Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD).

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

April Davis

Liberty University

Lynchburg, VA

August 2024

Table of Contents

Abstract

Aim: To identify if utilization of non-pharmacological interventions versus pharmacological interventions can promote the reduction of falls and potential injuries in patients with BPSD on an inpatient geriatric psychiatric unit, ultimately improving patient-centered treatment courses, outcomes, and improved QOL. **Background:** Falls in the elderly population have a significant impact on the patient and the health care system. Even though health care organizations have been dedicated to developing and implementing strategies to reduce and prevent patient falls, they remain unequivocally the leading cause of adverse events that occur during an acute hospitalization, causing significant injury, disability, morbidity, mortality, and financial burden to the elderly patient, family, community, and the entire health care system. **Design:** The project design was a quasi-experimental approach, which was the best model for producing strong causal evidence in a condensed timeframe. **Methods:** A systematic approach utilizing the Iowa Model for Evidence Based Practice Revised was the methodological framework used for this study. This project was conducted at a New England geriatric psychiatric hospital with a 50-bed capacity. The project sample consisted of 49 patients that met the inclusion criteria. A six-week protocol of providing nonpharmacological interventions daily was implemented. **Results:** The project results indicated no statistically significant difference between the pre and post intervention on most measurable outcomes. However, there was a clinical difference between the pre and post intervention Fall Rate data. **Conclusion:** Nonpharmacological interventions continue to promote positive patient outcomes when used consistently and effectively based on patient-centered holistic care. **Implications for Practice:** There is a need for nursing leaders to translate innovative EBP research into clinical practice, policies, and procedures in all healthcare settings. Continue to educate nurses at all levels and in all healthcare, regarding EBP and how to implement, assess, and contribute to nursing practice.

Keywords: Fall risk, BPSD, Alzheimer's Disease, nonpharmacological therapies, pharmacological treatment, hospital setting, behaviors.

Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD).

April Davis

April Davis

[redacted]

Dedication

This manuscript is lovingly dedicated to the cherished memory of my mother, Madeline Slater, and my son, Zachary Tyler Davis. They are my angels, my strength, and my everlasting inspiration. They will be forever in our hearts.

Acknowledgements

I would like to express my deepest gratitude to my scholarly project advisor Dr. Kenneth Thompson, for his invaluable guidance and support throughout this journey. His expertise and encouragement have been instrumental in the completion of this project.

I am immensely thankful to my children, Tatiana, Shane, Makenna, and Riley, as well as my family and friends, for their never-ending love, support, and encouragement. Your enduring belief in me has been my greatest source of strength and motivation.

Special thanks to my project coach, statistician, and editor, Dr. Deirdre Rogers, for her meticulous attention to detail, constant encouragement, and unwavering support. Her remarkable expertise and outstanding ability to educate have been truly inspiring.

I would also like to extend my heartfelt gratitude to my DNP practicum professor Dr. Ronni Rothwell, and my practicum preceptors, Dr. Donna Montesi and Dr. Martin Cooper, for their instrumental guidance and support throughout my practicum experience. Their inspirational and innovative approaches, along with their active roles in healthcare organizations and education, have been pivotal in driving meaningful change and significantly enriching my learning.

Thank you all for being a part of this journey. I am grateful for the opportunity to practice and learn as a Christian, integrating my faith, values, and principles into my education. This strong foundation has significantly influenced my future career and will continue to guide me in my role as a DNP professional.

Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD).

Section I: Introduction

Alzheimer's disease with behavioral and psychological symptoms in dementia (BPSD) has unknown etiology, affects 95% of people diagnosed with dementia, and is on the rise (Lai et al, 2023). It is estimated that 74.7 million people will be diagnosed with some form of dementia by the year 2030 and it is the fifth leading cause of death in the United States for patients age 65 and older (Calsolaro et al., 2021; Parajuli et al., 2021). Use of psychotropic medications to manage BPSD is on the rise despite concerns regarding efficacy, efficiency, and safety (Lai et al., 2023; Parajuli et al., 2021). However, multiple evidence-based studies have shown that nonpharmacological interventions should be the first line of treatment for patients with BPSD (Wang et al., 2019; Yin et al., 2023). Educating nurses and certified nurse assistants on how to effectively provide nonpharmacological interventions for patients with BPSD, empowers them as health promoters, advocates, and to be critical and innovative thinkers, providing safe, efficient, and cost-effective patient centered care (Suh et al., 2023).

Background

Falls in the elderly population have a significant impact on the patient and the health care system (Lai et al., 2023). Roughly 700,000 to 1 million patients in the United States fall in an acute care hospital setting yearly, and fall rates continue to be a benchmarking measure for hospitals nationwide (Agency for Health Care Research & Quality, 2018). Even though health care organizations have been dedicated to developing and implementing strategies to reduce and prevent patient falls, they remain unequivocally the leading cause of adverse events that occur

during an acute hospitalization, causing significant injury, disability, morbidity, mortality, and financial burden to the elderly patient, family, community, and the entire health care system (Moreland et al., 2020; WHO, 2020). Patients diagnosed with Alzheimer's Disease with BPSD admitted to a geriatric psychiatric hospital have an increased risk of falls and deconditioning due to their behaviors (Feast et al., 2020; Hills et al., 2022).

Problem Statement

Falls can have detrimental effects on patients with dementia, causing permanent injuries, loss of independence, reduction of quality of life (QOL), social and economic costs, and risk of death (Calsolaro et al., 2021; Lai et al., 2023). Health care systems are ill prepared to address the needs of the elderly, who often have multiple comorbidities, chronic conditions, polypharmacy, or geriatric syndromes such as dementia and delirium that can contribute to fall risk (WHO, 2017). Due to the increased diagnosis and treatment of BPSD, research should be conducted, and an Evidence-Based Practice (EBP) approach to nonpharmacological versus pharmacological treatment established, to promote optimal patient-centered outcomes (Murphy et al., 2018).

Purpose of the Project

The purpose of this project was to identify if utilization of non-pharmacological interventions versus pharmacological interventions can promote the reduction of falls and potential injuries in patients with BPSD on an inpatient geriatric psychiatric unit, ultimately improving patient-centered treatment courses, outcomes, and improved QOL. The theoretical perspective of this project proposes that use of nonpharmacological therapies as initial treatment of BPSD versus pharmacological treatment will positively impact and improve fall rates, nursing staff stress and satisfaction, healthcare utilization, and costs during an acute hospitalization and improve patients' course of treatment and outcomes (Calsolaro et al., 2021; Lai et al., 2023).

Clinical Question

In patients diagnosed with Alzheimer's disease with BPSD, what was the effect of nonpharmacological treatment therapies for behavior control as compared to pharmacological therapies for behavior control on the reduction of falls in an inpatient geriatric psychiatric hospital unit? Do nursing staff have the knowledge, skills, and resources to provide EBP nonpharmacological interventions to treat BPSD? The goal of this project was to identify nonpharmacological treatments for BPSD that are effective in reducing behavioral symptoms and the risk of falls in geriatric patients in a psychiatric inpatient hospital setting. The objective was to provide an EBP framework that can be developed and implemented through an educational seminar and utilized in a hospital setting for the nonpharmacological treatment of BPSD, reduction of fall risk, and improvement of patient outcomes.

Section II: Literature Review

A systematic review of the literature was performed using multiple search databases through the online Liberty University Jerry Falwell Library. An evaluation was conducted of the most current available and existing EBP research literature regarding treatments and interventions for BPSD and fall risk. Gaps in care and research were identified and the quality of current evidence assessed. A foundation of the available EBP was established and an organized evidence-based decision-making approach based on current evidence was conducted to assess the usefulness of data (Moran et al., 2024; Murphy et al., 2018; Melnyk & Fineout-Overholt, 2019).

Search Strategy

A thorough literature search was performed with the support of a librarian using electronic databases. A systematic approach was conducted using multifaceted databases

including MEDLINE Ultimate, CINAHL Ultimate, Cochrane Library, PubMed, DynaMed, JAMA, JBI EBP, LWW Health Library, Sage Journals, Science Direct, and UpToDate. Organizational and government websites were also searched for relevant literature. The keywords used in the search were behavioral and psychological symptoms of dementia (BPSD), fall(s) risk, Alzheimer's disease, nonpharmacological therapies, pharmacological treatment, inpatient hospital setting, behavior control. The search parameters include all articles published within the last five years. Inclusion criteria include articles on behavioral treatments using nonpharmacological and pharmacological therapies, fall risk and rates in hospital settings, patients with dementia/Alzheimer's disease, and relevant to the PICO question. Exclusion criteria were articles that included pediatric, teen, or young adult patients under the age of 60 years old, fall risks due to other neurological or comorbid conditions, and home or community environments. A total of 46 articles were reviewed, with 16 articles selected as pertinent to the PICO question. The types of articles included were a mix of random control trials (RCTs), cohort studies, literature reviews, systematic reviews, meta-analysis, and case studies, with levels of evidence ranging from level 1 to 7 (Melnyk & Fineout-Overholt, 2019). Over half of the studies examined were composed of levels 1-3 on the Melnyk level of evidence framework, establishing a strong to moderate level of research evidence to support and validate this project's conclusion (Melnyk & Fineout-Overholt, 2019).

Critical Appraisal

A Melnyk framework level of evidence matrix table was utilized and is included as Appendix A. The matrix includes all articles included in the project, author/year, design, sample, independent variables, outcome variables, controlled factors, methodology, results, limitations, and relevance to EBP change. The project's methodological quality level of evidence was rated

using the Melnyk framework for study validity and applicability (Moran et al., 2024; Murphy et al., 2018; Melnyk & Fineout-Overholt, 2019).

Synthesis

The need for future research was a recurring theme in all the research studies, implicating the critical need for further research with a higher level of evidence to support continued EBP change. It was noted in most of the studies that initial treatment for BPSD should be patient-centered nonpharmacological therapies (Calsolaro et al., 2021; Lai et al., 2023; Tampi et al., 2022). A diverse mix of nonpharmacological interventions may be warranted based on each patient's challenging behaviors and unique dependencies (Calsolaro et al., 2021; Lai et al., 2023; Tampi et al., 2022). However, despite black boxed warnings and reluctance to use pharmacological interventions, use of psychotropic medications was not repudiated and was supported by EBP research as being an integral part of the treatment for BPSD as a secondary intervention (Florea et al., 2019; Holmkjaer et al., 2022; Seibert et al., 2021; Tampi et al., 2022). There was conflicting evidence regarding the use of antipsychotic medications and an evident increase in falls related to their use. Some studies were unable to associate patient falls with use of antipsychotics and other studies identified an increased risk of falls with use of antipsychotics (Florea et al., 2019; Holmkjaer et al., 2022; Seibert et al., 2021; Tampi et al., 2022). Nonpharmacological interventions that statistically demonstrated the greatest beneficial treatment effects in patients with BPSD were exercise and music therapies (Feast et al., 2020; Yin et al., 2023). The consensus of the literature review exposed the lack of EBP frameworks, processes, and resources available to care for patients with BPSD and concrete interventions and strategies to reduce fall risk (Calsolaro et al., 2021; Lai et al., 2023; Tampi et al., 2022).

Conceptual Framework

The Iowa Model was the conceptual framework chosen for this EBP project. Permission to use the Iowa Model of Evidence-Based Practice: Revisions & Validation was granted by the University of Iowa Hospitals & Clinics. Identifying the trigger issue is the initial step in the Iowa Model (See Appendix B). One issue identified in this project was the increased fall risk in an inpatient hospital unit due to BPSD, causing significantly poorer patient outcomes. Another issue identified was the lack of a treatment framework for patients with BPSD. Finally, the issue of whether to use nonpharmacological, pharmacological, or combination treatments for BPSD based on best evidence practices is insufficient. Focusing on the clinical question of the potential for reduced fall risk when using nonpharmacological therapies versus pharmacological treatment of BPSD, is the next step in clinical applications of the Iowa Model (IMC, 2017; Melnyk & Fineout-Overholt, 2019).

