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## Staff Development Project for Fall Prevention in Long-Term Care

Afua Ofosuhene  
*Walden University*

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# Walden University

College of Nursing

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Afua Ofosuhene

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and that any and all revisions required by  
the review committee have been made.

Review Committee

Dr. Mary Verklan, Committee Chairperson, Nursing Faculty

Dr. Tracy Andrews, Committee Member, Nursing Faculty

Dr. Joan Hahn, University Reviewer, Nursing Faculty

Chief Academic Officer and Provost  
Sue Subocz, Ph.D.

Walden University  
2021

Abstract

Staff Development Project for Fall Prevention in Long-Term Care

by

Afua Ofosuhene

MS, Walden University, 2016

BS, Shenandoah University, 2011

Project Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Nursing Practice

Walden University

February 2021

## Abstract

Falls pose major healthcare problems in long-term care (LTC) facilities. Falls significantly impede quality of life for the elderly and their caregivers. The purpose of the project was to determine if the fall prevention program Stopping Elderly Accidents Deaths & Injuries (STEADI) increased staff knowledge regarding fall prevention and reduced fall rates at the LTC setting. The project addressed whether educating LTC staff regarding a fall prevention program could increase their knowledge of fall prevention and decrease the rate of falls. The gap identified was that nurses lacked education regarding fall prevention strategies. The Plan-Do-Study-Act (PDSA) model was the evidence-based practice framework guiding the implementation of the project. A pretest and posttest questionnaire were used to explore LTC facility staff's knowledge before and after the implementation. Deidentified retrospective and prospective data related to falls were collected from the Assistant Director of Nursing. Analysis of findings from comparison of pre and posttest questionnaires completed by nursing staff ( $N = 55$ ) using descriptive statistics found a 75% increase in staff knowledge regarding fall prevention, the STEADI tool, and how to use it in the LTC setting. STEADI effectively reduced fall rates from an average of 19 to 7 occurrences in one month following implementation, indicating a 40% decrease in fall rates. Recommendations were made to continue to use STEADI to decrease the rate of falls in the LTC and evaluate its effectiveness in the long term. Maintaining quality of life, residents' safety, improved resident care, and decreased healthcare costs at the LTC will lead to positive social change.

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## Dedication

I dedicate this DNP project to my parents, James and Alberta Appietu-Ankrah. They devoted their lives and resources to their children's educational success. Their loving support has been so phenomenal. Thank you for insisting we aim high in all our endeavors.

## Acknowledgments

If it had not been for the Lord on my side, where will I have been? I thank the Almighty God for giving me the endurance and peace I needed to complete this project. Indeed thus far the Lord has brought me!

To my amazing husband, Thomas Ofosuhene, who has been my spiritual head for his encouragement, love and support throughout this doctoral project. I will always love you! What else can I say, am most grateful to my lovely children Priscilla, Philip and Perry who sacrificed their family time and saw to it that Mummy completes her DNP program. Mummy loves you!

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## Section 1: Nature of the Project

### **Introduction**

The increasing complexity of delivering care in the United States (U.S.) has led to issues involving quality patient care and safety. Falls as a quality indicator significantly impede quality of life for both the elderly and their caregivers. Falls pose major healthcare problems in settings like long-term care (LTC) facilities. According to Wexler and D'Amico (2015), a collaboration of interdisciplinary preventive strategies must be used to combat or reduce the incidence of falls and injuries in nursing homes. The Centers for Disease Control and Prevention's Stopping Elderly Accidents, Death and Injury (STEADI) initiative was developed as a multifactorial approach to fall prevention that includes screening for fall risk, assessing for modifiable risk factors, and prescribing evidence-based interventions to reduce fall risk. STEADI is a clinical practice guideline developed by the American and British Geriatrics Societies for the prevention of falls among older folks. Educating nursing staff regarding the use of STEADI as an evidence-based fall prevention tool can help address incidence of falls in the practice site. The STEADI was used to evaluate if the educational in-service given will close the knowledge deficit regarding fall prevention strategies. Falls occur more frequently in older people's units, internal medicine, and neurological units, mostly during shift changes or during night and evening shifts (Zhao & Kim, 2015). With such a high percentage of falls (50%) occurring in this facility, it is imperative to implement fall prevention measures that are multifactorial in nature. A needs assessment indicated that the facility is not meeting national benchmarks regarding falls; therefore, a top priority in

the facility is to educate nurses regarding STEADI as a fall risk assessment tool to be used to decrease the number of falls and fall-related injuries and increase the quality of care provided to older residents. Section 1 includes the problem statement, purpose, nature of the project, and significance of the project.

### **Problem Statement**

In the U.S., about 500,000 elderly falls occur in LTC facilities, and the federal government spends over \$34 billion annually to cover medical costs for these elderly patients when admitted to the hospital (CDC, 2015). Annual medical expenses for older adult falls will surge by the year 2030 if preventive measures are not put in place. According to the CDC (2019), 29 million older adults fall each year. Falls are a common problem that occur in all long-term environments among the elderly and are serious patient safety concerns (Matarese & Ivziku, 2016). Notwithstanding advanced improvements in technology for fall prevention, this continues to be a major healthcare problem at this project site which has led to poor patient outcomes. Despite the high prevalence of falls in nursing home settings and the associated high morbidity and mortality rate of falls, there are inconsistencies in existing literature in terms of fall risk prevention tools and management strategies in LTC settings. Fall interventions are successful for older adults in community-dwelling places, and evidence is available to support the use of fall prevention strategies in nursing homes or long-term settings.

