each resident.
- Staff will sit next to the resident to assist and cue as needed per care plans.
- All residents will be encouraged to eat and socialize together in the dining room; all residents at the same table will be served together.
- The dining room will be well-lit and clean, tables will be dressed with tablecloths, and soothing music will be playing quietly as appropriate
- Food items will be passed out in a timely manner to each resident upon the arrival of the meal delivery.
- When a particular food is refused, the resident will be offered appropriate substitutes of similar nutritive value.
- Three meals will be provided each day.
- Snacks will be given between meals and at bedtime, according to the resident's desire or need, and will focus on real-food selections when possible
- Fluid will be available to Residents at all times.
- Trained staff will be present in the dining area to provide supervision of residents while eating.
- Baseline nutrition and hydration information are obtained by a licensed nurse on admission.

- A physician order is obtained on admission and every 30-60 days thereafter for all regular and therapeutic diets.

- A diet requisition is sent to the Dietary Department for all orders written by the physician.

NUTRITION POLICY

An ongoing assessment of ability to consume and assimilate food by residents is conducted by nursing personnel. Assessment includes:

- positioning needs

- ability of resident to feed self

- ability of resident to chew, drink, and swallow

- amount of food lost in spillage (compensated through supplementary nourishment)

- nutritional balance or imbalance of intake

- weight loss or gain

- signs of dehydration (dry mouth, poor skin turgor, hypotension, tachycardia, increase in BUN/CR levels)

- consideration of lifelong food habits

Consultation with dietary personnel is performed on admission and as needed.

Physician is notified of changes in nutrition and hydration status as they occur

Alternative methods of feeding and hydration (e.g., gastrostomy tube or intravenous therapy) are initiated following a physician order and are monitored by a nurse.

Observation for the desired effect or adverse response is performed and documented in the Progress Notes.

The Clinical Nurse Leader is responsible for initiating a *Nutritionally at-Risk* report (Appendix B).

Appendix B

Nutritionally At Risk Report

RESIDENT NAME: _____MR#_____ROOM: _____

GUIDELINES TO IDENTIFY RESIDENTS NUTRITIONALLY AT RISK

1. _____ 5% or more weight loss in 30 days or 10% in 180 days
2. _____ NPO or clear liquids greater than 3 days
3. _____ Pressure ulcer present
4. _____ Problems with chewing, swallowing, or mouth pain
5. _____ Leaves 75% or more of meals consistently not eaten
6. _____ Albumin less than 3.2 g/dl
7. _____ Vomiting or diarrhea for longer than 24 hours
8. _____ Other: _____

_____

RECOMMENDATIONS: (To be completed by the Dietitian; see progress notes)

1. Supplemental Feeding _____
2. Weekly weights _____
3. Labs _____
4. Other _____

Dietitian's Signature_____ Date _____

Physician's Signature_____ Date _____

Appendix C

Knowledge Questionnaire

1) **It is mealtime for your resident. The best steps that the staff member could take to prepare the resident for mealtime are: (Select all that apply)**

   a) Tell the resident the only entrée choice available for dinner
   b) Bring the resident to his/her room
   c) Offer to help fasten a clothing protector over his/her clothes
   d) Help to choose a table with dining companions

2) **As the caregiver for the resident, you will assist during the meal by:**

   a) Checking the care plan to see what type of feeding assistance is needed
   b) Asking the nurse or CNA who fed the resident yesterday what feeding assistance is needed
   c) Standing next to the resident and feeding one mouthful at a time
   d) Waiting to see if the resident asks for help

3) **To provide a comfortable environment and encourage a pleasant dining experience for resident: (Select all that apply)**

   a) Dining rooms will be cleaned and freshened regularly
   b) The tables will have tablecloths
   c) Soothing music can be playing quietly
   d) The dining room lights will be dimmed to provide a relaxed mood

4) **The resident does not want the dinner offered and refuses the meal. As the caregiver for the resident you should: (Select all that apply)**

   a) Offer the resident a substitute meal of similar nutritional value
   b) Express disappointment and ask if the resident would like to get ready for bed
   c) Contact the family to bring the resident in a meal
   d) Offer the resident two desserts and a choice of chips

