Coping with Behavioral Symptoms of Dementia: Educating Caregivers to Lower Stress

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Coping with Behavioral Symptoms of Dementia: Educating Caregivers to Lower Stress

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Abstract

Dementia is becoming increasingly more prevalent as individuals’ age. More than half of caregivers for patients with dementia rate the emotional stress of caregiving as high or very high (Alzheimer’s Association, 2016). Chronic stress can lead to caregiver fatigue, burnout, irritability and depression (Alzheimer’s Association, 2016). Recognizing stress may help improve the caregiver-patient relationship. The Progressively Lowered Stress Threshold (PLST) model is recommended as a framework for devising non-pharmacological interventions for persons with dementia across living environments (Buckwalter, 1987 & Coon et al, 2012). The purpose of this scholarly project is to conduct a review of the literature to understand the use of the PLST as a method to lower stress in caregivers of patients with dementia 1) develop and implement a pilot PLST education program 2) assess caregiver knowledge of behavioral symptoms of dementia and 3) evaluate levels of stress among caregivers. PLST is used as a framework to educate caregivers about the dementia and to expand caregiver skills in effectively responding to cognitive impairment, behavioral symptoms and care related needs. The educational program was developed, delivered and evaluated by thirty-seven health care provider/caregivers of patients with significant cognitive impairment. Feedback were obtained using a survey method to determine whether this type of programming improves knowledge of behavioral symptoms of dementia and lowers caregiver stress. Caregiver feedback and results revealed that the educational program was beneficial in improving knowledge of strategies to cope with dementia patient’s behavioral symptoms. More studies are needed to determine the impact of education on caregiver sensitivity toward the patient with dementia and whether training results in less work stress and improved satisfaction in caregiving.

Keywords: dementia, PLST, cognitive impairment, caregiver stress
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Section II: Introduction

Background Knowledge

As the aging population increases, dementia becomes increasingly prevalent (CDC, 2015). More than 5 million Americans are living with Alzheimer’s dementia…“an estimated 5.2 million people in this population are age 65 and older” (Alzheimer’s Association, 2017, p. 1). Older adults with dementia reside in a variety of settings, with family or friends in a private home, in assisted living, residential or skilled nursing facilities, or inpatient programs creating a growing need for competent caregivers. The progressive and debilitating nature of dementia symptoms exact a devastating toll on caregivers. More than half of caregivers of patients with dementia “rate the emotional stress of caregiving as high or very high” (Alzheimer’s Association, 2016, p. 40). Caregivers who work in facilities with dementia patients who exhibit distressing behavioral symptoms are at high risk for workplace stress.

One of the greatest challenges in providing care to this population is responding to patients’ behavioral and psychological symptoms of dementia (BPSD). The behavioral and psychological symptoms of dementia are of far greater incidence than the physical symptoms (Kar, 2009). Behavioral symptoms include a decline in emotional control, a lack of motivation, and social behavior manifested in emotional irritability, apathy, and coarsening of social behavior leading to discord between patient and caregiver. The most common behavioral symptoms are agitation, aggression, and hallucinations (Alzheimer’s Association, 2017). Agitation is reported in 20-45% of individuals with mild dementia and aggression in 20-50% of persons with moderate dementia (Ercoli, 2016). Aggression in the dementia patient population is caused by many factors. The patient may be experiencing physical discomfort, reacting to the environment, or as a result of poor communication between the patient and caregiver.
Understanding what contributes to patient behavior change is important to managing the distressing behavior. Learning to treat and recognize the triggers to behavioral symptoms reduces conflict between caregivers and care recipients. Conflict between patients and caregivers leads to stress, understanding the stressors experienced by caregivers is important to not only the patient, but to the well-being of the caregivers themselves. Contributors to caregiver stress such as a lack of preparation to provide care and a perceived lower self-efficacy in the ability to provide care result in decreased job satisfaction and increased turnover rates (Zimmerman et al, 2005).

The relationship between the caregiver and patient with dementia is central to dementia patient’s quality of life. The literature reports that aggression and anger among patients with dementia poses the greatest challenge for staff who work in skilled nursing facilities (Lachs, Rosen, Teresi, Eimicke, Ramirez, Silver, and Pillemer, 2013). Aggressive behaviors may result in injury to the patient and staff, patient and staff dissatisfaction, elder abuse and turnover of caregivers. The behaviors are distressing to both patient and caregiver, increasing the morbidity of patients, burden of caregivers and overall cost of dementia care, yet these behaviors are mostly treatable (Kar, 2009).

Caregivers of patients with dementia suffer from increased stress due to the long term effects and decline of dementia (Stolley, Reed, & Buckwalter, 2002). Caregivers often find the confusion, suspicion, fearful behaviors and fluctuating personalities of patients with dementia particularly perplexing. Caregiver stress may result from physical or emotional stress, exhaustion, social withdrawal or anxiety. Most caregivers are unprepared to deal with the stress of caregiving due to a lack of knowledge and lack of support associated with being a caregiver (Bevans and Sternberg, 2012).
Supporting caregivers comes as at a cost not only to the caregiver but to the facility that employs the caregiver. One third of the cost of dementia care is linked to BPSD symptoms. The cost includes the high turnover rate among staff due to lack of training to treat BPSD, the increased staff time spent in supervision, and cost of antipsychotic medications to manage BPSD (Kales, Gitlin & Lyketsos, 2017).

Often times, BPSD is treated with antipsychotic medication or restraints, yet adverse events such as respiratory distress, cardiovascular distress, increased agitation/aggression, and even death can occur (Alzheimer’s Association, 2017). To this end, the Center for Medicare and Medicaid Services (CMS) has made reducing the use of antipsychotic medications in long term nursing home residents a national goal (Centers for Medicare and Medicaid Services, 2017). The CMS national initiative was to reduce the use of antipsychotic drugs in nursing home resident by 15% by the end of the calendar year 2012 (Centers for Medicare and Medicaid Services, 2012). In 2016 the current rate of antipsychotic drug use is 16% (Centers for Medicare and Medicaid Services, 2017). The Centers for Medicare and Medicaid Services reported the percentage of nursing home residents physically restrained daily declined from 21.1% in 1991 to less than 5% in 2007 (CMS, 2008). The evidence suggests that non-pharmacologic interventions (education, development of new coping skills for stress, etc) for these symptoms are highly effective. Developing alternative methods to cope with these symptoms and educating staff on these methods is paramount to improving the sensitivity of caregivers to the patient needs and to improve the quality of dementia patient care.

Education and support programs for caregivers of patients with dementia in non-pharmacologic methods to alleviate behavioral symptoms has been shown to be successful in reducing the caregivers burden (Marim, Silva, Taminato & Barbosa, 2013) and increase positive
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appraisal of the caregiving situation (Stolley, Reed, & Buckwalter, 2002). One non-pharmacologic behavioral intervention identified in the literature is the Progressively Lowered Stress Threshold Model (PLST). The PLST helps caregivers cope with a dementia patient’s agitation and aggression symptoms. The PLST model has been shown to be effective at improving the quality of life for individuals with dementia and caregiver due to lowering stress in both the patient and the caregiver. The interventions in this model have been applied to nursing practices in institutional settings and for training staff (Cheung, Chien & Lai, 2010). In use across living environments (home, skilled nursing facilities, community) the PLST model has been described as a cost effective framework to design non-pharmacological interventions to help caregivers cope with behavioral symptoms.

Coping with the behavioral symptoms in patients with dementia is a skill required by caregivers who work in skills nursing facilities. Orientation and continuing education in skilled nursing facilities is costly and the availability of continuing education is limited (Aylward, Stolee, Keat, and Johncox, 2003). The educational culture in a long-term care facility differs from that of an acute care facility, as there is less availability of qualified staff to provide education and few incentives to motivate staff to attend educational programs. Many long term care facilities lack the availability of advanced practice nurses to measure outcomes or educate staff. Since dementia related behavioral symptoms lead to an increased cost of overall dementia related care, a need to improve the quality of care exists.

Review of the Evidence

To improve the quality of care for dementia patients it is necessary to maintain competent knowledgeable caregivers. Most caregivers of patients with dementia feel unprepared to deal with the stress of caregiving due to a lack of knowledge and lack of support associated with
being a caregiver. To understand best practice methods to cope with the stress of caregiving, a literature review using the following PICO (population, intervention, comparison, outcome) question was conducted: In caregivers of patients over the age of 65 with dementia related behavioral symptoms, is the Progressively Lowered Stress Threshold model (as compared to usual care) useful to lower caregiver stress?

The search engines PubMed, Cochrane Database of Systematic Reviews and CINAHL were queried for studies using the following keywords: dementia, progressively lowered stress threshold, caregiver stress, and dementia related behavioral symptoms. The search resulted in > 500 articles including RCTs (150), literature review, (75), case studies (136), qualitative studies (37), and systematic review (52) and cross sectional studies (50). The articles were sorted further for relevance to caregivers of dementia patients, stress in caregivers and dementia related behavioral symptoms. Using the limits of age (> age 65) and further sorting for relevance to the PLST as an intervention, resulted in a smaller yield. The abstracts of the remaining articles were reviewed and nine studies which implemented the PLST as an intervention for lowering caregiver stress in dementia care were accepted.

The use of the PLST to support the caregivers of patients with Alzheimer’s Related Disease and Dementia (ADRD) has been described in the research literature as a tool to guide the individual treatment interventions since the 1980’s (Buckwalter, 1987). Since that, time many studies have validated this approach to care. In an early randomized controlled trial, a dementia caregiver training protocol built on the PLST model was tested with a sample of 240 caregivers to patients with dementia (Gerdner, Hall & Buckwalter, 1996). Subjects were selected with the following criteria: informal caregiver, caring for an individual living in the community that has memory impairment, lives within 2 hours of study site, provides four or more hours of
supervision care weekly, never been trained on the PLST model, and a Global Deterioration score of 2 or below. The intervention caregiver group were trained to provide appropriate care through increased support, increased knowledge of ADRD, and behavioral management techniques. The control group had 3 in-home training sessions lasting one hour, 1 week apart, on a standardized approach to caregiver training, including a focus on support and resources in the community. Results showed improvement in the characteristics of the nursing diagnosis, research based intervention, desired patient outcomes, acceptability to the patient, capability of the nurse, and feasibility for doing the intervention.