Utilization of the PICO(T) schema guides the clinical provider in formulating the research question and identifying the objective of the research project (IMC, 2017; Melnyk & Fineout-Overholt, 2019). This EBP process guides the practitioner and emphasizes the research topic priority (IMC, 2017; Melnyk & Fineout-Overholt, 2019). As stated previously, the purpose of this project was to identify if utilization of non-pharmacological interventions versus pharmacological interventions can promote the reduction of falls and potential injuries in patients with BPSD on an inpatient geriatric psychiatric unit, ultimately improving patient-centered treatment courses, outcomes, and improved QOL. Patients with BPSD are a high-risk population with a significant risk of falls, comorbid conditions, polypharmacy, increased morbidity, mortality, health care strain, costs, and poor healthcare outcomes (Hills et al., 2022; Tampi et al., 2022; Wolverson et al., 2022). Wolverson et al. (2022) determined that patients who are

hospitalized due to BPSD have a consequential increased risk of psychiatric and medical comorbid decline, loss of cognitive and physical function, and increased rates of death.

Establishing a multidisciplinary team of key stakeholders was an essential step in the Iowa Model framework. A diverse and organizationally linked team establishing project viability, communication, implementation, and consistent outcome measures, will optimize stakeholder buy-in to the project (Melnyk & Fineout-Overholt, 2019). The key stakeholders in this project include hospital administration and management, multidisciplinary providers, nursing, certified nurse aids, patients, and families. This researcher has conducted systematic research and used the Iowa Model framework to assemble, appraise, and synthesize the EBP research literature (IMC, 2017; Melnyk & Fineout-Overholt, 2019). The current evidence conclusively recognizes the limited EBP research available in the geriatric patient population and inpatient hospital setting. The project team must design, pilot, and trial the EBP change before the institution of the EBP protocol by identifying key indicators needed to provide guidance for clinical decision making and implementation, without the replication of other research evidence (IMC, 2017; Melnyk & Fineout-Overholt, 2019). Continuous reassessment and redesign are essential to a successful project. Sustainability and dissemination are the final steps of the project but the most important was translating information and processes into EBP change (IMC, 2017; Melnyk & Fineout-Overholt, 2019).

Theoretical Framework

The theoretical framework chosen for this project was the translational research model. Although this was a challenging and laborious model, it was the best model in the development of a framework and process to bridge the gaps in healthcare, improve patient care, address unmet needs, and advance the understanding of disease processes and treatments, utilizing new science,

EBP research and technology in real world practices (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018; White et al., 2021). This model focuses on implementing EBP into healthcare, which is a goal of this scholarly project (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018; White et al., 2021). The translational model derives from various theorists and researchers that have developed processes of understanding how to effectively apply EBP in healthcare to improve patient outcomes and population health (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018; White et al., 2021). The translational model aligns with this scholarly project which focuses on the development and implementation of a protocol utilizing EBP nonpharmacological interventions, such as exercise and music to reduce falls in a psychiatric hospital setting for the geriatric population. By adopting the translational model, this researcher can effectively bridge the gap between theoretical frameworks and practical applications, ensuring that the interventions are tailored to the specific needs of the elderly patients and hospital setting based on scientific translation of the EBP research (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018; White et al., 2021).

Summary

In reference to the systematic literature review, it was noted that there was a significant gap in research regarding fall risk and the use of nonpharmacological versus pharmacological therapies in the treatment of patients with BPSD. There was also a significant gap in research on geriatric populations in inpatient hospital settings (Fialova et al., 2019; Suh et al., 2023; Wolverson et al., 2022). The need for further EBP research with high quality level of evidence is critical. The EBP research does indicate that initial treatment for BPSD should consist of patient-centered nonpharmacological interventions, followed by pharmacological interventions as combination treatment (Calsolaro et al., 2021; Lai et al., 2023; Tampi et al., 2022). There was

conflicting and limited research regarding increased fall risk due to pharmacological treatment. In summary, the purpose of this project was to identify if utilization of non-pharmacological interventions versus pharmacological interventions can promote the reduction of falls and potential injuries in patients with BPSD on an inpatient geriatric psychiatric unit, ultimately improving patient-centered treatment courses, outcomes, and improved QOL.

Section III: Methodology

The methodology was a systematic approach used in EBP research to guide research clinicians by utilizing principles, techniques, processes, and strategies, engaged in gathering and analyzing the best evidence of information and data, to make evidence-based informed decisions (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018). Through a methodological approach, the clinician can complete research tasks effectively and efficiently, ensuring reliability and validity of the research results obtained (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018). The Iowa Model was the methodological framework chosen for this EBP quasi-experimental project (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018).

Design

The Iowa Model for EBP is the preferred methodology for scholarly projects as it guides DNP students in the process of implementing best available clinical research results into everyday clinical practice, to procure positive outcomes for patients, providers, healthcare institutions, and healthcare policy (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018). This project was an EBP pilot project utilizing the Iowa Model for EBP process (LUSON, 2023-2024). The proposed project design was a quasi-experimental research design project. This approach was a definitive design method that best answers the research question investigating the relationship between nonpharmacological interventions and their potential effects on fall rate

reduction. Utilizing a quasi-experimental design has allow this researcher to investigate the cause-and-effect relationship of BPSD treatment interventions and the multiple outcomes and exposures that can influence this complex condition (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018).

Measurable Outcomes

The following measurable outcomes have been assessed during this project. Retrospective data on Fall Rates for the months of February and March 2024, prior to the initiation of the project intervention, were retrieved from clinical records and data sets. The Fall Rate during the intervention were retrieved and assessed from clinical records and data sets. The psychotropic medications used to treat behaviors pre and post intervention, have been collected via data sets and clinical records. The patient's length of stay, discharge disposition, and outcome have been assessed through clinical records pre and post intervention. A pre and post Likert survey questionnaire was conducted with facility nursing staff to assess perception of intervention value, knowledge, utilization, and outcome of the nursing education of nonpharmacological interventions to use for BPSD prior to the use of pharmacological interventions (Melnyk & Fineout-Overholt, 2019).

Setting

The setting for this project was an inpatient geriatric psychiatric hospital in New England. The hospital has three units with a total of 50 patient beds. The hospital admits patients 60 years of age and older, requiring hospital-level psychiatric assessment and treatment. Patients may be involuntarily committed on a 15-day physician's emergency certificate or voluntarily admitted due to acute and critical mental health treatment needs. This setting was ideal for this scholarly project due to its controlled environment and the high patient population diagnosed and admitted

with Alzheimer's Disease with BPSD. The organization's mission was to enhance the quality of life of seniors through compassionate and exceptional care by embracing a holistic approach that acknowledges body, mind, and spirit. The organization's holistic approach aligns with this scholarly project, focusing on nonpharmacological interventions, which can reduce the side effects and adverse events of pharmacological interventions in such a fragile population. The aim of this project and the core values of the hospital organization correlate through innovative delivery of healthcare services to improve care and patient outcomes, providing compassionate and empathetic care, respecting the patient, and being accountable for providing the best evidence-based care available as evident by the letter of support provided in Appendix C (Chism, 2019; Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018).

Population

The population of this scholarly project was elderly patients aged 60 and older as a diagnosis of dementia or Alzheimer's disease has an average age of onset of 65-75 years old (Calsolaro et al., 2021; Seibert et al., 2021; Wolverson et al., 2022). BPSD occurs in ninety percent of patients diagnosed with dementia and Alzheimer's disease as the condition progresses (Calsolaro et al., 2021; Seibert et al., 2021; Wolverson et al., 2022). The project sample was forty-nine male and female patients with a diagnosis of BPSD. Due to time constraints and the size of the hospital, a sample size of forty-five was warranted and provides a 95% confidence level with a 5% margin of error. The patient was involuntarily admitted to the geriatric psychiatric hospital due to BPSD. BPSD was assessed through the utilization of the Neuropsychiatric Inventory Questionnaire (NPI-Q) tool (Sadock et al., 2015). The review of patient clinical records must show presentation of at least one neuropsychiatric symptom on the NPI-Q (Sadock et al., 2015). The patients in the project must be ambulatory but can use an

assistive device such as a cane or walker for ambulation. The patient inclusion criteria also include patients on psychotropic medications. The final inclusion criterion is that the patient must have experienced at least one fall during their inpatient admission within the project's data assessment timeframe. Exclusion criteria include patients in wheelchairs or who are not ambulatory without staff assistance of two, have a diagnosis of legal blindness, do not have neuropsychiatric symptom presentation, have comorbid diagnosis of vertigo, seizure disorder, and/or failure to thrive, and who are on comfort care or hospice services.

The project sample consisted of 49 patients who met the project's inclusion criteria and who also had at least one fall during the study assessment period. The patient sample ranged in age from 60 to 96 years. This data collection process allows this researcher to understand the reasons behind hospital patient falls, pinpoint risk factors, and behaviors, and evaluate outcomes. Additionally, it allows the hospital stakeholders the opportunity to reassess and refine safety protocols and improve preventive planning.

Ethical Considerations

This project was submitted to the Institutional Review Board (IRB) for approval (See Appendix D). This provider completed the Collaborative Institutional Training Initiative (CITI) research ethics program to ensure protection of human subjects and received certification (See Appendix E) (LUSON, 2023-2024). When providing healthcare services to the elderly, it is crucial as a DNP to treat these individuals holistically, assessing their psychological, social, and functional needs. Guided by Christian principles we are all encouraged to demonstrate humility, love, compassion, and respect for all individuals, recognizing their implicit dignity and worth (Steele & Monroe, 2020). This includes honoring and valuing cultural diversity, understanding that each person's background and experiences influence their needs, beliefs, and perspectives.

Providing comprehensive, compassionate, and ethical care, grounded in the teachings of Christ, is key to improving patient outcomes (Chism, 2019; Melnyk & Fineout-Overholt, 2019, Steele & Monroe, 2020). It is imperative that DNPs abide by the three core values outlined in the Belmont Report and establish an ethical framework to protect human subjects in research (Chism, 2019; White et al., 2021). A major ethical issue when treating patients with dementia is their lack of ability to make informed medical decisions due to lack of capacity, especially when they refuse medical treatment (Chism, 2019; Rubin & Prager; 2018). Benefit versus risk must be morally and ethically assessed and all avenues exhausted prior to initiation of medications against will (Chism, 2019; Rubin & Prager; 2018; White et al., 2021). Dignity, respect, cultural sensitivity, competency, autonomy, and effective communication are essential to providing ethical care to the elderly population (Chism, 2019; Rubin & Prager; 2018). Another ethical consideration when treating the elderly was provider/caregiver bias and the patient's right to die with dignity, respecting their decisions and advance care directives (Chism, 2019; Rubin & Prager; 2018).

Data Collection

The data collection process included extraction of data from pharmacy reports, clinical charts, adverse event reports, surveys, care plan/intervention reports, and behavioral logs. The data collection was retrieved from the hospital electronic health records (EHR), which contains all patient data, including the ability to run specific reports. The system used was Meditech. Pharmacy reports were obtained from the hospital pharmacy. The organization's management team collected all the requested patient data and reports, de-identified the information, and then entered it into a Microsoft Excel spreadsheet provided by this researcher. All data collection adhered to healthcare regulation compliance, and ethical and privacy standards to ensure patient safety, and confidentiality (Chism, 2019; White et al., 2021).

Tools

This scholarly project used a pre and post Likert survey to assess current knowledge and views of EBP nonpharmacological interventions used to reduce BPSD and perception and knowledge after the implementation of an EBP clinical presentation with specific strategies and interventions to promote evidence-based decision making, translate evidence to care, and improve patient outcomes (See Appendix F) (Melnyk & Fineout-Overholt, 2019; White et al., 2021). The 5-point Likert scale used for both pre and post assessments in this project was specifically created for this scholarly project by this researcher, based on a comprehensive literature review of validated Likert scales that measure knowledge (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018). It consisted of 11 items designed to measure various aspects of nursing knowledge and positive perception of the value and use of nonpharmacological interventions. It is important to note that this Likert scale has not been subject to formal validation or reliability testing. Therefore, the findings should be interpreted carefully, and further studies are recommended to establish the scale's measurement characteristics (Melnyk & Fineout-Overholt, 2019; Murphy et al., 2018; Sylvia & Terhaar, 2018). This researcher also developed a power point presentation (PPP) on the implementation of an EBP framework to provide nonpharmacological interventions as first line treatment for BPSD (See Appendix G). This educational tool was presented to the entire nursing and nurse assistant staff at the hospital in multiple educational presentations. (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018).

Intervention

The first step of this scholarly project intervention was to identify the stakeholders and elicit project buy-in and team members. Identify nursing management, supervisors, nursing staff,

and nurse assistant staff for education and training. The next step was to procure IRB approval. Next was the development of an educational presentation and training for nursing staff regarding nonpharmacological interventions as first line treatment for BPSD and documenting the effectiveness of interventions on the EHR behavior logs. Patients were selected based on the inclusion and exclusion criteria. A patient consent form was not warranted for this project as there were no patient identifiers in the data and the scholarly project presents minimal risk of harm (Moran et al., 2024). The geriatric hospital did not have an IRB requirement, but a written approval to conduct the scholarly project was secured.