5) **It is 10:30am and lunch is scheduled to be served at noon. The resident returns from physical therapy and asks for something to eat. Your best response is:**

   a) Remind the resident that he/she ate a good breakfast and that lunch will be here soon
   b) Ask the kitchen to send up the resident's lunch now
   c) Try to re-direct the resident's attention by turning on the TV
   d) Offer the resident a selection of snacks to choose from

6) **The resident rings the call bell and requests a refill of the bedside water pitcher. The resident does not have an order for fluid restrictions. As the caregiver for the resident you should:**

a) Bring one glass of water and instruct the resident to drink it while you wait
b) Ask the resident to wait until morning as this will likely decrease the need to urinate during the night
c) Bring a refilled water pitcher
d) Send a different caregiver to let the resident know the request cannot be filled

7) **After serving meals to residents in the dining room the caregivers should:**

a) stay in the dining room to supervise
b) go on dinner break together
c) leave the dining room to allow residents privacy
d) all leave the dining room together to feed in-room residents

8) **Information about your resident's nutrition and hydration status was obtained by:**

a) a licensed nurse when the resident was admitted
b) the CNA and other caregivers during the first few days at mealtimes
c) family members
d) the admission department staff before the resident was admitted

9) **Dietary orders and feeding care plans are obtained for**

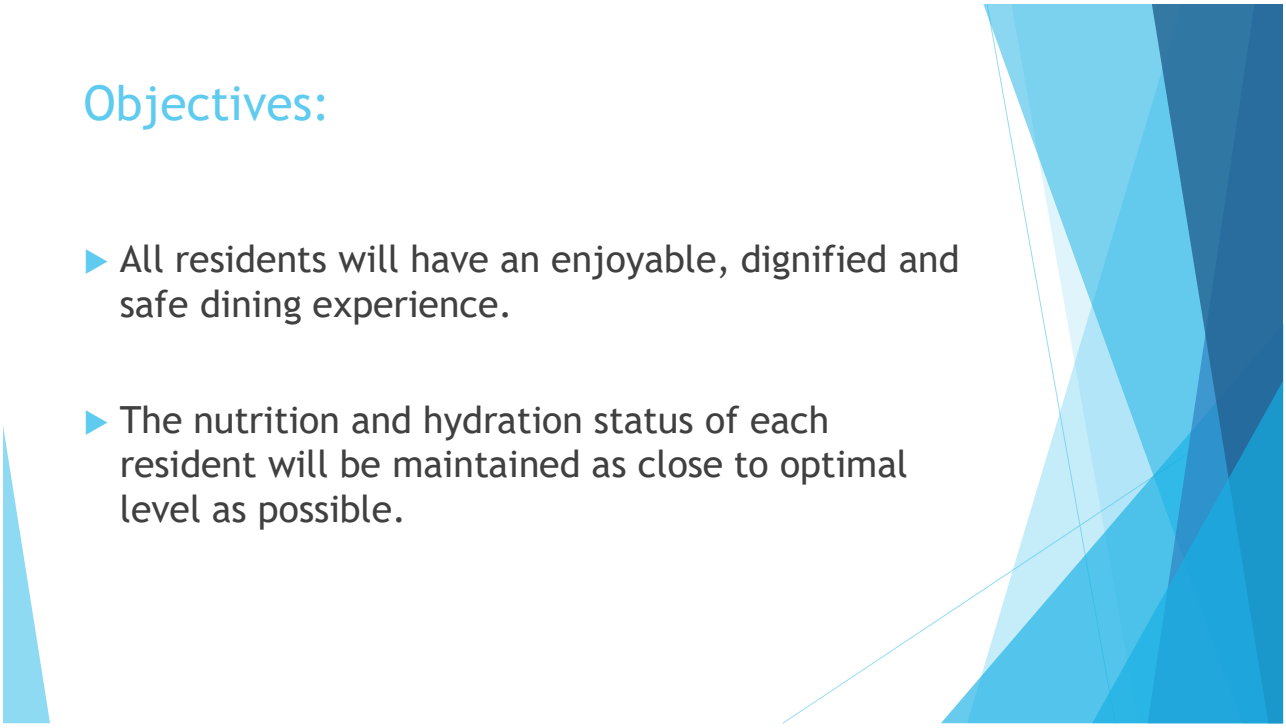
e) All patients regardless of dietary or feeding needs
f) Only patients who have special dietary needs such as diabetic diets
g) Only patients who have special feeding needs such as total assist
h) Only patients who have both special dietary and special feeding needs