A second study tested the efficacy of community based PLST interventions used by caregivers in managing the behaviors of person with ADRD (Buckwalter et al, 1999). This study compared the effectiveness of teaching the PLST model to caregivers versus support from case management, community based services, and support groups. The study was conducted over a 4-year period, a continuation of a study above (Gerdner et al, 1996). The aim of this study was to understand whether use of the PLST impacted the caregiver’s depression level. Subjects completed a Behavioral Assessment for Low Stimulus Care Plan (BALSCP) prior to the start of the study. This assessment tool identifies individualized problems which can be addressed with the PLST intervention. A sample of 245 caregivers were evaluated in this randomized controlled trial. Subjects in the experimental group received 3-4 hours of training in the PLST model with return demonstration, and biweekly follow up calls for the first 6 months of the study. Subjects in the comparison group received 2 in home visits giving information about ADRD, referral for community services, support groups and case management. Two screening tools, Profile of Moods States (POMS) and Geriatric Depressed Rating Scale (GDRS), were used to measure the caregivers affect and depression, and other related variables. The study hypothesized that
caregivers who receive behavioral management training through the PLST model report less depression than those who receive usual care. At six months, POMS and GDRS data both revealed caregivers in the PLST intervention group (experimental group) were less depressed than caregivers in the comparison group.

The efficacy of the PLST model has been tested in regard to teaching spousal caregivers how to manage behavioral issues in individuals with Alzheimer’s disease and related disorders (ADRD) (Gerdner, Buckwalter & Reed, 2002). In this randomized controlled trial, data was collected from 237 caregivers. The experimental group received psycho-education in the PLST model, while the control group received education from community based services, support groups, and case management. Findings showed subjects who were cared for by caregivers with the PLST model education showed improvement in memory and behavioral problems, as compared to caregivers without PLST training. One of the weaknesses in this study identified by the authors is the lack of ethnic diversity in the subjects of the study, as 93%-94% of the caregivers were white. The authors discovered less correlation between the measure of cognitive decline and behavioral symptoms, and surmise that other factors besides cognitive impairment (such as environment) may affect symptoms of ADRD.

The impact of the PLST model on the burden of care and the satisfaction of caregivers with caregiving situation research sites were established in rural Iowa, Minnesota, Arizona, and Indiana. The authors hypothesized that a better caregiving situation will improve the delivery of care (Stolley et al, 2002). This randomized controlled trial consists of 241 subjects (133 randomly assigned to experimental group and 108 to the comparison group) through a year long study. Prior to the start of the study, all participants completed the Behavioral Assessment for Low Stimulus Care Plan (BALSCP) in order to tailor PLST interventions to each caregiver and
recipient of care. Caregivers in each group received four hours of training, the intervention group focused on PLST interventions, while the comparison group focused on community interventions. Caregivers in both groups were contacted every two weeks during the first six months of the study to discuss behavioral logs. Caregiver attitudes were measured using four factors of Philadelphia Geriatric Center Caregiving Appraisal Scale: master, burden, satisfaction, and impact. The experimental group had a less negative impact on life, less burden, and higher satisfaction scores than the comparison group. No difference in the delivery of caregiving was noted.

The effectiveness of the PLST model in promoting more adaptive and functional behavior in older adults with dementia is described in a literature review (Smith, Gerdner, Hall & Buckwalter, 2004). The authors describe the outcomes of research using the model over 17 years in skilled nursing facilities, the community, and acute care hospitals. The model was found to be the most effective when caregivers were trained to use it with patients in the middle stages of disease trajectory. Teaching caregivers who “supervise, support, and assist those with dementia…improves the knowledge and skills important to quality of care and caregiver coping” (Smith et al, P. 1755). Evidence in this review reveals using the PLST interventions resulted in less negative behaviors in the patients (fidgety, refusing care, sundown confusion, violent behavior and psychosis) and improved the caregiver/care recipient relationship. The authors recommend more studies of outcomes of PLST effectiveness in assisted living facilities.

Using a case study method, the application of the PLST model across the continuum of care was presented (Smith, Hall, Gerdner, and Buckwalter, 2005). In this case, the PLST model was applied to an 83-year-old widowed female with dementia. The patient, Vera, was transitioned across care settings due to changes in health, social support and care needs. The
PLST model was implemented in different settings (home, day treatment programs, assisted living facilities, group homes, foster care, nursing homes) as Vera’s health and mental status declined. The caregiver implemented the PLST interventions by reducing stimuli when stress occurred (decreasing noise and assessing for physical stressors), allowing the patient to remain in control, allowing the individual with dementia to perform ADLs by herself, keeping record of activities and times of day that correlate with increased anxiety or behavioral outbursts, listening to behaviors, and modifying environment to support losses. The caregiver in this study found the model useful at decreasing their stress level. The PLST model was easily understood, allowed for the flexibility to change the plan of care based on the patient’s needs, and was able to be implemented by nurses with diverse specialty backgrounds. The PLST model has been shown to be useful in many different types of settings, with many different types of caregivers to promote comfort and improve optimal function of the patient.

**Summary of the Review of the Evidence**

Since the 1980’s the PLST model has been studied using quantitative and qualitative research techniques. Caregivers across the health care continuum of care (from home care to skilled nursing facilities) have been educated in use of the model with resulting in improved capability of staff who care for patients with dementia. Caregivers who receive behavioral management training through the PLST model report less depression, higher satisfaction with care and improved provider/patient relationships. Evidence in this review reveals using the PLST interventions resulted in less negative behaviors in the patients (fidgety, refusing care, sundown confusion, violent behavior and psychosis) and even improvement in memory and behavioral problems. A gap in the literature remains as to whether the model is helpful to decrease caregiver stress, reduce staff turnover/call in’s or specific improves specific patient care outcomes such as
less medication or restraint use. Overall, the evidence is compelling to use the PLST model to develop an educational intervention. The model is used as a framework for development of the scholarly project intervention of to help caregivers improve skills in managing the behavioral symptoms of dementia.

AIM Statement

The purpose of this scholarly project is to 1) conduct a review of the literature to understand the use of the PLST as a method to lower stress in caregivers of older adults with dementia 2) ascertain environments where this program will have a positive impact 3) develop a pilot PLST education program based on the evidence 4) evaluate the level of caregivers’ knowledge of behavioral symptoms of dementia and assess perceived stress pre-and post-education program implementation.

Problem Needs Assessment

The review of the evidence reveals many challenges that caregivers of patients with dementia face. To assess and treat these challenges, two skilled nursing facilities that specialize in dementia care were selected to ascertain the need for project implementation. Prior to design of the project intervention, an educational needs assessment was completed through interviews with the managers of both project implementation facilities. Information was gathered from multi-disciplinary staff (nurse managers, case managers, registered nurses, and certified nursing assistants) through oral discussion. Through this discussion, several themes occurred: BPSD symptoms are common among dementia patients at the facilities, a high need for patient sitters for one-on-one monitoring exists, staff sick call-in’s may be related to on the job stress, staff have been injured due to aggressive patient behaviors and increased turnover rates may be related to job dissatisfaction from stress at work. Caregivers report that many times treating
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BPSD with medications is the first action, progressing to restraints if the medications fail. Insufficient behavioral education and skills training for staff on how to respond to patients with BPSD is a barrier to a delivery of quality care in patients with dementia. Thus an educational program on non-pharmacological approaches to treating dementia related behavioral symptoms was developed for the multidisciplinary staff in the facilities.

Educating caregivers about how to appropriately intervene with patients and BPSD has been shown to decrease morbidity and improve quality of life for both patients and caregivers (Kar, 2009). Staff and managers at both facilities voiced inadequate management of BPSD, leading to worsening symptoms for patients. These symptoms add to caregiver workload and stress which results in staff burnout and increased turnover rates. Increased turnover lessens the pool of experienced caregivers. A lack of experienced mentors to teach novice caregivers how to deliver high quality care exists. At the target facilities, ongoing skills training is necessary to improve caregiver staff knowledge of behavioral interventions to treat the behavioral symptoms of dementia.

**Intended Improvement**

Over the past few decades, more attention has been directed towards the cause of behavioral symptoms (irritability, anxiety, fear, panic, restlessness, aggression) in patients with dementia (Alzheimer’s Association, 2017). In the past dementia behaviors considered part of cognitive impairment. Now diverse personal, social, and environmental factors are known to be precursors to the behavioral and psychological symptoms of dementia. The preferred initial method of intervention for BPSD is non-pharmacological intervention and combinations of behavioral interventions (PLST, behavior modification, active listening, diversion) are suggested to improve patient outcomes.
The intended improvement for this project is to improve caregiver knowledge in dealing with a patient’s behavioral symptoms of dementia to lower the caregiver’s stress. If successful, this program has the potential to ultimately decrease the use of pharmacologic management of BPSD, lessen use of restraints, improve the caregiver/patient relationship, improve patient and family satisfaction, decrease staff turnover and sick call ins, and lower caregiver stress.

Theoretical Framework

To support implementation of this project, two theoretical models are considered: PLST (Buckwalter, 1987) and the Theory of Reasoned Action/Planned Behavior (Rimer and Glanz, 2005). The PLST model illustrates the following key principles: support losses to help maximize patient function, provide positive regard, use anxiety and avoidance to estimate activity and stimulation levels, teach caregivers to observe and listen to patients, adjust the environment to promote safety and provide ongoing education. The PLST model has been proven to expand caregiver skills to effectively respond to behavioral symptoms and care related needs. The model is helpful in managing BPSD by clarifying target symptoms, ruling out delirium and other comorbid major psychiatric diagnoses and addressing social, environmental, or behavioral remedies (Lindsey & Buckwalter, 2009). Since the PLST model has been a successful tool used to improve caregiver stress, this model is used to develop the educational intervention in this project. To test this model, the project is developed as a pilot educational program for staff who work at facilities that specialize in caring for patients with dementia.

Theory of Reasoned Action/Planned Behavior predicts an individual’s behavior by their attitude towards performing a behavior. A person’s intention to perform a behavior is predicted by a person’s attitude toward the behavior, and the subjective norms regarding the behavior. Subjective norms are the result of social and environmental surroundings and a person’s
perceived control over the behavior. Positive attitudes and positive subjective norms result in greater perceived control and increase the likelihood of intentions governing changes in behavior (Rimer and Glanz, 2005).

The theory of reasoned action explains the interaction between attitude, environment and norms and how these factors affect an individual’s sense of control. The higher the sense of control, the more likely behavior is to change (Figure 1). According to this model, the more positive the attitude and subjective norms of caregivers, the greater the perceived control is and the stronger the individual’s intention will be to change to provide quality care for individuals with dementia (Rimer and Glanz, 2005).

![Theory of Reasoned Action/Planned Behavior](image)

Figure 1. Theory of Reasoned Action/Planned Behavior.