Multiple PPP presentations were conducted on all three hospital units, to educate the nursing staff on nonpharmacological interventions, and the scholarly project protocol. A pre and post Likert scale questionnaire was provided to nursing staff who agreed to participate in the project protocol, to assess the nurse's clinical knowledge on nonpharmacological interventions for BPSD and their perceived value of nonpharmacological interventions. The hospital nursing staff were anonymously assessed before and after the PPP.

The project interventions presented included providing music therapy for a minimum of 30-45 minutes per day, and exercise therapy for a minimum of 10 minutes per day. This researcher provided each psychiatric hospital unit with a Bluetooth speaker that was easily connected to a phone or iPad device for music and a flash drive with a 10-minute chair exercise video, that could be connected to the televisions, phones, or iPads for easy access and usability. A daily check-list calendar for the months of June and July was displayed at each nursing station across all three hospital units, to remind staff to complete the project protocol interventions. This researcher visited the hospital units approximately six times to encourage protocol participation.

The intervention was provided daily, continuously for six weeks, starting in June 2024 and ending in July 2024.

The next step was collection of post intervention data from the organization's EHR, management databases, and pharmacy reports. An excel spreadsheet containing data collection questions was provided to the hospital management team. The management team collected the data and subsequently submitted the Microsoft Excel spreadsheet report to this researcher, ensuring that no identifiable patient information was included, in compliance with the IRB ethical code of standards for patient confidentiality (LUSON, 2023-2024). The use of psychotropic medications was assessed, and data was collected using medication classification. The pre and post Likert questionnaires were scored and measured using the paired samples *t-test*. The standard Fall Rate measurement was used, and hospital fall rates during the project from June through July were assessed and compared to Fall Rates for dates February through March 2024 prior to the nonpharmacological intervention protocol. Patient outcomes were also assessed and documented based on discharge disposition, length of hospitalization, behaviors, medication influence, and adverse events.

Timeline

The project timeline detailing the key milestones, deliverables, and estimated completion date of course of action in this project is included as Appendix H. The timeline ranges from the initial scholarly project proposal design in January 2024 to the final data collection and analysis stage in August 2024. It emphasizes key events such as completion of the literature review, CITI certification, IRB approval, project implementation and completion, and successful scholarly defense (LUSION 2023-2024).

Feasibility Analysis

A feasibility analysis was conducted by this researcher to determine if the scholarly project was practicable and could be accomplished in the timeframe and setting chosen (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024). Regardless of the tight timeline, the project implementation and data collection were successfully completed within six weeks. This was achieved due to formulating a structured approach to the implementation process assuring all actions were completed effectively and efficiently (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024). The operational feasibility of the hospital was assessed and found to be adequate given the hospital is a psychiatric hospital, with a controlled environment, a large patient population of Alzheimer's disease with a diagnosis of BPSD, and has a 50-patient bed capacity, which could easily meet the minimum number of subjects required for the project. The technical feasibility was assessed and the use of Bluetooth speakers and flash drives with an exercise video were provided to each hospital unit for daily intervention utilization. The use of these devices was demonstrated and reviewed during the PPP. Finally, a risk analysis was performed assessing possible issues with data accuracy, staffing resource challenges, staff adherence to the protocol, and technical issues (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024). The feasibility analysis showed that implementation of nonpharmacological interventions such as providing music and exercise daily, was practical and effective in the hospital environment and in the reduction of falls in the elderly population with BPSD. The extensive literature review also validated the feasibility of this project protocol (Melnyk & Fineout-Overholt, 2019).

Data Analysis

This DNP student consulted with a statistician regarding the data analysis of this scholarly project for measurable outcomes, the type of data collected, and appropriate statistical

analysis processes (LUSON, 2023-2024). Statistical analysis of a quasi-experimental study involves analyzing data to evaluate interventions as multiple step process to gather meaningful and statistical conclusions from the compiled data (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018). The first step of this project was data clarification, refinement, classification, standardization, and making sure data is accurate. Next, was to identify descriptive statistics such as incident rate, cumulative incidence, relative risk, and hazard ratios, mean, median, standard deviation, and frequency of distribution (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018). Data tables to display analyzed data and a bar chart for the display of medication utilization have been used to define the problem and explore relationships between variables and statistical significance (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018). This project utilized statistical methods such as independent samples *t-tests*, paired samples *t-tests*, the *chi-square test*, Fall Rate, frequencies and mean scores to formulate and/or test hypotheses related to project objectives (Melnyk & Fineout-Overholt, 2019; Moran et al., 2024; Murphy et al., 2018; Sylvia & Terhaar, 2018).

Measurable Outcomes 1

The inpatient geriatric hospital Fall Rate will be reduced by 10% compared to the Fall Rate prior to the implementation of the nonpharmacological protocol by the end of the six-week project period.

Measurable Outcomes 2

Registered nurses, Licensed Practical nurses and nurse assistants will demonstrate an 20% increase in clinical knowledge and positive perception of the value and use of nonpharmacological interventions as first line treatment in BPSD, as measured by the pre and post Likert questionnaire scores, by the end of the power point educational presentation.

Measurable Outcomes 3

By the end of the six-week project, the use of pharmacological psychotropic medications as first line treatment for BPSD behaviors will decrease by 10%, while nonpharmacological interventions will be utilized as the first line treatment, resulting in a 10% reduction in BPSD behaviors.

Measurable Outcomes 4

Analysis of pre and post intervention data by the end of the nonpharmacological intervention protocol, will show a 10% reduction in adverse events and outcomes, including, patient falls, injuries, ED visits, and delays in discharge.

Section IV: Results

The project results indicated no statistically significant difference between the pre and post intervention periods in terms of reductions in patient behaviors, frequency of adverse outcomes, or a reduction in the number of patient falls. However, there were slight percentage decreases in behaviors such as aggression, anxiety, yelling out, intrusiveness, and restlessness. Contrarily, there were minor percentage increases in behaviors such as psychosis and combativeness. Furthermore, the post-intervention group experienced a small percentage reduction in injuries, emergency department visits, and delays in discharge. Even though the evidence showed there was no significant difference in the pre and post intervention in the reduction of the number of falls, a Fall Rate analysis was conducted to see if there was a change in the rate of falls. The data revealed that there was a clinically significant difference between the pre and post intervention Fall Rate data. The reduction of the Fall Rate in the post intervention group is clinically significant, especially in a hospital healthcare setting where patient safety is a priority and adverse effects of falls continue to cause increased morbidity, mortality, increased

costs and healthcare utilization (Lai et al., 2023; Moreland et al., 2020; WHO, 2020). Analysis of the pre and post Likert questionnaire demonstrated a clinically significant difference in the nurses' positive perception of the value and use of nonpharmacological interventions. However, there was no significant difference between the pre and post education intervention on clinical knowledge, regarding the use of pharmacological interventions versus nonpharmacological interventions.

Descriptive Statistics

The project sample consisted of 49 patients (M=59%, F=41%) who met the project's inclusion criteria. The patient sample ranged in age from 60 to 96 years (*M*=79, *SD*=7.92). The pre-intervention sample included 28 patients (*M*=74), and the post intervention sample included 21 patients (*M*=79). Approximately 57.14% were White, 10.20% were Hispanic, and 32.65% were of unknown race. There was a total of 25 nursing staff who participated in the educational presentation and completed the pre and post Likert scale questionnaire. The staff sample consisted of six registered nurses, eight licensed practical nurses, and eleven nurse assistants.

Measurable Outcome 1

The inpatient geriatric hospital Fall Rate will be reduced by 10% compared to the Fall Rate prior to the implementation of the nonpharmacological protocol by the end of the six-week project period. The geriatric hospital Fall Rate (# of falls over 1000 patient days) was analyzed pre intervention for the months of February and March 2024 and post intervention for the months of June and July 2024. There was a clinically significant reduction of 1.9 per 1000 patient days in the hospital Fall Rate post intervention as detailed in Table I1 (see Appendix I). Outcome measure one was achieved, evidenced by a statistically significant reduction in the hospital Fall Rate of 1.9 per 1000 patient days, translating to an approximate 10.37% decrease.

Measurable Outcome 2

The second outcome was that registered nurses, licensed practical nurses and nurse assistants will demonstrate an 20% increase in clinical knowledge and positive perception of the value and use of nonpharmacological interventions as first line treatment in BPSD, as measured by the pre and post Likert questionnaire scores, by the end of the power point educational presentation. A repeated measures *t-test* was performed on the pre- and post-intervention Likert questionnaires scale for knowledge and values administered to the nursing staff to determine if there was a significant increase in their positive perception of the value and use of nonpharmacological interventions (Moran et al., 2024; Sylvia & Terhaar, 2018).

The statistical data revealed that there was a significant difference between the pre and the post values, t (24) = -2.858, p = 0.009 as displayed in Table I2 (see Appendix I). The initial mean score was 4.01, which increased to 4.48, reflecting an 11.72% improvement. This highlights the inherent value and the nurse's positive perceptions of nonpharmacological interventions.

However, when a repeated measure *t-test* was performed assessing the nurse's clinical knowledge, there was no significant difference between the pre and post values, t (24) = 0.561, p = 0.580 (see table I3 in Appendix I). The pre mean score was 3.232 and the post mean score was 3.140, indicating a 2.89% reduction in clinical knowledge. These statistical findings indicate that the second measurement outcome was not achieved, as the intervention resulted in only a 12% increase compared to the predicted 20%, along with a decline in the clinical knowledge. This emphasizes the urgent need for continued education for nurses in the care and treatment of patients with Alzheimer's disease with BPSD.

Measurable Outcome 3

By the end of the six-week project, the use of pharmacological psychotropic medications as first line treatment for BPSD behaviors will decrease by 10%, while nonpharmacological interventions will be utilized as the first line treatment, resulting in a 10% reduction in BPSD behaviors. Assessing the impact of psychotropic medications on patient fall data was challenging due to the limitations of available pharmacy data and the administration and utilization of numerous psychotropic medications per patient. A stacked bar graph viewed in Figure J1, was created to illustrate the utilization frequency of each class of psychotropic medication pre and post intervention (see Appendix J). The frequency graft provides a clear overview of the most frequently prescribed psychotropic medications in elderly patients such as antidepressants and antipsychotics, which had 100% usage rate in this psychiatric hospital setting. There was an insignificant reduction in hypnotics and mood stabilizers post intervention and no other significant medication findings.

To assess behavioral issues and changes pre and post intervention, a *chi-square* analysis was completed (Moran et al., 2024; Sylvia & Terhaar, 2018). The data results displayed that there were no significant differences ($p > .05$) prior to and post intervention, related to reported and observed behaviors as detailed in Table I4 (see Appendix I). When comparing behavior data percentages, decreased symptoms such as aggression (Pre = 37. %, Post = 27.3%), anxiety (Pre = 37.0 %, Post = 22.7%), yelling out (Pre = 3.7 %, Post = 0.0%), intrusiveness (Pre = 3.7 %, Post = 0.0%), and restlessness (Pre = 3.7%, Post = 0.0%), were identified. In contrast, an increase in behaviors such as psychosis (Pre = 7.4%, Post = 9.1%), and combativeness (Pre = 22.2%, Post = 40.9%), were exposed. Despite there being no significant statistical significance, the overall post

intervention percentage reduction (6.82%) in patient behaviors can have a positive effect on patient outcomes and quality of healthcare services.

Measurable Outcome 4

Analysis of pre and post intervention data by the end of the nonpharmacological intervention protocol, will show a 10% reduction in adverse events and outcomes, including, patient falls, injuries, ED visits, and delays in discharge. An inferential analysis of adverse outcomes was conducted to assess clinical significance in the difference between pre and post protocol interventions and their effect on patient outcomes (Moran et al., 2024; Sylvia & Terhaar, 2018). First, a *t-test* was performed to evaluate the number of falls prior to and post interventions. As shown in Table I5, no significant difference ($p = 0.793$) was established (see Appendix I). Then a *chi-square* analysis of patient injury data was produced and described in Table I6 (see Appendix I), which also showed that there was no significant difference in injury between pre and post intervention (X^2 (1) = .328, p = .567). Utilizing the percentage decrease formula, there was a noted 8.3% reduction of injuries sustained post intervention.