10) **Your resident's dietary order is:**

a) obtained on admission and signed by the nurse or CNA
b) reviewed every year
c) sent to the Director of Nursing Services
d) obtained on admission and signed by a physician

Appendix D


Feeding and Nutrition
Policy and Procedures


Objectives:
All residents will have an enjoyable, dignified and safe dining experience.
The nutrition and hydration status of each resident will be maintained as close to optimal level as possible.

Feeding Policy

- Residents will be properly positioned and clothing protectors will be offered to each resident.

- Staff will sit next to the resident to assist and cue as needed per care plans.

Feeding Policy (continued)

- All residents will be encouraged to eat and socialize together in the dining room; all residents at the same table will be served together.

- The dining room will be well-lit and clean, tables will be dressed with tablecloths, and soothing music will be playing quietly as appropriate

Feeding Policy (continued)

- Food items will be passed out in a timely manner to each resident upon the arrival of the meal delivery.
- When a particular food is refused, the resident will be offered appropriate substitutes of similar nutritive value.

Feeding Policy (continued)

- Three meals will be provided each day.
- Snacks will be given between meals and at bedtime, according to the resident's desire or need, and will focus on real-food selections when possible

Feeding Policy (continued)

- Fluid will be available to Residents at all times.
- Trained staff will be present in the dining area to provide supervision of residents while eating.

Feeding Policy (continued)

- Baseline nutrition and hydration information are obtained by a licensed nurse on admission.
- A physician order is obtained on admission and every 30-60 days thereafter for all regular and therapeutic diets.
- A diet requisition is sent to the Dietary Department for all orders written by the physician.

Nutrition Policy

- An ongoing assessment of ability to consume and assimilate food by residents is conducted by nursing and therapy personnel. Assessment includes:
  - positioning needs
  - ability of resident to feed self
  - ability of resident to chew, drink, and swallow
  - amount of food lost in spillage
  - nutritional balance or imbalance of intake
  - weight loss or gain
  - signs of dehydration
  - consideration of lifelong food habits

Nutrition Policy (continued)

- Consultation with dietary personnel is performed on admission and as needed.
- Physician is notified of changes in nutrition and hydration status as they occur
- Alternative methods of feeding and hydration are initiated following a physician order and are monitored by a nurse.

Nutrition Policy (continued)

- Observation for the desired effect or adverse response is performed and documented in the Progress Notes.
- The Clinical Nurse Leader is responsible for initiating a *Nutritionally at Risk* report.

Nutritionally At Risk Report

RESIDENT NAME: _____ MR# _____ ROOM _____

GUIDELINES TO IDENTIFY RESIDENTS NUTRITIONALLY AT RISK

1. _____ 5% or more weight loss in 30 days or 10% in 180 days
2. _____ NPO or clear liquids greater than 3 days
3. _____ Pressure ulcer present
4. _____ Problems with chewing, swallowing, or mouth pain
5. _____ Leaves 75% or more of meals consistently not eaten
6. _____ Albumin less than 3.2 g/dl
7. _____ Vomiting or diarrhea for longer than 24 hours
8. _____ Other: _____

RECOMMENDATIONS: (To be completed by the Dietitian, see progress notes)

1. Supplemental Feeding _____
2. Weekly weights _____
3. Labs _____
4. Other _____

Dietitian's Signature _____ Date _____

Physician's Signature _____ Date _____

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