The attitudes of caregiver’s norms of the organization and the environment in which care is delivered impact the perceived control of a situation. The more control a caregiver perceives,
the more likely a behavior change is to occur. Caregivers in skilled nursing facilities face stressful challenges on a daily basis in caring for patients with behavioral symptoms of dementia. Staff education on coping with these challenges may be a strategy that effects positive behavior change, improve the attitudes of staff toward work and the culture of caring at the care facilities.

Section III: Method

Ethical Issues

This quality improvement project aims to improve quality of life for caregivers and ultimately dementia patients by teaching caregivers to cope with behavioral related symptoms of dementia. As a psychiatric mental health nurse practitioner PMHNP/DNP student, this DNP project is within the scope of PMHNP practice. The role of the psychiatric nurse practitioner is to “teach patients, families and groups about treatment options with respect to developmental, physiological, cognitive, cultural ability and readiness and demonstrate best practices of family approaches to care” (Thomas et al, 2012, p. 72). One of the roles of a psychiatric nurse practitioner is to use psychotherapeutic techniques (such as PLST) to educate caregivers in the skills necessary to proactively reduce stress, and decrease burden on the caregiver.

This evidence based translational research project was accepted by the DNP committee as exempt from Institute Review Board approval by the University of San Francisco. A Statement of Determination form was completed and reviewed by the DNP committee (Appendix A). This author completed the Health and Human Service (HHS) online modules in regard to protection of human subject (Appendix B) to assure the project complied with ethical guidelines.

All participants in this project were consenting adults. An informed consent statement was included at the beginning of each survey. Participation in the project was voluntary, and
participants were able to withdraw their participation at any time. Pre- and post-education program survey data was collected without any identifying information and strict anonymity was maintained during the collection of data. No identifying information was collected from individuals who participated in the educational program and survey, in the results or in publication of the results. Once the project was complete, subjects were given the option to receive a copy of the survey results. The results will be shared with the managers of the facility.

**Setting**

The project was implemented at one urban northern California and one rural central California skilled nursing facility. Discussion and meetings were held with management and staff at the facilities prior to the project being implemented. At these facilities, residents who exhibit behavioral symptoms have been administered psychotropic or pain medications or placed in restraints to manage distressing symptoms (Interview and personal communication with facility managers, May 17, 2017 & June 16, 2017). Pharmacological management and restraints may cause respiratory distress, cardiovascular distress, increased agitation/aggression, and even death (Alzheimer’s Association, 2017). Both facilities voiced interest and needs for education on alternative methods to manage patients’ distressing behavioral symptoms.

**Facility # 1: Urban Setting**

The first facility where this project was implemented was a short term, voluntary inpatient program with 22 beds, which focuses on diagnosing and caring for behavioral health concerns in people age 65 and older. This program provides care to patients in a populous urban area in northern California which provides inpatient care for memory loss, disorientation, hallucinations, depression, anxiety, manic depressive illness, acute psychosis and adjustment disorders of aging. Services provided by the facility include counseling, medical specialty care,
occupational, physical and recreational therapy, medication management, and nutrition management. As a high acuity inpatient unit for patients with dementia, staff are faced on a daily basis with the stress of caring for patients with distressing behavioral symptoms on a daily basis.

This facility is a 12 bed short-term, voluntary inpatient program near a large metropolitan area in northern California. The facility focuses on diagnosing and caring for behavioral health concerns in people age 65 and older. When the census is full (i.e. 12 patients), the unit is staffed with three Registered Nurses (RNs) and two Licensed Vocational Nurses (LVNs) on the day shift (0700-1930) and three RNs and one LVN on the night shift (1930-0700). The nurse to patient ratio is 1:4, and most of these patients have an acuity of 4 to 5. Acuity is a measurement of the intensity of nursing care required by a patient, with one being the lowest and five being the highest level of acuity. A higher level of acuity requires more intensive nursing care and more nursing interventions. The duties of the RN consist of administering medications, coordinating behavioral group discussions, documenting nursing care, patient teaching and assisting with patient care if needed. LVNs assist patients with activities of daily living (ADL’s: e.g. bathing, eating), 15 minute patient safety check and rounds, and 1:1 patient supervision (e.g. suicidal ideation, restraints, aggressive behavior). The charge nurse is appointed as the relief nurse and assists staff in need of help. The treatment program is short term with a rapid patient turnover rate (length of stay is typically 5 days) necessitating admission and discharge interventions and paperwork. Staff time for on-shift education is limited, as most staff are busy with patient care duties and unable to attend educational programs while caring for patients. Resources (funds, time, and qualified staff) are available but scarce for staff education.

This facility has 10 RN’s (8-full time/2 -part time) and 4 LVN’s (full time). Upon hire, staff is given an 8-hour orientation on dementia care and hospital policy training, and 32 hours of
shift orientation. The regular staff are required to complete 12 hours of in-service training annually, which is primarily skills based, the use of new equipment, or addressing new pharmacological agents. Attendance at in-service education is mandatory. In service announcements are posted online in an education folder, in the staff lunch room, or in staff bathrooms at the beginning of the year for the entire year. The staff is required to attend all in-service education and log training hours. Typically, staff attend educational programs outside of routine work hours.

**Facility # 2: Rural Setting**

The second facility where this project was implemented was a 144-bed short term and long term, rehabilitation center for elder patients located in a rural area in central California. The case mix includes, but is not limited to, patients with the diagnoses of chronic debilitating diseases: dementia, congestive heart failure, coronary artery disease, chronic obstructive pulmonary disease, stroke and diabetes. This facility employs a team care delivery approach with weekly multidisciplinary team management rounds to improve patient outcomes. The multidisciplinary team includes: physicians, registered nurses, certified nursing assistants, resident assessment director, therapists (occupational, physical, and speech), nutrition, the directors of nursing, staff development and social activities. The patients are evaluated by the multidisciplinary team within 72 hours of arrival to assess the patients’ clinical status, initiate discharge goals, and develop and individualized care plans. At this facility, the interdisciplinary approach improves communication and satisfaction between patients, families and staff.

In discussion with the management of the facility, it was determined that the daily census is typically patients over the age of 65 with more than half suffering dementia symptoms. Staffing consists of two RNs and four (Certified Nursing Assistants(CNAs) on the day shift
(0600-1400), afternoon shift (14-2200), and during the night shift (2200-066). A minimum of two licensed RNs work each shift. The duties of the RN include assisting with ADLs, medication administration, and patient assessments.

This facility has 22 full-time CNAs with experience ranging from novice to expert. The CNA staff is ethnically diverse with more than half of the staff capable of speaking a language other than English. According to the manager of the facility, many CNA’s are inexperienced due to the high turnover rate. A frequent need to hire new staff is present. Upon hire, caregivers receive 5-hours of education on dementia care and 16 hours of hands-on facility training. This facility requires staff caregivers to complete 5 hours of dementia training annually. The education is offered by an outside training facility with in-service topics encompassing a range of topics in caring for patients with dementia. Attendance for in-service education is mandatory. In-service announcements are posted in the break room or communicated through via e-mail and caregivers are accountable for logging their own education hours.

The CNAs assist patients perform ADLs, round on patients for safety, and provide 1:1 patient supervision as needed. According to CNAs, due to a high patient to staff ratio, time is limited to manage BPSD. Once a patient exhibits dementia related behavior symptoms, 1:1 monitoring or restraints to prevent the patient from self-harm may be the first line of treatment. If 1:1 monitoring of a patient is required, the CNA’s assignment is reassigned to another RN or CNA, increasing each staff member’s workload. If more than one patient develops BPSD, the staff finds it difficult to manage the workload adding to daily stress. The CNAs may “feel overwhelmed” with their job and respond to BPSD by “reporting behavior to an RN to obtain a medication to control the behavior”. CNAs report “stress” as they are the primary caregivers at the point of care.
Prior to the development of the intervention, feedback from meetings with staff at each facility was compiled. The needs assessment identified what education was needed, who should attend the program, when the program should be delivered and where the project could be implemented.

Planning the Intervention

The first step in planning the intervention was to obtain the approval and support of the administrators as the facilities where the project was to be implemented (Appendix C, D). The DNP student/project manager initially met with stakeholders at the one urban and one rural skilled nursing facility who specialize in treatment of patients with dementia and behavioral symptoms. The rationale for using these facilities was to better understand how an educational program might impact the knowledge and stress levels of caregivers of patients with dementia and behavioral symptoms. Once approval was received and dates/times/locations were determined, the program was advertised to employees at both facilities. Posters with the target audience (inter-professional health caregivers/providers caring for patients with dementia) were posted for staff.

The intervention for this project was delivery of an educational program entitled: *Skill Building: Coping with Behavioral Symptoms of Dementia* (Appendix E). The education program used the PLST model as a framework for the development of case studies and interventions. By the end of the presentation, the learners were expected to: 1) understand causes and factors that contribute to challenging behaviors in patients with dementia, 2) apply evidence-based strategies to respond to challenging patient behaviors and lower caregiver stress, 3) identify resources to improve care of patients with memory loss, and 4) identify tips to lower caregiver stress. The educational program included a combination of lectures, video case studies, and a question and
answer portion. The program was designed using interactive teaching strategies to engage learners with differing learning styles. The case scenarios were hypothetical patient scenarios derived from actual patient cases and supplemented by UCLA Health (2015) videos. Video scenarios on hallucinations, repetitive behaviors and wandering were followed by open-ended questions to stimulate group discussion. These type of case scenarios were selected as these are the most common distressing behaviors experienced by patients with dementia (Alzheimer’s Association, 2017).

The educational program was delivered over a one-hour time period with an allotted time for case study discussion, questions and answers. The education program was competency-based, and intended for the participant to practice skills through a case-based method. Prior to and at the time of completion of the education program, the participant’s knowledge of skills to cope with behavioral symptoms of dementia and stress level were evaluated through a pre and post-assessment survey packet (Appendix F-H). The survey was designed with multiple choice knowledge questions on the skills needed to cope with behavioral symptoms of dementia and a caregiver self-assessment of stress. Two instruments were modified to fit the scholarly project setting and assess the outcomes of knowledge and caregiver stress. Part 1 of the survey was developed evaluate knowledge of behavioral symptoms of dementia using six multiple choice questions based on the patient scenarios in the teaching module. Part 2 of the survey the stress of caregivers and was designed with attitudinal statements and open ended questions using the Cargiver Health Self-Assessment Questionnaire (HealthInAging, 2017) as a model. This questionnaire was developed by the American Medical Association as a guide to help caregivers look at personal behaviors and health risks. This portion of the survey was developed to assess caregiver level of stress with five “Yes or No” attitudinal statements including: “had trouble
focusing on what I was doing”, “had difficulty making decisions, “felt completely overwhelmed”, “felt a loss of personal time”, or “been edgy or irritable”. If a responder answered, “felt completely overwhelmed” or yes to three or more of these statements, a high degree of stress is likely being experienced. Participants were asked an overall question regarding level of stress: On a scale of 1 to 10, with 1 being “not stressful” to 10 being “extremely stressful,” to the current level of stress. Any rating of 6 or higher was considered a high degree of stress. Responders experiencing a high degree of stress are encouraged to consider making an appointment with a health care, professional, joining a support group or taking a break from caregiving. Last, participants were asked three open ended questions including: “What strategies do you use to lower your stress? What resources have you used to lower your stress? And is your stress related to work? These questions were designed to ascertain caregiver coping mechanisms. Part 3 of the survey assessed provider satisfaction with the continuing education program (Appendix I).