Next, another *chi-square* analysis was completed comparing ED visit data, depicted in Table I7 (see Appendix I). The analysis again showed no significant difference in ED visits pre and post interventions (X^2 (1) = .859, p = .354), with a percentage rate reduction of 15.3%. Finally, a *chi-square* analysis run, illustrated in Table I8 (see Appendix I), detailing the difference between pre and post intervention results regarding a delay in the discharge of patients from the geriatric psychiatric hospital (Moran et al., 2024; Sylvia & Terhaar, 2018). There continued to be no significant statistical difference in the delay of discharger prior to or post interventions (X^2 (1) = .928, p = .336) with a percentage rate reduction of 15.3% like ED visits. Although there is no clinically significant difference in any of the pre and post data analysis for

adverse outcomes of patients in the psychiatric hospital unit, the percentage data shows there is a continuous positive impact on quality of patient care, behavior reduction, medication reduction, and improvement of patient well-being due to the implantation of nonpharmacological interventions, which validates the effectiveness of the project protocol.

Section V: Discussion

Utilizing the systematic process of the Iowa Model of EBP Revised, this researcher conducted a quantitative, quasi-experimental project with a repeated measure design, to assess causal inference of a nonpharmacological intervention protocol administered in a geriatric psychiatric hospital setting. The aim of this project was to identify if utilization of non-pharmacological interventions can reduce behaviors, falls, potential injuries, ED visits, and length of hospitalization in patients with a diagnosis of Alzheimer's disease with BPSD. The theoretical framework of the translation research model was utilized as it aligns with the project's aim of integrating proven EBP nonpharmacological interventions, such as music and exercise therapy, into routine clinical practice. This approach enhanced nursing staff knowledge through targeted education, thereby allowing them to implement EBP interventions and processes into routine care, theoretically reducing falls, adverse events, enhancing care, and improving patient and healthcare outcomes (Murphy et al., 2018; White et al., 2021).

Following an extensive literature review, this researcher identified two nonpharmacological interventions with strong levels of EBP research evidence, used for patients with BPSD (Burley et al., 2022; Shu et al., 2023; Yin et al., 2023). They were exercise and music therapy, and they were the two interventions used in the project protocol. For example, a meta-analysis study conducted by Yin et al. (2023) identified that two nonpharmacological

interventions, exercise being the optimal intervention, compared to treatment as usual, had a statistically significant effect on positive patient outcomes.

This project's results revealed that there was not a significant difference ($p>0.05$) between pre and post intervention measures in the reduction of the number of falls, injuries, ED visits, delay of discharge, behaviors, or psychotropic medication reduction. Although, the data did identify a significant percentage reduction in each measure, which met some of the project's outcome measures to reduce adverse events. The literature review correlated with this project's findings that nonpharmacological interventions can reduce adverse events in multiple settings in the geriatric population and improve quality of care (Burley et al., 2022; Jesto et al., 2024, Tampi et al., 2022; Yin et al., 2023).

The results did identify a clinically significant difference in the Fall Rate (1.95 per 1000 patient days), which met this project's outcome measure of reducing the Fall Rate by 10% post intervention. Several studies analyzed in the literature review validated this project's outcome measure, citing that nonpharmacological interventions can contribute to reduce fall risk and rates in the geriatric population, however, there is a critical shortage of literature on the geriatric population, especially in psychiatric hospital and acute care hospital settings (Burley et al., 2022; Calsolaro et al., 2021, Ruggiero et al., 2024; Wolverson et al., 2022).

There were multiple factors identified that may have had a potential impact on the project results. First, the intervention timeline was limited to six weeks which limits the ability to capture natural variability in project outcomes (Sylvia & Terhaar, 2018). Interventions targeting reductions in behaviors, falls and implementing clinical practice changes, generally require extensive intervention periods and post intervention data collection periods to demonstrate significant statistical effectiveness (Murphy et al., 2018; Sylvia & Terhaar, 2018; White et al.,

2021). Second, there was inconsistencies in the implementation of the protocol intervention activities daily, compromising the consistency and effectiveness of the interventions, leading to variability and low fidelity, which can effect the validity and findings of the project (Sylvia & Terhaar, 2018). Lastly, patients admitted to the geriatric psychiatric unit often exhibit increased behavioral issues, have significant comorbidities, and polypharmacy, particularly being prescribed numerous psychotropic medications. These factors significantly influence their risk for falls and adverse events (Wolverson et al., 2022). The literature review also highlighted the increased risk of falls associated with polypharmacy and medical comorbidities in the geriatric population (Fialova et al., 2019; Lai et al., 2023; Ruggiero et al., 2024).

Finally, the project results showed that educating nurses on EBP research and interventions did demonstrate a clinically significant difference (p = .009) regarding the nurses perceived value of nonpharmacological interventions in the hospital setting for the treatment of BPSD. However, there was no significant difference in the improvement of nurses' clinical knowledge. These findings emphasize the importance and critical need to continuously educate nurses on innovative evidence-based practices and the provision of tools and processes of how to implement these EBPs in multiple healthcare settings.

The strengths of this project include practicality and feasibility due to the quasi-experimental design and ability to conduct the project ethically, in a structured hospital setting, with a vulnerable population, without bias. The project offered flexibility of the nonpharmacological interventions provided, including different varieties, genres, and forms of music and exercise. Lastly, the project has generalizability and can be applied to larger, real-world practice settings (Murphy et al., 2018; Sylvia & Terhaar, 2018; White et al., 2021). The project's limitations include the extensive use of multiple medications (polypharmacy), the

fragility of the sample population, the presence of multiple comorbidities, and severe cognitive and psychological impairment of the participants. Another limitation was the inability to control consistent implementation of the interventions due to staffing issues and participation reducing the project's fidelity (Moran et al., 2024; Sylvia & Terhaar, 2018). Despite this project's limitations, certain measurement outcomes were successfully achieved and the value of EBP was recognized and implemented by the hospital nursing staff, to enhance positive patient and healthcare outcomes.

Implications for Practice

There is an abundance of literature on fall prevention, fall reduction, fall risk protocols and processes, but despite the EBP implementation of fall prevention processes, falls continue to be the highest risk factor for geriatric patients, in all care settings, with skyrocketing socioeconomic impact, healthcare utilization, and increased morbidity and mortality rates (Lai et al., 2023; Ruggiero et al., 2024; Zhou et al., 2022). Nursing leaders need to reassess and conduct new innovative evidence-based research on ways to enhance patient safety and mitigate falls. Focusing on a multidisciplinary approach (White et al., 2021; Zhou et al., 2022). Nursing leaders need to focus on staffing issues, polypharmacy, patient-centered care planning, and environmental considerations, while treating the patient holistically through implementation of EBP utilization of nonpharmacological interventions as first line treatment and supported by development of organizational policies and procedures (White et al., 2021; Zhou et al., 2022). It is imperative for nursing leaders to provide and encourage ongoing continued education of all nurses on EBP as it contributes to the optimal understanding and value of translation of best evidence in to practice at all nursing levels and in all healthcare settings (White et al., 2021).

Sustainability

This project demonstrates a high degree of sustainability as it doesn't require extensive or advanced specialized training of staff. The project's nonpharmacological interventions and protocol are easily replicated, versatile, and cost effective. The findings and systematic structured methodology can be replicated, maintained and implemented long-term and in multiple healthcare settings. Lastly, the project can be translated, adjusted, reassessed, updated, and redesigned based on innovative EBP research, the project's population and setting (Moran et al., 2024; Murphy et al., 2018; Sylvia & Terhaar, 2018; White et al., 2021).

Dissemination Plan

The findings of this scholarly project will be presented by this provider at the American Medical Directors Association and The Society for Post-Acute and Long-Term Care Medicine fall symposium this September 2024. The audience will include key stakeholders, healthcare students, multidisciplinary healthcare professionals, and other organizational leaders.

Conclusion

This project used a structured methodological approach of translating EBP research and implementing interventions into clinical practice to improve patient and healthcare outcomes (Moran et al., 2024; Murphy et al., 2018; White et al., 2021). It showed that nonpharmacological intervention policies and procedures are a viable quality improvement process to improve geriatric patient health care outcomes and quality of life. It also revealed that EBP interventions are cost effective and can have a positive socioeconomic as well as patient-centered impact on care outcomes. This project also revealed the critical gap in EBP research on the care of geriatric patients in every healthcare setting (Burley et al., 2022; Shu et al., 2023; Yin et al., 2023).

References

Agency for Health Care Research & Quality (AHRQ). (2018, July). Preventing falls in hospitals, https://www.ahrq.gov/patient-safety/settings/hospital/fall-prevention/toolkit/index.html

American Association of Colleges of Nursing (2006). *The essentials of doctoral education for advanced nursing practice.* www.aacn.nche.edu

American Psychological Association (2020). *Publication manual of the American psychological association* (7th ed.). American Psychological Association.

Burley, C. V., Burns, K., & Brodaty, H. (2022). Pharmacological and nonpharmacological approaches to reduce disinhibited behaviors in dementia: a systematic review. *International Psychogeriatrics*, 34(4), 335-351. https://doi.org/10..1017/S1041610222000-151

Calsolaro, V., Femminella, G.D., Rogani, S., Esposito, S., Franchi, R., Okoye, C., Rengo, G., & Monzani, F. (2021). Behavioral and psychological symptoms in dementia (BPSD) and the use of antipsychotics. *Pharmaceuticals (Basel)*, 14(3), 1-13. https://doi.org/10.3390/ph14030246

Chism, L. A. (2019). *The Doctor of Nursing practice: A guide for role development and professional issues* (4th ed.). Jones & Bartlett Learning.

Feast, A. R., White, N., Candy, B., Kupeli, N. & Sampson, E. L. (2020). The effectiveness of interventions to improve the care and management of people with dementia in general hospitals: a systematic review. *International Journal of Geriatric Psychiatry*, 35(5), 423-588. https://doi.org/10.1002/gps.5280

Fialova, D., Laffon, B., Marinkovic, V., Tasic, L., Doro, P., Soos, G., Mota, J., Dogan, S., Brkic, J., Teixeira, J. P., Valdiglesias, V., Costa, S. (2019). Medication use in older patients and age-blind approach: narrative literature review (insufficient evidence on the efficacy and safety of drugs in older age, frequent use of PIMs and polypharmacy, and underuse of highly beneficial nonpharmacological strategies). *European Journal of Clinical Pharmacology*, 75(4), 451-466. https://doi.org/10.1007/s00228-018-2603-5

Florea, T., Popescu, E. R., Palimariciuc, M., & Chirita, R. (2019). Antipsychotic treatment in patients with dementia receiving palliative care. *Bulletin of Integrative Psychiatry*, 83(4), 78-87. DOI: 10.36219/bpi.2019.04.09

Hills, D., Ekegren, C., Plummer, V., Freene, N., Kunstler, B., Healy, E., & Crabtree, A. (2022). Nursing perspectives on reducing sedentary behaviour in sub-acute hospital settings: a mixed methods study. *Journal of Clinical Nursing*, 31(9-10), 1348-1361. https://doi.org/10.1111/jocn.15994

Holmkjaer, P., Holm, A., Overbeck, G., & Rozing, M. P. (2022). A cluster-randomized trial of a complex intervention to encourage deprescribing antidepressants in nursing home residents with dementia: a study protocol. *Trials*, 23(1), 1-12. https://doi.org/10.1186/s13063-022-06368-9

Iowa Model Collaborative (IMC) (2017). Iowa Model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing*, 14 (3), 175-182. https://doi.org/10.1111/wvn.12223

Jesto, S., Considine, J., & Street, M. (2024). Nonpharmacological nursing interventions for behavioral and psychological symptoms of dementia in acute and subacute settings: a

systematic review. *International Journal of Nursing Practice*, 30(2), 1-9. https://doi.org/10.1111/ijn.13213

Lai, R., Foladkar, M., Dhaliwal, G, Kibria, A., Gualano, R. C., & Healy, M. L. (2023). Access to a dementia-friendly garden on behavioural and psychological symptoms of dementia, falls and psychotropic medication use in residents of an aged care home in Melbourne, Australia. *Australasian Psychiatry*, 31(3), 356-362. https://doi.org/10.1177/1039856223116

Liberty University School of Nursing (LUSON) (2023-2024). *Doctor of nursing practice student handbook 2023-2024.* Liberty University School of Nursing. https://www.dropbox.com/s/4agtds7bk7kutgr/LUSON%20DNP%20Student%20Handbook%202023-2024.pdf?dl=0

Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and healthcare a guide to best practice* (4th ed.). Wolters Kluwer.