Initial data regarding knowledge and stress were gathered immediately preceding and following delivery of the educational program via a paper survey (Appendix J-L). One-week post program delivery, data was gathered again via an online format, using Qualtrics©. The Qualtrics survey was developed with the assistance of the university information technology staff. The survey was sent to the education program attendees via e-mail with a link to the anonymous response system. The purpose of the 1-week post education survey was to ascertain if caregivers found the education beneficial to improving knowledge of the PLST model, if the strategies to cope with behavioral symptoms were attempted and if the education had any impact on caregiver stress.

**Facilitating factors**
Both the Progressively Lowered Stress Threshold and Theory of Reasoned Action/Planned behavior models provided framework for this project. PLST was used to develop best practice interventions to improve the relationship between the patient and caregivers and improve quality care for patients with dementia (Table 1). These key principles and interventions were used to develop the teaching module interventions in this scholarly project. Suggested interventions were illustrated in the teaching videos and highlighted in the responses to common problems demonstrated in the case scenarios.

<table>
<thead>
<tr>
<th>Progressively Lowered Stress Threshold Model (PLST)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PLST Key Principle</strong></td>
</tr>
</tbody>
</table>
| 1. Support losses to help maximize function. | Change in environment, staff, and routine. | -Promote a regular routine.  
- Avoid arguing with patient.  
- Implement care that reflects the patient’s routine schedule.  
- Schedule rest periods throughout the day.  
- Adjust levels of activity and stimulation on the basis of the patient’s stress response.  
- Encourage staff to wear nametags and introduce themselves to each patient. |
| 2. Provide positive regard. | Staff knowledge deficits regarding BPSD. | -Avoid making negative comments or corrections in response to patient.  
- Use distractions or acceptance, rather than confrontation.  
- Allow and encourage patient to complete self-care activities as he/she is able with minimal prompts or taking over. |
| 3. Use anxiety and avoidance to estimate activity and stimulation levels. | Stress reaction to losses (real and perceived). | -Look for early signs of anxious behavior.  
- Keep a record of activities and times of day during which the patient shows increased anxiety. |
| 4. Teach caregivers to observe and listen to patients. | Perpetuation regarding the belief that personal items have been stolen. | -Listen to repeated phrases and identify significance.  
- Provide personal items that provide comfort.  
- Respond to repeated behaviors as a sign of anxiety. |
| 5. Adjust environment to support losses and increase safety. | Belief that belongings are being stolen. | - Adjust environment to reduce stimulation and potential misinterpretation.  
- Provide environmental cues to increase orientation of patient. |
6. Provide ongoing education, support, care, and problem solving.

| Knowledge deficit among staff regarding BPSD. | -Provide referrals to staff for support groups.  
-Facilitate collaboration among interdisciplinary staff to individualize care and routines of each patient.  
-Provide ongoing staff education |


Table 1. PLST model.

The Theory of Reasoned Action/Planned Behavior was applied to implement this project. The theory implies that the more positive the attitude of the caregiver and positive the subjective norms are towards caring for an individual with dementia, the greater the perceived control is and the stronger the individual’s intention will be to care for individuals with dementia. Participation in educational programs that improve attitudes and control of situations may result in an increased ability to care for patients with behavioral symptoms. It is hoped that staff who participated in the educational program will use and share the skills learned in the program with peers. Impaired and higher than normal levels of stress may lead to the inability to take reasoned actions or plan behavior that is evidence based. If stress level is high, change will not occur (i.e. staff may choose medications or restraints rather than behavioral interventions). Organizational culture at the facilities need to be changed in regard to responding to behavioral symptoms of dementia. The management and staff value education as an adjunctive method to promote a culture change.

A goal of the project was to decrease the caregiver’s stress level with the provision of education and resources on how to cope with BPSD and manage stress. Addressing the caregiver’s knowledge and stress level due to dementia related behaviors will help the participants recognize personal stress. Facilitating factors include the organization’s recognition of the educational need and support of the staff to attend the educational program. Management support
was apparent as caregivers were paid for attending the training workshop and managers of both facilities encouraged staff attendance.

**Cost-benefit analysis**

Resources that were required to implement this educational program included the time to search the literature, develop the presentation and surveys, and create handouts. Other costs included printer ink, paper for pre-tests and post-tests, and writing materials (pens) to take tests. Last, food and drinks were provided as an incentive to attend the program. Conference rooms at both facilities were available at no cost for the educational meetings.

The cost benefit analysis (Appendix M) compares the total cost of training for 37 participants versus the cost of the potential absences from caregiver stress. When an employee is absent from work, the employer must find a replacement to work overtime, which is $90 per hour for social workers, $42 per hour for CNAs, $45 per hour for LVNs, $105 for RNs, and $120 for NPs.

**Facility # 1:**

- $1,035 ($60 x 1.5 overtime x 11.5 hours) per day, $ 3,105 per month, $37, 260 per year, based on the absence rate of 3 days per month per social worker.
- $517.50 ($30 x 1.5 overtime rate x 11.5 hours) per day, $1,552.50 per month, $18,630 per year, based on the absence rate of 3 days per month per LVN.
- $1,207.50 ($70 x 1.5 overtime rate x 11.5 hours) per day, $3,622.50 per month, $43,470 per year, based on the absence rate of 3 days per month per RN.
- $1,380 ($80 x 1.5 overtime rate x 11.5 hours) per day, $4,140 per month, $49,680 per year, based on the absence rate of 3 days per month per NP.
Facility # 2: Each daily absence costs the facility $315 ($28 x 1.5 overtime rate x 7.5 hours) per day, $945 per month, $11,340 per year based on the absentee rate of 3 days per month per CNA.

Employee absenteeism increases cost for the employer. Finding replacement staff is difficult and costly. Caregiver stress is increased when regular staff who understand the culture and policies of the organization are not available. According to Ercoli (2016), dementia patients are intuitive to caregiver stress. If patients and families are dissatisfied, this impacts the reputation and viability of the organization.

Communication Matrix Plan for the Project

The communication plan for this project (Appendix N) was developed by the DNP student. The student developed, delivered and recorded results of the project. Open communication was maintained between the agencies, staff, university, and faculty. The managers of both facilities reviewed and approved the project prior to the presentation. The DNP chair assisted in the Continuing Education Approval Process (CEAP) for CEAP credit. The student was accountable for communicating with the School of Nursing administrative assistant regarding return of CEAP sign in forms and evaluative feedback. The scholarly project committee provided written and oral evaluative feedback to the student throughout the implementation of the project until complete.

Implementation

The project implementation included the following: (1) identified the problem in managing dementia related behaviors through a needs assessment, (2) reviewed evidence-based resources to address the identified problem, (3) designed an educational program with interventions based on evidence-based practices (4) planned the implementation and evaluation
of the educational program intervention, and (5) reported the outcome results to the university and project implementation facilities.

Prior to implementation of the scholarly project in February 2017, the DNP student met with both the DNP chair and committee to attain approval for the project topic by submitting a statement of determination (Appendix A). After approval of the project topic by the DNP chair and committee the DNP student wrote and submitted a manuscript which addressed the use of the PLST to lower stress. In April, once the manuscript was completed, the DNP student presented the PLST/dementia project plan to stakeholders at the facility, and developed an educational program presentation and survey. In May, the educational program was delivered at facility #1, within one week after completion of the program a Qualtrics survey was sent out electronically via email to all participants. In June the PLST dementia support toolkit model was presented to stakeholders at the facility #2. A week later the educational program was presented to this facility and within two weeks after completion of the program a Qualtrics survey was sent out to all participants. At the end of June data was gathered from both educational settings and analyzed by DNP student. During July the scholarly project write up was initiated and the DNP final presentation to the public will be scheduled for August.

**Study of the Intervention**

**SWOT analysis**

The SWOT analysis (Appendix O) was used to identify the strengths, weaknesses, opportunities, and threats in the planned intervention. The strengths (S) of this intervention were as follows: (1) the facilities require dementia care education for caregivers, (2) free education program based on evidence provided DNP student, (3) resources provided to help staff cope with BPSD and lower caregiver stress (4) support of management for education plan.
The weaknesses (W) of the implementation included the following: (1) lack of participation in the Qualtrics survey, (2) difficult for staff to attend while delivering patient care (3) convenience sample leads to bias of results. The opportunities (O) included: (1) presentation could be repeated for off-shift attendees or offered in an online format for broader impact. The threats (T) in this implementation were: 1) time constraints to complete project 2) lack of sustainability without a champion for continual change and follow-up.

The intervention was delivered after planning an appropriate time frame and location for the education program. Informational flyers were posted at each facility, continuing education credit and lunch was offered as an incentive to attend. Staff attendance was highly encouraged by the management team at both organizations.

**Methods of Evaluation**

To evaluate the effectiveness of the intervention, pre-and post-assessment surveys were administered to evaluate the following outcomes: the caregiver’s knowledge of BPSD, caregiver’s skills with managing BPSD, and caregiver stress level. The post-assessment survey was administered after the program to assess for improvement in level of knowledge and decrease in level of stress in participants. Participants were surveyed 1-week post education to monitor for continual knowledge gain and difference in stress level.

Written and oral feedback were obtained from participants. These data were obtained via participation in oral answers to case studies and evaluation surveys (immediately pre and post education) and electronic versions (1-week post education program) of the survey. Survey knowledge questions were developed to assess learning whether the learning outcomes of the educational program were achieved. Multiple choice questions were written to test for higher order thinking of application, analysis and evaluation of dementia care. Last, a previously
described self-assessment of stress questionnaire was administered to determine whether caregivers were experiencing stress and open-ended questions to ascertain stress coping mechanisms. A SWOT analysis, cost/benefit analysis, and return of investment analysis evaluated the effectiveness of the intervention. The data were analyzed using descriptive statistics and sorting of qualitative responses (see section IV: Results).

**Budget**

The budget (Appendix P) for the DNP scholarly project includes: DNP student salary for time to develop the educational program/toolkit/attend meetings ($1,600), time and cost of developing pre and post-assessments ($100), staff attendance ($1,626), food/drinks ($200), gas/travel ($30) total cost $3,556. Both facilities paid staff to attend the educational program as staff attended on their day off to avoid overtime.

**Return on Investment**

The cost of implementing the educational program at both facilities is $3,556 (See appendix Q). This educational program has the potential to lower stress in staff who care for patients with dementia. If lowered stress at work leads to less sick calls, then the following return on investment may be realized. The replacement cost for caregivers who call in sick requiring overtime pay for an average of three incidents per month (Facility #1 = $12,420 & Facility #2 $945) and annually (Facility #1 = $149,040 & Facility #2 $11,340). Implementation of the educational program has the potential to save, (Facility # 1 $147,065 and Facility # 2 $9,759) annually. With implementation of this educational program caregivers are expected to have decreased stress levels, resulting in less sick calls, and therefore greater facility cost savings, which will ultimately lead to increased quality of care for dementia patients and the development of BPSD skills in caregivers.
Section IV: Results

Analysis of Data

A convenience sample of 37 caregivers of patients with dementia participated in the educational program. Survey response rate was high with all 37 participants providing survey feedback, although only completed surveys were considered in data analysis (see table 2 for overall completed survey response rate). Response rates of 60% should be the goal of researchers. The lack of response to the post-assessment survey is considered a “non-response” bias, thus these responses may not be representative of the population of interest (caregivers) who attended the educational program (Fincham, 2008). The one-week post assessment survey was delivered via e-mail and Qualtrics which may have contributed to the lower response rate. Since the response rate of post-assessment was low, it is difficult to make an inference using the 1-week post-assessment to determine whether the educational program made a difference in levels of dementia knowledge or caregiver coping. The one-week post-educational program was sent out through e-mail with a Qualtrics link. Since the survey response rate was 22% of the population, these results are not considered significant and are not used in the analysis of results. The paper survey response was significantly higher, implying that in the future paper survey may be a better method of obtaining results with this population.

<table>
<thead>
<tr>
<th>Pre-assessment Survey</th>
<th>Post-assessment Survey</th>
<th>1-week post assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>92%</td>
<td>92%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 2. Overall response rate of complete pre-assessment, post-assessment surveys and 1-week post assessment survey.

The data from oral and written evaluation feedback of the education program was analyzed using descriptive statistics for demographics. Part 1 (the knowledge of behavioral symptoms of dementia) and Part 2 (self- assessment of stress) were analyzed with descriptive
statistics and the sorting of open ended qualitative responses with the PLST and the Theory of Reasoned Action as a framework.

**Demographics**

The participating subjects were members of the inter-professional team: nurse practitioners, registered nurses, licensed vocational nurses, certified nursing assistants, nurse managers, and social work (see figure 2). The primary profession represented was nursing. The urban facility participants were primarily professional staff (NPs, RNs, LVNs, Manager, Social Work) and the rural facility participants were all assistive staff (CNAs) (Table 3).

![Survey Responder's Role](image)

Figure 2. Demographics of survey responder’s caregiver role.

<table>
<thead>
<tr>
<th>Provider Role</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>RN</td>
<td>9</td>
<td>24%</td>
</tr>
<tr>
<td>LVN</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>CNA</td>
<td>22</td>
<td>59%</td>
</tr>
</tbody>
</table>
Table 3. Demographics of survey responders

<table>
<thead>
<tr>
<th>Manager</th>
<th>1</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Worker</td>
<td>1</td>
<td>3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Geriatric Experience</th>
<th>&lt; 5 years</th>
<th>20 (3RN, 17 CNA)</th>
<th>54%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-10 years</td>
<td>4 (1 NP, 1 RN, 2 CNA)</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>&gt;10 years</td>
<td>13 (1 NP, 6 RN, 2 LVN, 3 CNA, 1 Social worker)</td>
<td>35%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>High School Degree</th>
<th>19 CNA</th>
<th>51%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Associate Degree</td>
<td>6 (2 RN, 2 LVN, 2 CNA)</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Bachelor Degree</td>
<td>8 (8 RN)</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Master Degree or Above</td>
<td>4 (2 NP, 1 Social worker, 1 CNA)</td>
<td>11%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Full-time</th>
<th>32 (8 RN, 2 LVN, 19 CNA, 1 Social worker, 2 NP)</th>
<th>86%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Part-time</td>
<td>5 (2 RN, 3 CNA)</td>
<td>14%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>1 (CNA)</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>36 (2 NP, 10 RN, 2 LVN, 21 CNA, 1 social worker)</td>
<td>97%</td>
</tr>
</tbody>
</table>

**Part 2 Knowledge of Behavioral Symptoms of Dementia Feedback**

Both oral and written survey feedback data was considered in data collection regarding knowledge of behavioral symptoms of dementia. Staff supplied oral answers to the questions in each case. The answers were recalled by this author and written down after the presentation. Answers were sorted according to PLST key concepts to ascertain whether participants applied the model in current practice (Table 4).

<table>
<thead>
<tr>
<th>PLST Key Concept</th>
<th>Staff Examples of Application</th>
</tr>
</thead>
</table>
### COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

<table>
<thead>
<tr>
<th>Support losses to help maximize function</th>
<th>“Tell patients you understand this environment might be scary and assist with assurance”. “Voice understanding”.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide positive regard</td>
<td>“I know these patients can not help their behaviors, as a caregiver you must be able to separate those behaviors from the patient”. “Don’t blame the patient for their behavior”.</td>
</tr>
<tr>
<td>Use anxiety and avoidance to estimate activity and stimulation levels</td>
<td>“When patients show increase anxiety and avoidance, we take them to a quiet place with less stimulation”. “Anxiety and avoidance can be the first sign of a behavioral outburst”.</td>
</tr>
<tr>
<td>Teach caregivers to observe and listen to patients</td>
<td>“Look at the patient’s body movement and facial expressions, to see what they are really saying”. “Don’t just listen to the patient, look for body congruence”.</td>
</tr>
<tr>
<td>Adjust environment to support losses and safety</td>
<td>“Place pictures of their family in the patient’s room”. “Giving the patient a task to complete, to keep him/her busy”.</td>
</tr>
<tr>
<td>Provide ongoing education, support, care and problem solving</td>
<td>“Use the PLST model interventions taught”. “Pass on your knowledge gain to other coworkers”. “Work as a team and stay calm”.</td>
</tr>
</tbody>
</table>

Table 4: Oral feedback to case studies in relation to PLST Framework.

The raw data from the knowledge questions (Appendix J & K) reveals a high level of staff knowledge and treatment of behavioral symptoms of dementia. At facility #1 (urban setting), the knowledge test overall mean test score was 91%. The post-test did not show an improvement in scores. At facility #2 (rural setting), overall knowledge mean test score was 80% with an improvement in four out of six knowledge questions on the post-test. The difference in overall scores may be due to the level of education of staff. The rural facility responder population were all CNA’s (typically high school degree) as compared to college educated professional staff at the first facility. The CNA’s knowledge of behavioral symptoms of dementia improved in the majority of knowledge questions.
Part 3 Self-Assessment of Stress Survey Feedback

Coping strategies for caregivers of people with dementia provide benefits in terms of mental and physical health (Gilhooly et al, 2016). The raw data for responses to the stress section of the survey reveal that overall, caregiver’s who responded to the survey were not experiencing a high degree of stress (Appendix J & K). The mean overall self-reported stress rating at facility #1 was 4 and the mean overall stress level at facility #2 was 4.

No responders were experiencing a high degree of stress (stress level > 6) warranting a referral to a healthcare professional, joining a support group, or taking a break from caregiving. In response to the Caregiver Self-Assessment 27% of the staff at Facility #1: Urban and 20% of the staff at Facility #2: Rural responded yes to the following questions: had trouble focusing on what I was doing, had difficulty making decisions, felt completely overwhelmed, felt a loss of personal time, or been edgy or irritable. Caregiver coping strategies were revealed by the survey responders via the open ended questions on coping with stress (Table 5). Responses were sorted in relation to the Theory of Reasoned Action Framework in regard to one uses attitude, environment and norms to support coping with stress.

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Environment</th>
<th>Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Use mindfulness”</td>
<td>“Quiet time, tea time:”</td>
<td>“Exchange ideas and thoughts with my coworkers”</td>
</tr>
<tr>
<td>“Stay calm”</td>
<td>“Family, friends, gardening”</td>
<td>“Friends”</td>
</tr>
<tr>
<td>“Deep breathing”</td>
<td>“Exercise, read”</td>
<td>“Increase my education on a specific subject”</td>
</tr>
<tr>
<td>“Take a walk”</td>
<td>“Enjoy the outdoors”</td>
<td>“Learn new strategies on the job”</td>
</tr>
<tr>
<td>“Sleep, relaxation, meditation”</td>
<td>“Getting off the unit for a while”</td>
<td>“Pt responds better with different staff members”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Support groups”</td>
</tr>
</tbody>
</table>

Table 5. Survey responses in relationship to Theory of Reasoned Action Framework
Section V: Discussion

Relationship to Theoretical Framework

This project aimed to improve caregiver’s knowledge of how to cope with the behavioral symptoms of dementia and decrease the stress level of those caregivers. This data evaluated the effectiveness of delivering an educational program to staff caring for patients. Through the survey, it was determined that staff possess existing knowledge of dementia related behavioral coping skills and implement these in a myriad of ways.

The most compelling data was in the qualitative responses to open ended questions both in oral and written form. During delivery of the program, caregivers shared valuable insight with peers. Staff recognized sources of stress specific to the organization, unit and population (environment). The project an avenue for experienced and expert staff to share coping mechanisms and support with novice staff in a non-threatening manner (norms). Feedback from the continuing education evaluation form was overwhelmingly positive validating that staff valued the program in terms of achieving the course objectives. Self-assessment of stress allowed the participants the time to think about how they interact with patients, peers and the environment at work and home (attitude). Staff recognized that by taking the time to participate in a unit based group education program, knowledge and self-awareness was increased. If staff implement the methods to decrease stress, the potential to improve control over distressing situations that occur with patients exists.