Moran, K., Burson, R., & Conrad, D. (2024). *The doctor of nursing practice project a framework for success* (4th ed.). Jones & Bartlett.

Murphy, M. P., Staffileno, B. A., & Foreman, M. D. (2018). *Research for advanced practice nurses from evidence to practice* (3rd ed.). Springer Publishing.

Parajuli, D. R., Kuot, A., Hamiduzzaman, M., Gladman, J., & Isaac, V. (2021). Person-centered, non-pharmacological intervention in reducing psychotropic medication use among residents with dementia in Australian rural aged care homes. *BMC Psychiatry*, 21(36), 1-11. https://doi.10.1186/s12888-020-03033-w

Raglio, A., Bellandi, D., Manzoni, L., & Grossi, E. (2021). Communication improvement reduces BPSD: a music therapy study based on artificial neural networks. *Neurological Sciences,* 42(5), 2103-2106. DOI:10.1007/s10072-020-04986-2

Roush, K. (2023). *A nurse's step by step guide to writing a dissertation or scholarly project* (3rd ed.). Sigma Global Nursing Excellence.

Rubin, J., & Prager, K. M. (2018). Guide to considering nonpsychiatric medical intervention over objection for the patient without decisional capacity. *Mayo Clinic Proceedings*, 93(7), 826-829. DOI: 10.1016/j.mayocp.2018.04.005

Ruggiero, C., Baroni, M., Xenos, D., Parretti, L., Macchione, I., Bubba, V., Laudisoio, A., Pedone, C., Ferracci, M., Magierski, R., Boccardi, V., Antonelli-Incalzi, R., & Mecocci, P. (2024). Dementia, osteoporosis, and fragility fractures: intricate epidemiological relationships, plausible biological connections, and twisted clinical practices. *Ageing Research Reviews*, 94, 1-22. https://doi.org/10.1016/j.arr.2023.102130

Sadock, B. J., Sadock, V. A., & Ruiz, P. (2015). *Kaplan & Sadock's synopsis of psychiatry behavioral sciences/clinical psychiatry* (11th ed.). Wolters Kluwer.

Seibert, M., Muhlbauer, V., Holbrook, J., Voigt-Radloff, S., Brefka, S., Dallmeier, D., Denkinger, M., Schonfeldt-Lecuona, C., Kloppel, S., & von Arnim, C. A. (2021). Efficacy and safety of pharmacotherapy for Alzheimer's disease and for behavioural and psychological symptoms of dementia in older patients with moderate and severe functional impairments: a systematic review of controlled trials. *Alzheimer's Research & Therapy*, 13, 1-20. https://doi.org/10.1186/s13195-021-00867-8

Steele, R. B., & Monroe, H. A. (2020). *Chistian ethics and nursing practice*. Wipf and Stock Publishing.

Suh, Y., Lee, S., Kim, G. E., & Lee, J. H. (2023). Systematic review and meta-analysis of randomization controlled and nonrandomized controlled studies on nurse-led nonpharmacological interventions to improve cognition in people with dementia. *Journal of Clinical Nursing*, 32(13-14), 3155-3172. https://doi.org/10.1111/jocn.16430

Sylvia, M. L., & Terhaar, M. F. (2018). *Clinical analytics and data management for the DNP* (2nd ed.). Springer Publishing.

Tampi, R. R., Bhattacharya, G., & Marpuri, P. (2022). Managing behavioral and psychological symptoms of dementia (BPSD) in the era of boxed warnings. *Current Psychiatric Reports*, 24(9), 431-440. https://doi.org/10.1007/s11920-022-01347-y

White, K. M., Dudley-Brown, S., & Terhaar, M. F. (2021). *Translation of evidence into nursing and healthcare* (3rd ed.). Springer Publishing Company.

World Health Organization (WHO). (2017, May 1). 10 facts on aging and health. https://www.whoint/news-room/fact-sheets/detail/10-facts-on-aging-and-health

World Health Organization (WHO). (2018, January 16). *Falls.* https://www.who.int/news-room/fact-sheets/detail/falls

Wolverson, E., Dunning, R., Crowther, G., Russell, G., & Underwood, B. R. (2022). The characteristics and outcomes of people with dementia in inpatient mental health care: a review. *Clinical Gerontologist*, 1-20. https://doi.org/10.1080/07317115.2022.2104145

Yin, Z., Li, Y., Bao, Q., Zhang, X., Xia, M., Chong, W., Wu, K., Yao, J., Chen, Z., Sun, M., Zhao, L., & Liang, F. (2023). Comparative efficacy of multiple non-pharmacological interventions for behavioral and psychological symptoms of dementia: a network-Meta analysis of randomized controlled trials. *International Journal of Mental Health Nursing*, 00, 1-18. https://doi.org/10.1111/inm.13254

Zhou, Y., Berridge, C., Hooyman, N. R., Sadak, T., Mroz, T. M., & Phelan, E. A. (2022). Development of a beavioural framework for dementia care partners' fall risk management. *BMC Geriatrics,* 22(1), 1-21. https://doi.org/10.1186/s12877-022-03620-4

Appendix A: Literature Review Matrix

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Calsolaro, V., Femminella, G.D., Rogani, S., Esposito, S., Franchi, R., Okoye, C., Rengo, G., & Monzani, F. (2021). Behavioral and psychological symptoms in dementia (BPSD) and the use of antipsychotics. *Pharmaceuticals (Basel)*, 14(3), 1-13. https://doi.org/10.3390/ph14030246	The purpose of this study was to conduct a literature review regarding the treatment of behavioral and psychological symptoms of dementia (BPSD) and treatment with antipsychotics.	A literature search was conducted in PubMed using keywords. 59 articles were selected consisting of meta-analysis, reviews, and original works.	A non-experimental, literature review was completed and analyzed.	Results of the literature reviewed unveiled that antipsychotic use should be utilized as a second-hand treatment of BPSD, when nonpharmacological approaches have failed. The use of atypical antipsychotics such as risperidone, olanzapine, &	Level 7: A Literature Review with no protocol, summarizing literature	Literature reviews are the lowest level of evidence, with opinion of authors, with no systematic protocol for the selection of reviewed articles.	Yes, although this literature review is the lowest level of evidence, the article reveals and identifies the need for further studies to assess for a single effective and safe treatment for BPSD, and identifies the critical challenges faced by healthcare providers that are providing patient-centered tailored treatment for this patient population.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
				aripiprazole have the strongest data of support for the treatment of BPSD, compared to Seroquel or first-generation antipsychotics.			
Holmkjaer, P., Holm, A., Overbeck, G., & Rozing, M. P. (2022). A cluster-randomized trial of a complex intervention to encourage deprescribing antidepressants in nursing home residents with dementia: a study protocol. *Trials*, 23(1), 1-12.	The purpose of this study was to develop and implement a process intervention that increases the knowledge	A sample of 22 practices consisting of 15 patients diagnosed with dementia, living in nursing homes.	A Cluster-Randomized-nonblinded parallel group superiority trial will be utilized.	This is a protocol initiation, and the anticipated results include interventions that will optimize BPSD	Level 2: RCT from multiple practices.	Limitations noted are the excluding of patients under the treatment by a psychiatrist. Short	Yes, the protocol RCT study can be an invaluable tool used to provide evidence-based practice (EBP) patient-centered care for optimal BPSD treatment and enhance GDR of psychotropic

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
https://doi.org/10.1186/s13063-022-06368-9	of BPSD for nursing home staff and encourage the involvement of staff and relatives in the deprescribing practices of psychotropics in the nursing home setting by general practitioner.			treatment and enhance gradual dose reduction (GDR) of psychotropic medications used in a nursing home setting on patients with a dementia diagnosis.		three-month intervention period. The possibility of post-allocation bias.	medication with expert input from providers, staff, and families.
Lai, R., Foladkar, M., Dhaliwal, G, Kibria, A., Gualano, R. C., & Healy, M. L. (2023). Access to a	The purpose of this study was to analyze data	A 39-bed nursing home was used and 19	A prospective cohort study.	Of the 19 residents, four passed away during	Level 3: A Prospective	Limitations noted were limited	Yes, this cohort study can be replicated on a larger scale in

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
dementia-friendly garden on behavioural and psychological symptoms of dementia, falls and psychotropic medication use in residents of an aged care home in Melbourne, Australia. *Australasian Psychiatry*, 31(3), 356-362. https://doi.org/10.1177/1039856223116	of possible reduction of BPSD severity, psychotropic medication use and fall rates with the establishment and use of an outside garden area for patients in a nursing home with the diagnosis of dementia with BPSD.	residents with a diagnosis of BPSD were used in the study. 9 females and 10 males with a mean age of 71 years old.	Residents in the study were assessed using the Neuropsychiatric Inventory-Nursing Home Version (NPI-NH) tool. The tool was assessed initially and at 3 months and 6 months post implementation of	the 6-month study period. The results showed a non-significant trend in the reduction of falls, psychotropic medication use, or reduction of behaviors. It did show that there is a benefit to outdoor space in nursing homes and families found it beneficial.	Cohort Study	use of the garden space, small sample size with four participants passing prior to end of study, and the day-to-day variability of BPSD patient symptoms.	multiple nursing home settings, with more specific protocol on use of outdoor space. Many studies have been noted to show a positive impact of outdoor spaces in patients with dementia, stimulating cognitive capacity.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
			the outdoor garden area. A qualitative feedback questionnaire was also provided to family members and staff regarding the benefits & barriers of the garden use.				
Parajuli, D. R., Kuot, A., Hamiduzzaman, M., Gladman, J., & Isaac, V. (2021). Person-centered, non-pharmacological intervention	This study aimed to evaluate changes in the	Participants were residents of 5 nursing home	A quasi-experimental design was used using	The studied verified that Harmony in the Bush model	Level 3: A Quasi-experimental	The inability to obtain medication chart	Yes, use and implementation of EBP care models to reduce polypharmacy,

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
in reducing psychotropic medication use among residents with dementia in Australian rural aged care homes. *BMC Psychiatry*, 21(36), 1-11. https://doi.10.1186/s12888-020-03033-w	prescribing of psychotropic medications in patients with BPSD after application of the Harmony in the Bush model.	settings with a median age of 83 years old. 68% of the residents in the study were female. Comorbid characteristics included DM, HTN, & Alzheimer's Disease.	qualitative and quantitative data. The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) guidelines were utilized.	utilized as a non-pharmacological approach to the treatment of BPSD, reduces psychotropic prescribing in nursing homes.	study, non-randomized, pre-post intervention without a control group.	information from two facilities in the original study, and small sample size.	use of psychotropic medication in the treatment of BPSD, and to improve patient-centered outcomes with nonpharmacological treatment approaches, is critical in the optimal care of patients with AD and BPSD.
Ruggiero, C., Baroni, M., Xenos, D., Parretti, L., Macchione, I., Bubba, V., Laudisoio, A., Pedone, C., Ferracci, M., Magierski, R.,	The study sought to summarize and synthesize	Studies consisted of epidemiological and pathophysiol	This study is a literature review. Full text	Results showed a correlation between the relationship	Level 7: A literature review	Small sample size.	Yes, Evidence regarding best practices for the treatment of osteoporosis, and