Barriers to Implementation/Limitations

This project was limited by a small sample size and convenience sample of staff caregiver’s for patients with dementia related behavioral symptoms. Because of the small sample
size, the findings cannot be generalized to the population of dementia caregivers at large. The project could be strengthened by linking measured improvement of rates of restraint use and pharmacologic interventions for behavioral related symptoms with dementia patients. Another barrier was the time frame to implement the project was 4-6 weeks which was inadequate to measure actual lowering of caregiver stress over time. Last, a champion for change who is embedded in the organization and familiar with the organization’s culture (rather than an “outsider”) would have more success in sustaining organizational change.

Conclusion/Summary

The project met the objectives of increasing the understanding of causes and factors that contribute to challenging behaviors of patients with dementia, and caregivers were able to apply evidence based strategies in a case study presentation to patient behaviors. Participants identified positive ways to lower caregiver stress, and shared resources and tips to improve coping strategies. The participants exhibited an understanding of dementia care and use of the PLST. The Progressively Lowered Stress Threshold Model as a framework expands the caregiver’s skills to effectively respond to cognitive impairment, behavioral symptoms, and care related needs. The Theory of Reasoned Action Model decreases stress level in caregivers because with knowledge and self-awareness, caregivers perceive higher control in stressful situations.

Caregivers with higher perceived control have better attitudes leading to better patient outcomes. Educational programs and support for caregivers of patients with dementia have the potential to ultimately decrease the use of pharmacologic management of BPSD, lessen the use of restraints, improve the caregiver/patient relationship, decrease staff turnover and sick call ins, and lower caregiver stress.

Future Implications for Practice
Support for caregivers of patients with dementia is needed to prevent stress and improve the quality of care for dementia patients. Behavioral symptoms of dementia are treatable without restraining patients physically or with medications if staff are aware and practice. Preparing caregivers to know “what to expect” and providing support are recognized by the staff at the project organizations as imperative to job satisfaction. Educating staff to appropriately respond to the behavioral symptoms of dementia had the potential to lower turnover rate, lessen time spent in patient supervision and decrease the cost of adverse effects of medications used to manage BPSD.

A multi-faceted approach is necessary to facilitate the use of behavioral methods to reduce caregiver stress. Identifying and measuring outcomes such as associated with stress in caregivers (turnover rates, incidence reports, sick calls, etc.) in caregivers and sharing this feedback with staff on a monthly basis may result in behavior change. Using a team approach to address deficiencies by identifying a “unit champion” or “dementia response care team” to practice evidence based behavioral interventions with patients may lower workplace stress.

Section VI: Other Information

Funding

The practice change project was funded by the DNP student. No conflict of interest was identified by the DNP student associated with the project. No grants, monies, or gifts were received for this project.
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Section VIII: Appendices

Appendix A

Statement of Determination
DNP Statement of Non-Research Determination Form

Student Name: Amber Aguilar

Title of Project:
Progressively Lowered Stress Threshold Model: An Evidence Base Strategy to Lower Stress of Caregivers of Older Adults with Dementia

Brief Description of Project:
As the aging population continues to increase (CDC, 2015) dementias will become increasingly prevalent. Older adults with dementia reside in a variety of settings, home, with family or friends, in assisted living, in residential or skilled nursing facilities. The Progressively Lowered Stress Threshold (PLST) model is recommended as a framework for devising non-pharmacologic interventions for persons with dementia across living environments (Coon et al, 2012). PSLT is framework used to identify the potential behavior triggers as related to internal or external stress inducers (Hall & Buckwalter, 1987). The role of the psychiatric nurse practitioner is to “teach patients, families and groups about treatment options with respect to developmental, physiological, cognitive, cultural ability and readiness and demonstrate best practices of family approaches to care” (Population focused nurse practitioner competencies p. 72, 2013). Health care providers who teach caregivers the skills to proactively reduce stress decrease burden on the caregiver and improve quality of life, function, and safety of the older adult with dementia.

A) Aim Statement:
The purpose of this evidence based project is to 1) conduct a review of the literature to understand the use of PLST as method to lower stress in caregivers of older adults and the gap in the literature 2) develop a PLST education program based on the evidence and 3) pilot the education program with health care providers or caregivers of older adults.

B) Description of Intervention:
A review of the literature will be completed to retrieve and critically appraise the best available evidence in regard to the use of the PLST model to lower stress in care providers of patients with dementia. Health care providers and/or caregivers will be educated in the use of the strategy. A case study method will be developed to facilitate the knowledge transfer. A pre-test/post-test method will be developed to assess knowledge acquisition. Using the pilot educational program results, further recommendations for
practice will be provided.

C) How will this intervention change practice?

Improve knowledge in health care providers or of an evidence based technique to lower distress and improve well-being of family members caring for an older relative with significant cognitive and/or physical impairment.

D) Outcome measurements:

Pre-test and post-test knowledge in use of PLST to decrease burden on the caregiver and improve quality of life, function, and safety of the older adult with dementia.

References


To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:
(http://answers.hhs.gov/ohrp/categories/1569)

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

**EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST**

**Instructions:** Answer YES or NO to each of the following statements:

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and is a part of usual care. ALL participants will receive standard of care.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control. The project does NOT follow a protocol that overrides clinical decision-making.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

UNIVERSITY OF SAN FRANCISCO
School of Nursing and Health Professions

<table>
<thead>
<tr>
<th>Intervention that is beyond current science and experience.</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.</td>
<td>x</td>
</tr>
<tr>
<td>The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>x</td>
</tr>
<tr>
<td>The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/or patients.</td>
<td>x</td>
</tr>
<tr>
<td>If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: “This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”</td>
<td>x</td>
</tr>
</tbody>
</table>

ANSWER KEY: If the answer to ALL of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. IRB review is not required. Keep a copy of this checklist in your files. If the answer to ANY of these questions is NO, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print):
Amber Aguilar
Signature of Student:
DATE 11/17/16

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):
Melanie Beyer, NP
Signature of Supervising Faculty Member (Chair):
DATE 11/16
Approved by NP Committee 11/16

DNP Department Approval 5/8/14
Appendix B

Institute for HealthCare Improvement Certificate
This certificate is awarded to

Amber Aguilar

for participating in the educational activity entitled

QI 105: The Human Side of Quality Improvement

on

07/17/2016

This continuing education activity carries 1.50 Contact Hours.

In support of improving patient care, the Institute for Healthcare Improvement is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME), to provide continuing education for the healthcare team.

Derek Feeley
President and CEO
Institute for Healthcare Improvement

20 University Road, 7th Floor, Cambridge, MA 02138  t 617 301-4800  ihi.org
Appendix C

Letter of Support Facility # 1
Re: Letter of Support
5/1/17

Dear University of San Francisco School of Nursing and Health Professions,

As an organization which is committed to exceptional care for memory loss with patients aged 65 and older, [name redacted], provides an individualized treatment plan to improve the quality of life and independence of older adults.

To that end, Amber Aguilar, a DNP/Nurse Practitioner student is permitted to present a staff educational program titled “Skill Building: Coping with Behavioral Symptoms of Dementia” to the multidisciplinary staff who care for patients with memory loss at Legends. The purpose of this communication is to provide support for the activities provided below.

Amber Aguilar will take responsibility to lead and present the educational program on May 17, 2017 with the following objectives. By the end of this presentation learners will: 1. Understand the causes and factors that contribute to challenging behaviors in patients with memory loss 2. Apply evidence based strategies to respond to challenging patient behaviors and caregiver stress and 3. Identify resources to lower stress in caregivers of patients with memory loss.

Staff in attendance will be asked to complete a confidential pre and post test of knowledge of coping with a patient's behavioral symptoms and an assessment of caregiver stress. Lunch will be provided by the student and the student will provide feedback of pre-test/post-test results to the manager of [name redacted] at the completion of the project in June 2016.

Sincerely,

[Signature redacted]
Appendix D

Letter of Support Facility # 2
Re: Letter of Support
6/6/17

Dear University of San Francisco School of Nursing and Health Professions,

As an organization which is committed to delivering exceptional care to patients through short-term rehabilitation therapy to skilled nursing care, provides an individualized treatment plan to improve the quality of life and independence of older adults.

To that end, Amber Aguilar, a DNP/Nurse Practitioner student is permitted to present a staff educational program titled "Skill Building: Coping with Behavioral Symptoms of Dementia" to the multidisciplinary staff who care for patients with memory loss at [redacted]. The purpose of this communication is to provide support for the activities provided below.

Amber Aguilar will take responsibility to lead and present the educational program on June 6, 2017 with the following objectives. By the end of this presentation learners will: 1. Understand the causes and factors that contribute to challenging behaviors in patients with memory loss 2. Apply evidence based strategies to respond to challenging patient behaviors and caregiver stress and 3. Identify resources to lower stress in caregivers of patients with memory loss.

Staff in attendance will be asked to complete a confidential pre and post test of knowledge of coping with a patient's behavioral symptoms and an assessment of caregiver stress. Student will provide feedback of pre-test/post-test results to the manager of [redacted] at the completion of the project in June 2016.

[redacted] will provide a room for the presentation and encourage staff to attend.

Sincerely,
Appendix E

PowerPoint Presentation
COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

Skill Building: Coping with Behavioral Symptoms of Dementia

Author: Audrey, MD, PhD

University of California, San Francisco

Objectives

By the end of this presentation, the learner will be able to:
- Understand causes and factors that contribute to challenging behavior in patients with dementia.
- Apply evidence-based strategies to reduce challenging patient behaviors and lower caregiver stress.
- Identify resources to improve care of patients with memory loss.
- Identify tips to lower caregiver stress.

Pre-survey

The Toll

- A dementia patient's memory loss results in devastating toll on caregivers.
- More than half of caregivers of patients with dementia rate the emotional stress of caregiving as high or very high.
- Chronic stress leads to fatigue, burnout, irritability, and depression.

Factors Affecting Caregiver Stress

- Dementia is a chronic, progressive, unpredictable disease.
- Progressively worsens over a period of years to decades, with average time from diagnosis to death being 5-10 years.
- Caregivers experience, emotionally and physically disability of patients are overpowering to caregivers.
- Cumulative stressor exposure.
- Lack of knowledge and lack of support associated with being a caregiver is a leading cause of stress.
Progressively Lowered Stress Threshold Model (PLST)

- Framework for developing non-pharmacological interventions for persons with dementia assessing environment
- Repeat necessary skills in ability to respond to cognitive impairment, behavioral symptoms and care-related needs
- Help caregivers identify potential behavior triggers related to internal or external environmental

Coping with Behavioral Symptoms of Dementia

Causes of Problem Behaviors

- The disease process: mental illness, changes, treatment, reactions, cognitive deterioration
- Feelings with communication: not understanding or not aware
- Social factors: stress, anxiety, illness, medications

Case Studies

Case 1: Hallucinations

Approach to Hallucinations

Modify the environment; try to see what the patient sees, identify the object
- Look for sounds that might be heard
- Look for things that are not there
- Look for objects that are not present

Share Your Experience

- Have you had similar patients?
- What challenges have you had with this type of patient?
- What solutions or strategies worked for you with hallucinating patient?

Case 2: Repetitive Actions

- How do you deal with repetitive behaviors?
Appendix F

Pre-assessment and Post-Assessment Survey Template
Welcome to My Survey

Informed Consent: Thank you for participating in this survey. Your feedback is important. The purpose of this survey is to help me measure your knowledge of strategies to cope with the behavioral symptoms in patients with dementia. I do not anticipate that taking this survey will pose any risk or inconvenience to you. Your participation is strictly voluntary and you may withdraw your participation at any time. All information collected is confidential. There will be no connection to you individually in the results or in future publication of the results. Once the study is completed, I will share the results with you if you desire. If you have any questions please ask or contact me:

Amber Aguilar
Contact info aaguilar3@dons.usfca.edu

Please answer the following demographic questions:

Provider Role: __RN__LPN __CNA __PT __OT Other (please specify):_________________

Years of experience in geriatric patient care: ___< 5 years ___6-10 years ___> 10 years

Educational preparation:
___High School Degree
___Associate Degree
___Bachelor’s Degree
___Master’s degree or above

Current employment status:
___Full-time
___Part-time

Gender:
___Male ___Female ___Prefer not to disclose
Appendix G

Part 1: Knowledge of behavioral symptoms of dementia. Please circle the correct response:

1. Types of aggressive behaviors in patients with dementia include all of the following except:
   a. Yelling and threatening.
   b. Throwing things.
   c. Pacing and wandering.
   d. Swearing and spitting.

2. Cognitive deterioration in a patient with dementia may result in the patient acting violently toward a caregiver.
   a. True.
   b. False.

3. Causes of problem behaviors in patients with dementia may include all of the following except:
   a. Urinary tract infections.
   b. Television playing too loudly.
   c. Pain.
   d. Familiar surroundings.

4. You enter Mr. Garcia’s room to administer his medication, he is talking to someone that isn’t there. Your best response is:
   a. Suggest a walk or change in environment.
   b. Tell him there is no one in the room with him.
   c. Focus on his behavior not his feelings.
   d. Ignore the behavior.

5. In the past hour, Jane has asked you twelve times “What time is my daughter coming?”. Your best response is:
   a. Tell Jane her daughter is coming at 6 p.m.
   b. Ignore the question.
   c. Focus on Jane’s behavior not her feelings.
   d. Redirect Jane to a task.

6. John is spitting and screaming at other residents, the best response is to:
   a. Maintain eye contact, use a calm, clear voice and a non-threatening posture.
   b. Confront him and try to reason with him to stop.
   c. Initiate physical contact.
   d. Focus on the facts, not the feelings.
Part 2: Caregiver stress self-assessment:

7. During the past month I have:

<table>
<thead>
<tr>
<th>Description</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had trouble focusing on what I was doing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had difficulty making decisions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt completely overwhelmed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felt a loss of personal time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been edgy or irritable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On a scale of 1 to 10, with 1 being “not stressful” to 10 being “extremely stressful,” please rate your current level of stress __________

8. What strategies do you use to lower your stress?

9. What resources have you used to lower your stress?

10. Is your stress related to work?
### PARTICIPANT CONTINUING EDUCATION EVALUATION FORM

**EDUCATIONAL ACTIVITY TITLE:** Skill Building: Coping with Behavioral Symptoms of Dementia  
**PRESENTER:** Amber Aguilar  
**DATE/TIME:**

<table>
<thead>
<tr>
<th>I am now able to:</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand causes and factors that contribute to challenging behaviors in patients with dementia.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply evidence-based strategies to respond to challenging patient behaviors and lower caregiver stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify resources to improve care of patients with memory loss</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify tips to lower caregiver stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The objectives are related to the overall purpose/goal.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Aguilar used appropriate teaching techniques.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Aguilar showed expertise.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**
Appendix J

Raw Data Pre and Post-Assessment Dementia Knowledge Question Answers
Note: Correct answers to knowledge question are highlighted in yellow

<table>
<thead>
<tr>
<th>Question</th>
<th>Facility #1</th>
<th>Facility #2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Assessment</td>
<td>Post-Assessment</td>
</tr>
<tr>
<td>Q1: Types of aggressive behaviors in patient with dementia include all the following except:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Yelling and threatening</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>b. Throwing things</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>c. <strong>Pacing and wandering</strong></td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>d. Swearing and spitting</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Q2: Cognitive deterioration in a patient with dementia may result in the patient acting violently towards a caregiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>True</strong></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>b. False</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3: Causes of problem behaviors in patients with dementia may include all the following except:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Urinary tract infections</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>b. Television playing too loudly.</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>c. <strong>Pain.</strong></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>d. <strong>Familiar surroundings.</strong></td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Q4: You enter Mr. Garcia’s room to administer his medication, he is talking to someone that isn’t there. Your best response is:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>Suggest a walk or change in environment.</strong></td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>b. Tell him there is no one in the room with him.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>c. Focus on his behavior not his feelings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Ignore the behavior.</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Q5: In the past hour, Jane has asked you twelve times “What time is my daughter coming?”. Your best response is:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Tell Jane her daughter is coming at 6 pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Ignore the question</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Focus on Jane’s behavior not her feelings.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>d. <strong>Redirect Jane to a task.</strong></td>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>
Q6: John is spitting and screaming at other residents, the best response is to:

<table>
<thead>
<tr>
<th>Option</th>
<th>15</th>
<th>15</th>
<th>20</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Maintain eye contact, use a calm, clear voice and a non-threatening posture.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Confront him and try to reason with him to stop.</td>
<td></td>
<td></td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>c. Initiate physical contact.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Focus on the facts, not the feelings.</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
### Part 2: Caregiver Stress Self-assessment

#### Q7: During the past month I have:

<table>
<thead>
<tr>
<th></th>
<th>Facility #1 Pre-assessment</th>
<th>Facility #2 Post-assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-assessment</strong></td>
<td><strong>Post-assessment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>NO</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Had trouble focusing on what I was doing:</strong></td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Had difficulty making decisions:</strong></td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Felt completely overwhelmed:</strong></td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td><strong>Felt a loss of personal time:</strong></td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Been edgy or irritable:</strong></td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On a scale of 1 to 10, with 1 being “not stressful” to 10 being “extremely stressful,” please rate your current level of stress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facility # 1: Urban</strong></td>
</tr>
<tr>
<td>2,1,8,5,4,2,6,2,6,1,3,8,3,4,5</td>
</tr>
<tr>
<td><strong>Facility # 2: Rural</strong></td>
</tr>
<tr>
<td>1,1,8,3,1,12,2,7,2,8,3,2,6,1,8,5,5,7</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

#### Q8: What strategies do you use to lower your stress?

<table>
<thead>
<tr>
<th><strong>Pre-assessment</strong></th>
<th><strong>Post-assessment</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Facility # 1: Urban</strong></td>
<td>(1) Change the assignment if necessary.</td>
</tr>
<tr>
<td></td>
<td>(2) Pt responds better with different staff members. Change the approach with patient.</td>
</tr>
<tr>
<td></td>
<td>(3) Take a walk or break.</td>
</tr>
<tr>
<td><strong>Facility # 1: Urban</strong></td>
<td>(1) Read, and increase education on subjects, and exercise.</td>
</tr>
<tr>
<td></td>
<td>(2) Change assignment if needed.</td>
</tr>
<tr>
<td></td>
<td>(3) Reading, visiting with friends.</td>
</tr>
<tr>
<td></td>
<td>(4) Walk and talk to peers.</td>
</tr>
<tr>
<td></td>
<td>(5) Reading, talking with friends.</td>
</tr>
</tbody>
</table>
### COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

(4) Talk with another coworker for advice. (5) Take a moment to DB, use mindfulness. (6) Sleep. Relaxation, meditation.
(7) Exercise, read, and deep breathing.
(8) Talk to peers.
(9) Get off unit for a while.
(10) Meditation, walk my dog.
(11) Take time for myself.

### Facility # 2: Rural

(1) Take a deep breath.
(2) Take a walk.
(3) Go to the gym.
(4) Activities outside of work.
(5) Stay calm, take your time with things, and maintain good time management.
(6) Talk with others.
(7) Dancing.
(8) Exercise and relax.
(9) Play basketball.

### Q9: What resources have you used to lower your stress? | Pre-assessment | Post-assessment
---|---|---
**Facility 1: Urban**
(1) Increase my education on a specific subject. Learn new strategies on the job. Always change ideas, thoughts with my coworkers. I exercise and enjoy the outdoors daily.
(2) Family, friends, gardening, quiet time, and tea time.
(3) Friends
(4) Exercise, read, and deep breathing.
(5) Read, family, take a day off.
(6) Connect with friends/family, coworkers.
(7) Read.

**Facility 2: Rural**
(1) Music
(2) Relaxation.

**Facility 1: Urban**
(1) Take CEU to increase my education. Educate myself. Attend seminars.
(2) Support groups. Websites shown in presentation.
(3) Friends/family, and Coworkers.
(4) Reading.

**Facility 2: Rural**
(1) Sleep
(2) Sleep good and take deep breaths.
(3) Smile.
(4) Walk away.
(5) Step out of stressful atmosphere.
(6) Music, friends.
COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

(3) Eat healthy plenty of rest and exercise.
(4) Sleep well.
(5) Step out of a stressful atmosphere.
(6) Yoga.
(7) Sleep good and take deep breaths.

<table>
<thead>
<tr>
<th>Q10: Is your stress related to work?</th>
<th>Pre-assessment</th>
<th>Post-assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility 1: Urban</td>
<td>Facility 2: Rural</td>
<td>Facility 1: Urban</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Appendix L
### PARTICIPANT CONTINUING EDUCATION EVALUATION FORM Results

I am now able to: Understand causes and factors that contribute to challenging behaviors in patients with dementia.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Facility # 1: Urban</th>
<th>Facility # 2: Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Agree</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I am now able to: Apply evidence-based strategies to respond to challenging patient behaviors and lower caregiver stress.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Facility # 1: Urban</th>
<th>Facility # 2: Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I am now able to: Identify resources to improve care of patients with memory loss
### COPING WITH BEHAVIORAL SYMPTOMS OF DEMENTIA

#### I am now able to: Identify tips to lower caregiver stress

<table>
<thead>
<tr>
<th>Scale</th>
<th>6</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### I am now able to: The objectives are related to the overall purpose/goal.