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Boccardi, V., Antonelli-Incalzi, R., & Mecocci, P. (2024). Dementia, osteoporosis, and fragility fractures: intricate epidemiological relationships, plausible biological connections, and twisted clinical practices. *Ageing Research Reviews*, 94, 1-22. https://doi.org/10.1016/j.arr.2023.102130	the relationships between epidemiological evidence and evidence on the impact of available pharmacological treatments for the prevention of fragility fractures on patient with dementia and the effects of treatment of BPSD on fall risk.	ogical connections of bone and brain. Therapeutic options and reciprocal effects of bone and brain. Impact of anti-dementia drugs on falls and fractures.	articles from 2000-2023 using Medline database, PubMed. 35 studies were reviewed using 3 reviewers.	of bone and brain, and the effects of pharmacological treatments used to treat both osteoporosis and dementia. Needs to combine EBP and clinical practice related to the management and treatment of high-risk fragility fractures in patients with	was conducted.	Reviewer Bias.	the connection between the bone and brain, can enhance treatments for both dementia and osteoporosis, as well as establish protocols that can reduce falls, fractures, rapid cognitive decline, and improve patient outcomes.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
				dementia, can lead to improved patient health outcomes, reduction of healthcare costs, and socio-economic burden.			
Seibert, M., Muhlbauer, V., Holbrook, J., Voigt-Radloff, S., Brefka, S., Dallmeier, D., Denkinger, M., Schonfeldt-Lecuona, C., Kloppel, S., & von Arnim, C. A. (2021). Efficacy and safety of pharmacotherapy for Alzheimer's disease and for behavioural and psychological symptoms of dementia in older patients	The study had an objective to assess the efficacy and safety of pharmacological treatments of patients with AD and	The sample size was the systematic review of 10 RCT's that assessed the treatment efficacy and safety of patients with AD & BPSD, with	The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) and the Cochrane Handbook	The study revealed that patients with AD &/or BPSD treated with AChEIs had improved cognition and tolerated the medication	Level 1: A Systematic Review of RCT's.	Limited number of studies with small patient sample size. No data in the RCTs regarding the	Yes, this study has evidence to support change in EBP as evidence shows the limited effects of pharmacological treatment for patients with BPSD and the need for more RCTs. No EBP

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
with moderate and severe functional impairments: a systematic review of controlled trials. *Alzheimer's Research & Therapy*, 13, 1-20. https://doi.org/10.1186/s13195-021-00867-8	associated BPSD.	acetylcholinesterase-inhibitors (AChEIs), anticonvulsant, antidepressant, and antipsychotics.	for Systematic Reviews of Interventions were utilized.	well. There was no evidence that antidepressants reduced depressive symptoms. There were minimal benefits to anticonvulsant and antipsychotics used for BPSD, but results showed increased adverse events with these medications.		patient's functional status or fragility to meet study requirements. Low quality of evidence.	treatment or best practice framework/protocol/guideline has been developed for the treatment of AD, BPSD.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Tampi, R. R., Bhattacharya, G., & Marpuri, P. (2022). Managing behavioral and psychological symptoms of dementia (BPSD) in the era of boxed warnings. *Current Psychiatric Reports*, 24(9), 431-440. https://doi.org/10.1007/s11920-022-01347-y	The reasoning for this review was to provide an inclusive and comprehensive evaluation of management of BPSD from evidence-based literature.	No study sample was identified. Multiple studies regarding pharmacological, nonpharmacological, and use of technology to treat BPSD were reviewed.	No formal methodology was identified.	The results of the study presented that, nonpharmacological techniques, such as use of technology, education and cognitive stimulation, pharmacological treatments, interventional procedures, and cannabinoids can all have efficacy in management	Level 7: A Literature review	No distinction of quality or relevance of studies reviewed. Bias, implications, and assumptions by reviews. No date ranges of studies used, sample sizes, or relevance to literature review.	Yes, although this literature review was broad, there was EBP information regarding the efficacy, and management of BPSD. The review identified the need for future studies and use of EBP for management of BPSD.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
				and treatment of BPSD.			
Florea, T., Popescu, E. R., Palimariciuc, M., & Chirita, R. (2019). Antipsychotic treatment in patients with dementia receiving palliative care. *Bulletin of Integrative Psychiatry*, 83(4), 78-87. DOI: 10.36219/bpi.2019.04.09	The objective of this study was to identify the efficiency of short-term use and low dose antipsychotic treatment in relieving targe symptoms of patients with a diagnosis of dementia being treated in	56 patients were identified for the study. The patients met the criteria of having a diagnosis of dementia, age greater than 65 years old, a mini mental status exam (MMSE) score under 14 and receiving anti-dementia	A comparative cohort study was conducted using MMSE, NPI-NH, Fall Risk (FR) scale, patient medical records, medication records, and fall incidents.	The results concluded that use of low dose antipsychotics had no adverse effects or increased risk of cognitive degradation or fall risk and that they have a positive effect on treatment of psychosis and agitation	Level 4: A comparative cohort study.	Limitations of the study are sample size. Only one site in study. Limited demographic information on patients.	Yes, this study can be used to support an EBP change. It demonstrates that despite black box warnings on antipsychotics there are benefits to their use in low dose for BPSD.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
	palliative care.	medications. 31 participants received antipsychotics.		with aggression.			
Wolverson, E., Dunning, R., Crowther, G., Russell, G., & Underwood, B. R. (2022). The characteristics and outcomes of people with dementia in inpatient mental health care: a review. *Clinical Gerontologist*, 1-20. https://doi.org/10.1080/07317115.2022.2104145	The objective of this study was to understand inpatient geropsychiatric settings specializing in dementia care, examining characteristics, care, and outcomes.	A total of 36 international retrospectives and audits were systematically reviewed. A total of 3950 patients with dementia were combined in the studies, ranging from a mean age of 73-86 years old.	A systematic review was conducted using a data extraction template and ESRC method program. A narrative review was conducted for	The results of the study revealed that there is significantly limited research and literature on characteristic, care, and outcomes of dementia patients admitted to inpatient geropsychiatric units. The increase	Level 1: Systematic Review	Limited literature on patients with dementia admitted to geropsychiatric inpatient units. Limitations of scope of practice in the studies.	Yes, this study can be used to support EBP change as it shows the significant gap in EBP and studies regarding inpatient dementia care and outcomes.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
		Exclusion of long-term-care and dementia care units.	articles searched until 2021.	psychiatric and medical comorbidity, risk of changes in patients, and increased rate of death is associated with inpatient admissions.		Studies did not compare practice to standard of care.	
Zhou, Y., Berridge, C., Hooyman, N. R., Sadak, T., Mroz, T. M., & Phelan, E. A. (2022). Development of a beavioural framework for dementia care partners' fall risk management. *BMC Geriatrics*, 22(1), 1-21. https://doi.org/10.1186/s12877-022-03620-4	The focus of this study was to develop a framework for fall risk management used by caregivers of patients diagnosed	The study sample consisted of 14 caregivers ranging from ages 48-87, 79% female, 50% spouses, 21% of color, and	Semi-structured interviews were conducted using the Informed Grounding Theory and Symbolic Interactio	The study identified and established a multidomain and multistage behavioral framework of fall risk management for	Level 4: This is a qualitative semi-structured case study.	Limitations identified were that the findings may have limited generalizability due to small sample	Yes, This study can support EBP and can create the development of tools and interventions to reduce falls in patients with dementia. This study also identifies the gaps in care and

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
	with dementia.	64% are college graduates.	nism Theory. 8 domains were identified, and 4 stages of fall risk management were addressed.	caregivers of dementia patients.		size. Different caregivers' perception of fall risk is a limitation. The exclusion of other caregivers.	research regarding dementia care and safety management.
Yin, Z., Li, Y., Bao, Q., Zhang, X., Xia, M., Chong, W., Wu, K., Yao, J., Chen, Z., Sun, M., Zhao, L., & Liang, F. (2023). Comparative efficacy of multiple non-pharmacological interventions for behavioral and psychological symptoms of dementia: a network-Meta	The goal of this study was to compare the efficacy of multiple non-pharmacological interventions and	43 RCT studies from 13 countries were assessed with a total of 4978 participants. The participants ranged from	A network meta-analysis was conducted using PRISMA-NMA & AMSTAR-2	The study showed a reduction of Neuropsychiatric Inventory with non-pharmacological interventions such as	Level 1: A Network Meta-analysis systematic review of RCTs	The quality of methodology and evidence from the RCTs was low. The long erm efficacy	Yes, this meta-analysis shows a clear correlation with a reduction of NPI and improved behaviors, QOL, and patient outcomes with the implementation of non-

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
analysis of randomized controlled trials. *International Journal of Mental Health Nursing*, 00, 1-18. https://doi.org/10.1111/inm.13254	identify the optimal therapy for BPSD, depression, agitation, apathy, quality of life, and abilities of daily living.	age 60-80 years old and there were more females than males. All participants had a dementia diagnosis with BPSD.	guidelines.	exercise, music, and massage interventions compared to treatment as usual. Providing more than two interventions significantly improved behaviors. Exercise plus treatment as usual was found to be the optimal intervention.		of non-pharmacological interventions is unclear. There is no economic value of non-pharmacological interventions examined in any of the studies.	pharmacological interventions in the treatment of BPSD.
Suh, Y., Lee, S., Kim, G. E., & Lee, J. H. (2023). Systematic review and meta-	The objective was to	The sample is 24 studies in the	The study method was a	The study revealed that single nurse-	Level 1: Systematic	The studies included	Yes, the importance of nurse-led

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
analysis of randomization controlled and nonrandomized controlled studies on nurse-led nonpharmacological interventions to improve cognition in people with dementia. *Journal of Clinical Nursing*, 32(13-14), 3155-3172. https://doi.org/10.1111/jocn.16430	evaluate nurse-led nonpharmacological interventions for patients diagnosed with dementia, to improve cognition.	Systematic review with 12 RCTs and 12 Quasi-experimental: 15 studies in the meta-analysis with 8 RCT &7 quasi-experimental. The mean age of participants was 74-85 years old. The studies were English and Korean	systematic review using Cochrane & PRISMA and a meta-analysis.	led interventions were more effective than complex interventions in improving cognition in patients with dementia.	Review and Meta-Analysis	heterogeneity due to small sample size, diagnosis, and ages. The study may not be statistically significant due to lack of power.	nonpharmacological interventions is invaluable to patients with dementia because they improve their QOL, reduce injury, and improve healthcare outcomes.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
Raglio, A., Bellandi, D., Manzoni, L., & Grossi, E. (2021). Communication improvement reduces BPSD: a music therapy study based on artificial neural networks. *Neurological Sciences*, 42(5), 2103-2106. DOI:10.1007/s10072-020-04986-2	The study aimed to assess the relationship between baseline behaviors of BPSD and the positive outcome of core therapeutic intervention of music therapy. 3	The sample was patients diagnosed with moderate to severe BPSD ages >65 years old. 70 patients participated.	The method is a retrospective cohort study that assessed a linear correlation index between baseline characteristics and intervention outcomes. Data from 3 previous RCTs was analyzed.	There was a positive correlation between improvement and reduction of BPSD symptoms and behaviors with music therapy intervention. Female patients had a significantly higher improvement in behaviors than male patients.	Level 4: A retrospective cohort study.	Limitations in this study are research biases, difficulty to establish causality assessing retrospective data. There is variability in measurement of risk factors and outcomes.	Yes, this study supports the neurocognitive benefits of music therapy on patients with BPSD. It also shows a relationship between improved patient outcomes.

Article Title, Author, etc. (Current APA Format)	**Study Purpose**	**Sample (Characteristics of the Sample: Demographics, etc.)**	**Methods**	**Study Results**	**Level of Evidence (Use Melnyk Framework)**	**Study Limitations**	**Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.**
Burley, C. V., Burns, K., & Brodaty, H. (2022). Pharmacological and nonpharmacological approaches to reduce disinhibited behaviors in dementia: a systematic review. *International Psychogeriatrics*, 34(4),335-351. DOI:10.1017/S1041610222000151	The purpose of this study was to review the efficacy of pharmacological and nonpharmacological interventions of disinhibited behaviors of dementia.	30 studies were identified, 9 pharmacological and 21 nonpharmacological. Patients identified with disinhibited/ BPSD behaviors in multiple healthcare settings.	Studies were reviewed using a qualitative synthesis. Neuropsychiatric inventory was used to assess symptoms in most studies. There was a strong quality of research identified.	The study revealed that pharmacological and nonpharmacological approaches were effective in the reduction of disinhibition behaviors of dementia. Nonpharmacological approaches had higher effects and better patient outcomes, therefore should be utilized as 1st	Level 1: Systematic Review	Unable to complete a Meta Analysis due to high heterogeneity across studies. Studies lacked placebo groups.	Yes, this study identifies the benefits of nonpharmacological interventions over pharmacological treatments across multiple healthcare settings. Studies show better patient outcomes with nonpharmacological treatments.