<table>
<thead>
<tr>
<th>Scale</th>
<th>9</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
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</tr>
<tr>
<td>Agree</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## A. Aguilar used appropriate teaching techniques.

<table>
<thead>
<tr>
<th>Legends</th>
<th>TNRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td></td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
</tr>
<tr>
<td>Agree</td>
<td>6</td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
</tr>
</tbody>
</table>

## A. Aguilar showed expertise.

<table>
<thead>
<tr>
<th>Legends</th>
<th>TNRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td></td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
</tr>
<tr>
<td>Agree</td>
<td>5</td>
</tr>
<tr>
<td>Neutral</td>
<td>1</td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**
- Excellent Presentation.
- Great Presentation, Thank you!
- She did a very good job. Thank you!
- Thanks.
- I love my job.
- Awesome job.
Cost/Benefit Analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Facility # 1 Cost</th>
<th>Facility # 2 Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project cost (15 caregivers (interdisciplinary staff), work 12 hour shift based on the facility)</td>
<td>$1,975</td>
<td></td>
</tr>
<tr>
<td>Project cost (22 caregivers (CNAs), work 8 hour shift, based on the facility)</td>
<td></td>
<td>$1,581</td>
</tr>
<tr>
<td>Project Benefits</td>
<td>$149,040</td>
<td>$11,340</td>
</tr>
<tr>
<td>5-year Estimated Savings</td>
<td>$745,200</td>
<td>$56,700</td>
</tr>
</tbody>
</table>

Other Benefits:

- Decrease in staff sick calls.
- Facility cost savings.
- Development of BPSD skills in caregivers.
- Increased quality of care for dementia patients.
Communication Matrix Plan for the Project

<table>
<thead>
<tr>
<th>Role</th>
<th>DNP student</th>
<th>Project Chair</th>
<th>Project Committee</th>
<th>Stakeholders</th>
<th>Caregivers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Implement educational project, DNP paper, and communicate among DNP chair, committee, and stakeholders.</td>
<td>Provide advice on project with DNP student/Committee.</td>
<td>Provide advice on project with chair.</td>
<td>Discuss educational project with DNP student.</td>
<td>Attend educational meeting and complete surveys.</td>
</tr>
<tr>
<td>Project Development</td>
<td>Finish project and present project to facilities for implementation.</td>
<td>Approval of project from committee.</td>
<td>Approval of project between committee and chair.</td>
<td>Approval of project and presentation. Allow DNP student to present.</td>
<td></td>
</tr>
<tr>
<td>Project planning</td>
<td>Meet with facilities prior to presenting educational program.</td>
<td>Collect letter of support from DNP student.</td>
<td>Ensure letter of support is collected prior to DNP student presentation.</td>
<td>Set up date for DNP student to present.</td>
<td></td>
</tr>
<tr>
<td>Project reporting</td>
<td>Ensure facilities, DNP chair and committee are kept up to date with educational project.</td>
<td>Follow-up with DNP student on project progress.</td>
<td>Follow up with chair on DNP student project progress.</td>
<td>Discuss with DNP student project progress.</td>
<td>Informed of date of training.</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Implementation of project</td>
<td>Implement project.</td>
<td></td>
<td></td>
<td>Inform staff of educational program.</td>
<td>Attend educational program.</td>
</tr>
<tr>
<td>Post educational project follow-up</td>
<td>Obtain project feedback.</td>
<td></td>
<td></td>
<td></td>
<td>Reply to post-assessment and the qualtrics survey.</td>
</tr>
<tr>
<td>Outcome Evaluation</td>
<td>Gather, analyze, interpret, and report data to chair and facilities.</td>
<td>Give feedback on results and project to DNP committee and student.</td>
<td>Give feedback on results to project chair.</td>
<td>Discuss results with DNP student.</td>
<td></td>
</tr>
</tbody>
</table>

Appendix O
SWOT Analysis

**Strengths:**
(1) The facilities requirement on dementia care education for caregivers.
(2) Free educational training provided to both facilities by DNP student.
(3) Evidence based educational training that was specific to BPSD and stress of caregivers.
(4) Resources given to assist with BPSD and caregiver stress.

**Weaknesses:**
(1) Lack of participation in the qualtrics survey.
(2) Difficult for staff to attend while delivering patient care.
3) Convenience sample leads to bias of results.

**Opportunities:**
(1) Free resources given in online format for staff to continue to improve knowledge.

**Treat:**
(1) Time constraint.
(2) Lack of sustainability without a champion for continual change and follow up.
## Project Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Facility # 1 Associated Cost</th>
<th>Facility # 2 Associated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNP student salary x 60-80 hours (voluntary): development of education/toolkit/meetings. $20 salary x 80 hrs = $1600</td>
<td>$800</td>
<td>$800</td>
</tr>
<tr>
<td>Handouts/paper/printing= $100</td>
<td>$50</td>
<td>$50</td>
</tr>
<tr>
<td>Staff attendance (staff RN salary ($70), LVN salary ($30), NP salary ($80) CNA salary ($28), Social worker ($60) x 1 hr educational program) =</td>
<td>$1,010</td>
<td>$616</td>
</tr>
<tr>
<td>10 RNs x $70 = 700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 LVNs x $30 = 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 NPs x $80 = $160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 social worker =60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 CNAs x $28 = $616</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totaling = $1,626</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food/drinks= $200</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Gas/Travel= $30</td>
<td>$15</td>
<td>$15</td>
</tr>
<tr>
<td><strong>Total Cost= $3,556</strong></td>
<td><strong>$1,975</strong></td>
<td><strong>$1,581</strong></td>
</tr>
</tbody>
</table>

Cost of DNP Scholarly Project

Appendix Q
### Return on Investment Plan

<table>
<thead>
<tr>
<th>Item</th>
<th>Facility # 1</th>
<th>Facility # 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average caregiver replacement cost per year based on absence rate of 3 days per month per caregiver.</strong></td>
<td>Each daily absence costs the facility $1,035 ($60 x 1.5 overtime x 11.5 hours) per day, $3,105 per month, $37,260 per year, based on the absence rate of 3 days per month per social worker.</td>
<td>Each daily absence costs the facility $315 ($28 x 1.5 overtime rate x 7.5 hours) per day, $945 per month, $11,340 per year based on the absentee rate of 3 days per month per CNA.</td>
</tr>
<tr>
<td></td>
<td>Each daily absence costs the facility $517.50 ($30 x 1.5 overtime rate x 11.5 hours) per day, $1,552.50 per month, $18,630 per year, based on the absence rate of 3 days per month per LVN.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Each daily absence costs the facility $1,207.50 ($70 x 1.5 overtime rate x 11.5 hours) per day, $3,622.50 per month, $43,470 per year, based on the absence rate of 3 days per month per RN.</td>
<td></td>
</tr>
</tbody>
</table>
Each daily absence costs the facility $1,380 ($80 \times 1.5 \text{ overtime rate} \times 11.5 \text{ hours}) per day, $4,140 per month, $49,680 per year, based on the absence rate of 3 days per month per NP.

<table>
<thead>
<tr>
<th></th>
<th>Subtotal</th>
<th>$149,040 per year</th>
<th>$11,340 per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Service Cost</td>
<td>($1,975)</td>
<td>($1,581)</td>
<td></td>
</tr>
<tr>
<td>Return on investment</td>
<td>$147,065</td>
<td>$9,759</td>
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</tr>
</tbody>
</table>
Appendix R

GANTT Chart

<table>
<thead>
<tr>
<th>GANTT 2017</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get approval from DNP chair and Committee on project topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write manuscript.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present PLST/Dementia support toolkit model to stakeholders at Facility #1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop educational program and presentation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present education program to facility #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Send out qualtrics survey to facility #1 staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present PLST/Dementia support toolkit model to stakeholders at facility #2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present education program to facility #2.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Send out qualtrics survey to facility #2 staff.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Data gathered from both educational trainings.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Scholarly project write up.</td>
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<td></td>
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<td></td>
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<tr>
<td>DNP Presentation.</td>
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</tr>
</tbody>
</table>
Appendix S

GAP Analysis

**Evidence**
Progressively lowered Stress Threshold (PLST) model in managing dementia related behaviors.

**GAP**
Caregivers at both facilities reported basic knowledge on BPSD, lack of skills on managing BPSD, and no information on dementia support resources

**Intervention**
Implementation of an educational program on dementia related care.

**Goal**
Lower stress of caregivers caring for dementia patients and in return improved the quality of care for dementia patients.
Appendix T
PLST Model

<table>
<thead>
<tr>
<th>PLST Key Principle</th>
<th>Problem or Need</th>
<th>Intervention</th>
</tr>
</thead>
</table>
| 1. Support losses to help maximize function. | Change in environment, staff, and routine. | - Provide education to caregivers about PLST model in dealing with BPSD.  
- Promote a regular routine.  
- Encourage staff to wear nametags and introduce themselves to each patient.  
- Avoid arguing with patient.  
- Implement care that reflects the patient’s routine schedule.  
- Schedule rest periods throughout the day.  
- Adjust levels of activity and stimulation on the basis of the patient’s stress response. |
| 2. Provide positive regard. | Staff knowledge deficits regarding BPSD. | - Avoid making negative comments or corrections in response to patient.  
- Use distractions or acceptance, rather than confrontation.  
- Allow and encourage patient to complete self care activities as he/she is able with minimal prompts or taking over. |
| 3. Use anxiety and avoidance to estimate activity and stimulation levels. | Stress reaction to losses (real and perceived). | - Look for early signs of anxious behavior.  
- Keep a record of activities and times of day during which the patient shows increased anxiety. |
| 4. Teach caregivers to observe and listen to patients. | Perpetuation regarding the belief that personal items have been stolen. | - Listen to repeated phrases and identify significance.  
- Provide personal items that provide comfort.  
- Respond to repeated behaviors as a sign of anxiety. |
| 5. Adjust environment to support losses and increase safety. | Belief that belongings are being stolen. | - Adjust environment to reduce stimulation and potential misinterpretation.  
- Provide environmental cues to increase orientation of patient. |
| 6. Provide ongoing education, support, care, and problem solving. | Knowledge deficit among staff regarding BPSD. | - Continue to education staff on how to use PLST model in managing BPSD.  
- Provide referrals to staff for support groups.  
- Facilitate collaboration among interdisciplinary staff to individualize care and routines of each patient. |