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
				line treatment and pharmacological treatments should be utilized only if nonpharmacological treatments fail and should only be used as a short-term treatment.			
Jesto, S., Considine, J., & Street, M. (2024). Nonpharmacological nursing interventions for behavioral and psychological symptoms of dementia in acute and subacute settings: a	This studies objective was to explore, appraise, and synthesize	2 studies out of 24 were selected. Both studies were in a acute or sub-acute	Systematic review following the PRISMA checklist with	The study demonstrated that nonpharmacological interventions had positive	Level 1: Systematic Review	Limited number of studies that met inclusion criteria. Small	Yes, this study supports the use of nonpharmacological interventions in a hospital setting and

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
systematic review. *International Journal of Nursing Practice*, 30(2), 1-9. https://doi.org/10.1111/ijn.13213	evidence regarding nurse led nonpharmacological interventions to manage BPSD behaviors in a sub-acute hospital setting.	hospital setting (geriatric psychiatric hospital). A total of 53 participants with a mean age of 80 years old. More woman than men total.	narrative synthesis. 2 reviewers using systematic review software.	results in the reduction of BPSD symptoms/behaviors.		sample size in studies and short duration.	addresses the need for further research and clinical guidelines for use of nonpharmacological interventions in this setting.
Fialova, D., Laffon, B., Marinkovic, V., Tasic, L., Doro, P., Soos, G., Mota, J., Dogan, S., Brkic, J., Teixeira, J. P., Valdiglesias, V., Costa, S. (2019). Medication use in older patients and age-blind approach: narrative literature review (insufficient evidence	The aim of this study was to emphasize the important problems of polypharmacy and	The reviewed articles focused on four areas regarding older population	A narrative literature review was conducted with experts in different	The study emphasized that the geriatric population is underrepresented in clinical trials and that	Level 7: Narrative literature review	No strict guidelines for literature review. Potential for bias.	Yes, this study clearly identifies the issues of polypharmacy, risk of medications in elderly, and the underuse and benefits of

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
on the efficacy and safety of drugs in older age, frequent use of PIMs and polypharmacy, and underuse of highly beneficial nonpharmacological strategies. *European Journal of Clinical Pharmacology*, 75(3), 451-466. DOI:10.1007/s00228-018-2603-5	inappropriate medication prescribing in older adults in Central and Eastern Europe compared to other developed and developing countries.	>65 years old: 1. Underrepresentation of elderly in clinical trials and ethical consequences. 2) therapeutic value of drugs on fragile geriatric population 3) frequency of prescribing of inappropriat	scientific fields from 6 countries.	prescribing of inappropriate, and polypharmacy is high in this population. The study also noted that nonpharmacological interventions such as exercise correlates with positive patient outcomes.			nonpharmacological interventions in the treatment of BPSD,

Article Title, Author, etc. (Current APA Format)	Study Purpose	Sample (Characteristics of the Sample: Demographics, etc.)	Methods	Study Results	Level of Evidence (Use Melnyk Framework)	Study Limitations	Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.
		e medications. 4) underuse of nonpharmacological interventions.					

Appendix B: Iowa Model Permission Letter

[External] Permission to Use The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care

Kimberly Jordan - University of Iowa Hospitals and Clinics [redacted]

[redacted]

Tue 1/23/2024 4:03 PM

To:Davis, April [redacted]

You don't often get email from survey-bounce@survey.uiowa.edu. Learn why this is important

---

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

You have permission, as requested today, to review and/or reproduce *The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care.* Click the link below to open.

[redacted]

Copyright is retained by University of Iowa Hospitals and Clinics. **Permission is not granted for placing on the internet.**

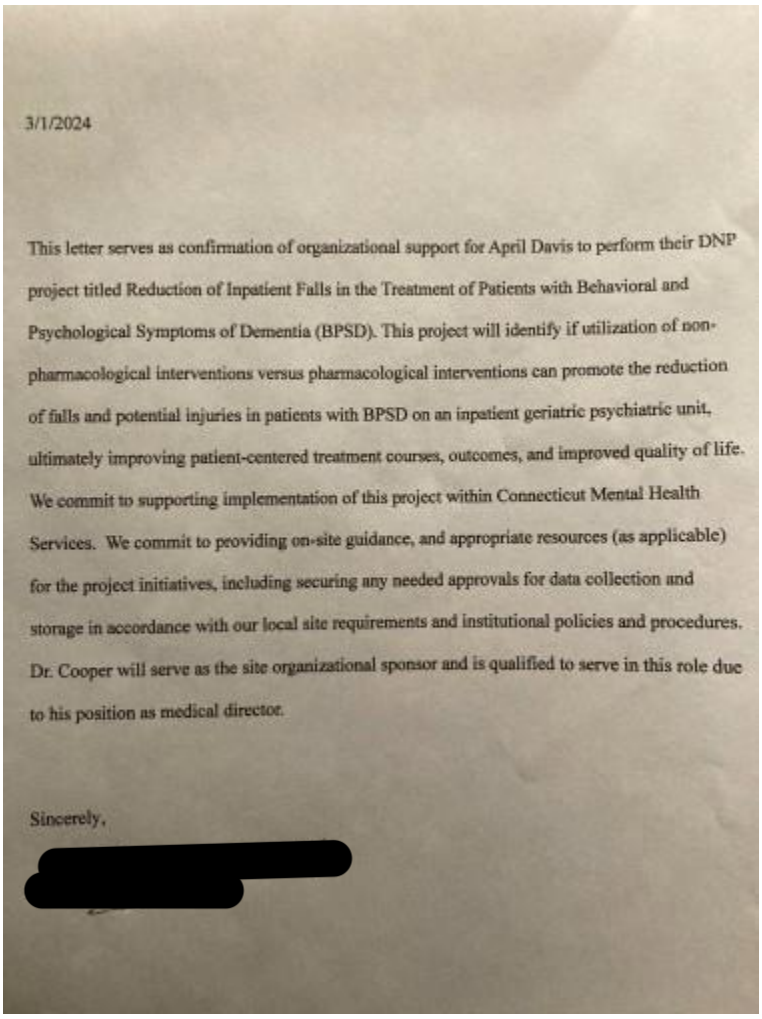
Reference: Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing, 14(3), 175-182. doi:10.1111/wvn.12223*

> In written material, please add the following statement:
> *Used/reprinted with permission from the University of Iowa Hospitals and Clinics, copyright 2015. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.*

Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-384-9098 with questions.

Appendix C: Organizational Letter of Support

Letter of Organizational Support



3/1/2024

This letter serves as confirmation of organizational support for April Davis to perform their DNP project titled Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD). This project will identify if utilization of non-pharmacological interventions versus pharmacological interventions can promote the reduction of falls and potential injuries in patients with BPSD on an inpatient geriatric psychiatric unit, ultimately improving patient-centered treatment courses, outcomes, and improved quality of life. We commit to supporting implementation of this project within Connecticut Mental Health Services. We commit to providing on-site guidance, and appropriate resources (as applicable) for the project initiatives, including securing any needed approvals for data collection and storage in accordance with our local site requirements and institutional policies and procedures. Dr. Cooper will serve as the site organizational sponsor and is qualified to serve in this role due to his position as medical director.

Sincerely,

[redacted]

Appendix D: Liberty IRB Approval Letter

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

May 9, 2024

April Davis
Kenneth Thompson

Re: IRB Application - IRB-FY23-24-1904 Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD).

Dear April Davis and Kenneth Thompson,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds that your study does not meet the definition of human subjects research. This means you may begin your project with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your project is not considered human subjects research because evidence-based practice projects are considered quality improvement activities, which are not "designed to develop or contribute to generalizable knowledge" according to 45 CFR 46.102(l).

Please note that this decision only applies to your current application. Any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

For a PDF of your IRB letter, click on your study number in the My Studies card on your Cayuse dashboard. Next, click the Submissions bar beside the Study Details bar on the Study Details page. Finally, click Initial under Submission Type and choose the Letters tab toward the bottom of the Submission Details page.

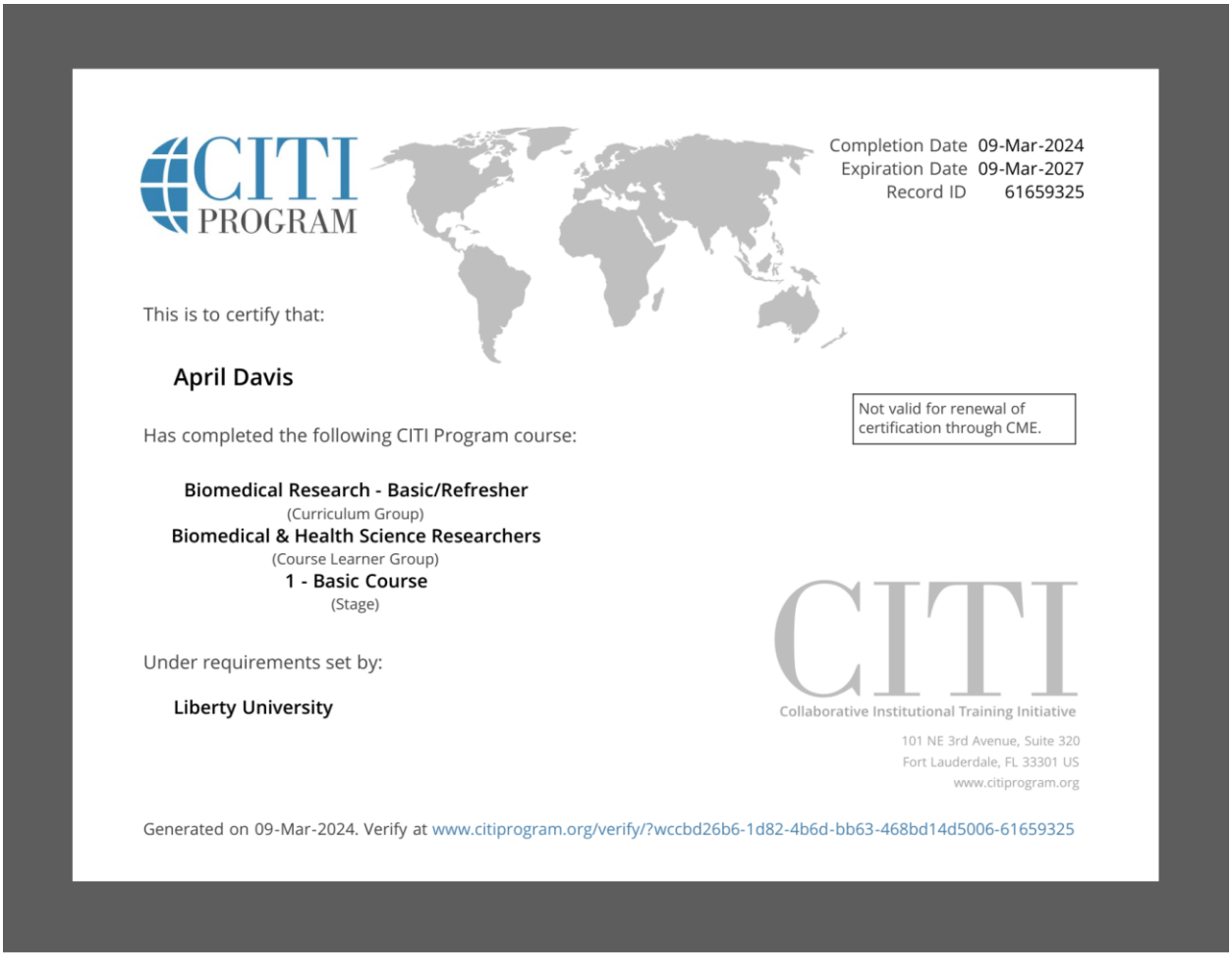
Also, although you are welcome to use our recruitment and consent templates, you are not required to do so. **If you choose to use our documents, please replace the word *research* with the word *project* throughout both documents.**

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

Appendix E: CITI Certificate



CITI PROGRAM

Completion Date 09-Mar-2024
Expiration Date 09-Mar-2027
Record ID 61659325

This is to certify that:

April Davis

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Biomedical Research - Basic/Refresher
(Curriculum Group)
Biomedical & Health Science Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

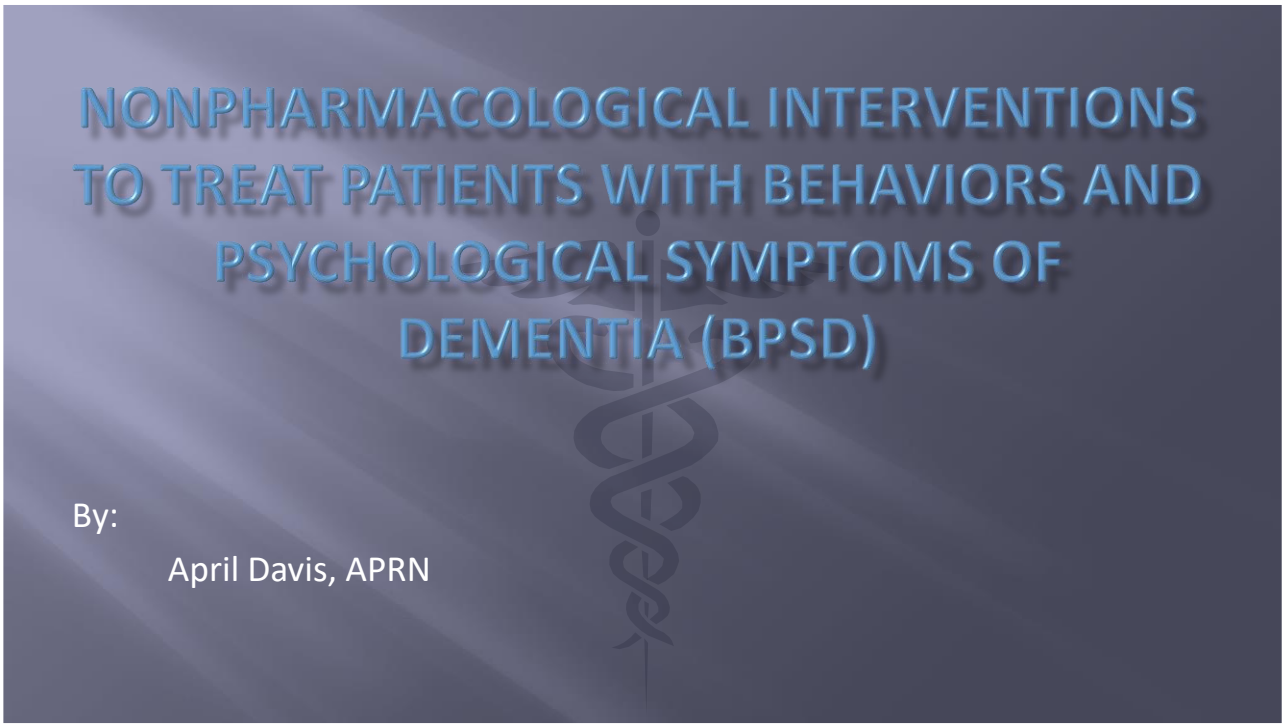
Under requirements set by:

Liberty University

CITI
Collaborative Institutional Training Initiative
101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Generated on 09-Mar-2024. Verify at www.citiprogram.org/verify/?wccbd26b6-1d82-4b6d-bb63-468bd14d5006-61659325

Appendix F: Educational PPP



Appendix G: Pre/Post Likert Questionnaire

Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD) (PRE/POST-SURVEY)

Please check the box that best describes your position:

Registered Nurse (RN)	☐	Licensed Practical Nurse (LPN)	☐
Nurse Assistant	☐		

Please circle the number that best describes your opinion of each statement:

	Strongly Disagree	**Disagree**	**Unsure**	**Agree**	**Strongly Agree**
Person-Centered Treatment is the Best Treatment for BPSD?	**1**	**2**	**3**	**4**	**5**
Psychotropic Medications Are Effective in the Treatment of BPSD?	**1**	**2**	**3**	**4**	**5**
Psychotropic Medications are 1st Line Treatment for BPSD?	**1**	**2**	**3**	**4**	**5**
Psychotropic Medications Can Reduce Falls?	**1**	**2**	**3**	**4**	**5**
Nonpharmacological Interventions Can Reduce Depression, Agitation, Anxiety, & Improve Patient Outcomes?	**1**	**2**	**3**	**4**	**5**
Nonpharmacological Interventions are 1st Line Treatment for BPSD?	**1**	**2**	**3**	**4**	**5**
Nonpharmacological Interventions Can Reduce Falls?	**1**	**2**	**3**	**4**	**5**
Physical Activity and Exercise Can Reduce BPSD and Falls?	**1**	**2**	**3**	**4**	**5**
Music Can Reduce BPSD and Falls?	**1**	**2**	**3**	**4**	**5**
Nonpharmacological Interventions such as Exercise & Music Should be Provided Daily?	**1**	**2**	**3**	**4**	**5**
As a Caregiver I Feel Supported & Have the Resources to Provide Nonpharmacological Interventions for Patients Daily.	**1**	**2**	**3**	**4**	**5**

Appendix H: Scholarly Project Timeline

SCHOLARLY PROJECT: TIMELINE

Reduction of Inpatient Falls in the Treatment of Patients with Behavioral and Psychological Symptoms of Dementia (BPSD).

Milestones	Deliverable	Description	Estimated Completion Date
Approval of Scholarly Project proposal (SP)		Submission of scholarly project (SP) proposal outline.	1-21-24
Iowa Model Permission Granted	Approval Granted	SP program preparations, SP site selected, and preceptor confirmed and approved. Submission of permission to use Iowa Model Framework	1-21-24
PICOT Framework submitted	PICOT question/title approved	The PICOT question was formulated and submitted for Advisory review.	1-28-24
	Literature review completed	Literature review completed and articles selected for analysis, critique, and leveling matrix.	1-30-24
Literature Matrix completed		Literature matrix completed and submitted.	2-11-24
	SP: proposal Part 1 submitted	SP: Proposal of introduction, literature review, aim, justification of project.	2-11-24
	SP: proposal Part 2 submitted	SP: Proposal methodology in progress. Submitted draft	2-18-24
	SP: proposal Part 1-3 draft submitted	SP: proposal Part 1-3 draft submitted	2-25-24
SP site letter of support obtained		Letter of support from scholarly project site and provider procured.	3-1-24

	PPP of scholarly defense submitted	Power point presentation of scholarly project submitted for review. Will revise according to feedback.	3-7-24
CITI Certificate completed	Completion of CITI courses and exams	CITI course for biomedical & health science researcher courses and testing completed. Certification Certificate obtained.	3-9-24
	Meeting with SP advisor	Meeting with scholarly project advisor to review project, set up proposal defense, and review necessary changes	3-25-24
	SP: timeline submitted	Develop SP timeline and submit for review	3-24-24
Complete SP: PPP proposal		Complete proposal for presentation. Present final proposal.	4-29-24
	Submit SP to IRB	Submit proposal and application to Liberty University IRB for approval	5-7-24
	Submit SP to the organization for approval. No IRB	Submit SP to organizational for approval	5-8-24
IRB approval of SP		Start development and validation of informed consent, training materials, tools, surveys, questionnaires, and other educational materials.	5-9-24
Organizational approval received for SP	Meeting with SP Advisor	Finalization of training materials, tools, surveys, questionnaires, and other educational materials for SP Advisory review and approval.	4-20-24
Start EBP project		Start data analysis of retrospective fall data and medication administration data for hospital patients three months prior to SP initiation. Procure a statistician and editor.	5-4-24
Start SP implementation	Meet with SP Advisor	Conduct educational presentations to staff on nonpharmacological interventions as initial treatment for BPSD. Administer questionnaires to assess knowledge, skills, feedback.	5-23-24 to 5-29-24
	Continue implementation of EBP SP	Implementation of nonpharmacological treatment techniques as first line treatment for BPSD behaviors prior to use or increase of pharmacological treatments. Documentation of effectiveness of nonpharmacological treatments, documentation of reasoning for use of pharmacological treatment. Monitor data and documentation of any adverse events, falls, medication reactions and potential cause.	6-12-24

	Continue implementation and continued evaluation and data analysis of SP	Continue to submit SP sections as completed through the implementation, evaluation, and data analysis is completed. Sections 1-5 will be submitted in a timely manner to the SP advisor for feedback and reassessment. Continue project implementation and assessment.	7-01-24
Statistician to review statistical analysis	Meet with statistician	Assessment of SP data analysis. Final reports completed and final project manual submitted. Schedule wrap up meeting with SP advisor	7-28-24
Editor to review	Meet with Editor	Editor will edit SP and return for corrections and reassessment.	8-20-24
Submit for approval for Scholarly Defense	Obtain consent from SP advisor to present scholarly defense	Prepare for scholarly defense, meet with SP advisor, submit all final project documentation, and completed dissertation.	8-22-24
Submit final project and PPP.	Meet with SP advisor	Meet with SP advisor to review final project and submit all documentation for defense.	8-26-24
	Schedule scholarly defense presentation. Meet with SP advisor	Prepare for defense and presentation on Teams. Meet with SP advisor for mock presentation.	8-26-24
SP successfully defended and chair approval for submission to Scholar's Crossing obtained.		Approval of SP obtained for LU chair and SP submitted to Scholar's Crossing. Await acceptance email from Scholar's Crossing	9-12-24
Submit Scholar Crossing acceptance to LU Chair.		Email acceptance letter from Scholar's Crossing to the LU DNP department chair.	9-25□-24

Appendix I: Tables

Table 1

Rate of Falls Pre and Post Intervention

		Month				Mean Rate	
Measure	Bench mark	Feb	Mar	June	July	Feb/Mar	June/July
Fall Rate	14	22.6	15	23	10.7	18.8	16.85
Average # of falls	<10	29	20	30	14		

- To see if there was a change in the amount of falls, Fall Rate (# of falls over 1000 patient days) was used instead of raw numbers of falls.
- There is a decline of 1.95 per 1000 patients after the intervention

Table 2

T-test of Pre and Post Intervention of Positive Perception of the Value and Use of Nonpharmacological Interventions

	Mean	N	SD	t	df	p
Pre Value	4.01	25	0.49	-2.858	24	0.009
Post Value	4.48	25	0.65			

Values

- There was a significant difference between the pre and post values, t (24) = -2.858, p = 0.009
- The pre score was mean score of 4.01 and the values increased to a mean score of 4.48

Table 3

T-test of Pre and Post Intervention of Clinical Knowledge

	Mean	N	SD	t	df	p
Pre Knowledge	3.696	25	0.669	-2.011	24	0.056
Post Knowledge	4.054	25	0.739			

Knowledge

- There is a not significant difference between the pre and post values, t (24) = -2.011, p = 0.56
- The pre score was mean score of 3.696 and post mean score was 4.054

Table 4

Chi Square Analysis of Pre and Post Intervention by Reported Behavior

		Pre *n* = 27	Post *n* = 22
Aggressive	No	17 63.0%	16 72.7%
	Yes	10 37.0%	6 27.3%
Anxiety	No	17 63.0%	17 77.3%
	Yes	10 37.0%	5 22.7%
Psychosis	No	25 92.6%	20 90.9%
	Yes	2 7.4%	2 9.1%
Yelling out	No	26 96.3%	22 100.0%
	Yes	1 3.7%	0 0.0%
Combative	No	21 77.8%	13 59.1%
	Yes	6 22.2%	9 40.9%

Intrusive	No	26	22
		96.3%	100.0%
	Yes	1	0
		3.7%	0.0%
Restless	No	26	22
		96.3%	100.0%
	Yes	1	0
		3.7%	0.0%

Note: none of the X^2 analysis were significant at the .05 nor .10 level

- Difference between pre and post in terms of behaviors reported – none were significantly different ($p > .05$)

Table 5

T-test of Falls by Pre and Post Intervention

	N	Mean	SD	t	df	p
Pre	27	1.63	1.214	0.264	47	0.793
Post	22	1.55	0.963			

- A *t-test* was run to test whether there was a significant difference between pre and post intervention in the number of falls
- There was not a significant difference, $p = 0.793$

Table 6

Chi Square Analysis of Pre and Post Intervention by Injury

Injury	Pre	Post
No	15	12
	51.7%	60.0%
Yes	14	8
	48.3%	40.0%

- A *chi square* was run to test the difference in injuries between pre and post intervention

- There was not a significant difference in injury between pre and post intervention, X^2 (1) = .328, p = .567

Table 7

Chi Square Analysis of Pre and Post Intervention by ED Visit

ED	Pre	Post
No	19	8
	51.4%	66.7%
Yes	18	4
	48.6%	33.3%

- A *chi square* was run to test the difference between pre and post intervention by ED visits
- There was not a significant difference in ED visit between pre and post intervention, X^2 (1) = .859, p = .354

Table 8

Chi Square Analysis of Pre and Post Intervention by Delay in Discharge

Delay	Pre	Post
No	19	8
	51.4%	66.7%
Yes	18	4
	48.6%	33.3%

- A *chi square* was run to test the difference between pre and post intervention by Delay in Discharge
- There was not a significant difference in delay between pre and post intervention, X^2 (1) = .928, p = .336

Appendix J: Figure

Figure 1