Falls are the most frequent adverse event reported in hospitals, usually affecting older patients (Matarese & Iviziku, 2014). Falls in older adult are a leading cause of injury-related mortality and morbidity (Seijo-Martinez et al., 2016). According to the

CDC (2018), 60% of falls and all injury-related emergency department (ED) visits are older adults. The evidence-based clinical guidelines for fall prevention at the facility are outdated and have not been updated since 2014. Therefore, there was a need to introduce another evidence-based practice tool that can enable the project site to reduce falls.

According to the Director of Nursing, 357 preventable falls were recorded in 2018, an increase from 285 falls the previous year (B. Davis,, personal communication, January 15, 2019). In January 2018, 41 residents fell, which was the highest number in one month for that year, and May 2018 had the lowest number of resident falls (B. Davis, personal communication, January 15, 2019). Therefore, it was imperative that a current evidence-based practice can be translated into LTC so that nurses in the LTC facility will become more aware of fall safety practices that will help reduce falls to a minimum. The initiative Stopping Elderly Accidents, Deaths, and Injuries (STEADI) served as a standardized guide to clinical staff nurses and healthcare providers to screen, assess, and intervene by using effective environmental and clinical strategies. Incorporating STEADI as part of routine fall screening and prevention will lead to a positive impact on falls in the LTC facility.

The nurses' insufficient knowledge demonstrated the need for the translation of an evidence-based clinical practice from a hospital setting to the long-term setting. Implementing an innovative evidence-based fall prevention measure in the LTC facility was a step to reduce the rate of falls. Introduction of the clinical practice guidelines at the LTC unit will strategically fulfill the organization's goal of patient safety. According to

the CDC (2018), falls are the third most common cause of unintentional injury and death across all age groups and the leading cause among people 65 years and older.

The priority for the project site was to ensure that nurses are educated regarding evidence-based outcome measures that help to reduce falls among residents in the LTC unit. Nursing leadership will also use outcome measures as a reference for developing new nursing care practices for future use. Project outcomes will not only benefit the leadership of the facility, but also serve as continuous education for nurses. Educating and implementing an Evidence-Based Practice (EBP) guideline in the LTC unit is crucial in alleviating or decreasing the chronic problem of falls. The DNP project will involve exploring how education and the implementation of EBP guidelines will serve as an aid in reducing fall incidences in the LTC unit. Assessing and implementing such evidence-based practices to improve falls in the project site is a crucial nurse-sensitive indicator for the advancement of patient safety.

### **Purpose**

The purpose of this project was to evaluate whether the translation of STEADI into the LTC facility will decrease high fall incidence rates in the LTC unit. The failure of LTC facilities to use translatable current and evidence-based fall prevention practices has led to the exacerbation of incidence of falls among elderly residents. The gap in practice identified was that nurses in the LTC lack knowledge related to evidence-based fall prevention practices. Additionally, increasing nurses' knowledge regarding fall prevention clinical practices will lead to patient-centered outcomes and directly cause a

decrease in elderly falls in the LTC facility. Maintaining current EBP to ensure optimal patient care must be the focus of advanced practice nurses.

The goal of the project was to decrease falls at the practice site by educating nurses about fall prevention strategies and implementing the STEADI to screen, assess, and intervene by using effective environmental and clinical strategies. According to Terry (2018), healthcare systems need to restructure their methods used to provide care for patients so that the impact of challenging healthcare issues can be reduced. Prior to the implementation of STEADI at the LTC unit, the nursing staff was provided with education related to fall prevention strategies and STEADI. Project outcomes were measured through changes in staff nurses' knowledge related to falls prior to education and number of patient falls after education and implementation of STEADI in the LTC unit.

This intervention has the potential to address the gap in practice by educating nurses regarding falls and implementing STEADI at the LTC unit. The facility lacks updated fall prevention practices to prevent residents from falling, hence the high rate of falls experienced within a year. The Director of Nursing explained that although clinical practices for fall prevention include recommendations for practice, the facility does not have EBP guidelines to prevent falls (B. Davis,, personal communication, May 20, 2018). Implementing STEADI at the LTC unit will strategically fulfill the organization's goals for patient safety.

According to the Director of Nursing, 357 preventable falls were recorded in 2018, an increase from the previous year (B. Davis,, personal communication, January

15, 2019). The highest number of falls (41) occurred in January 2018, and the lowest amount of falls occurred in May 2018 (B. Davis,, personal communication, January 15, 2019). The national average for falls is 2.6 falls per nursing home patient per year (CDC, 2015). EBP for fall prevention at the facility is outdated and has not been updated since 2014. Therefore, there is a need to introduce current guidelines that can enable the project site to reach their safety goal. The safety goal for the project site is to ensure falls decrease by 50% with the implementation of EBP. It is imperative that a current evidence-based practice recommended by the CDC can be translated into LTC so that nurses in the LTC will become more aware the fall safety practices that will help reduce falls to a minimum. STEADI will serve as a guide for clinical staff nurses and healthcare providers to screen, assess, and intervene by using effective environmental and clinical strategies.

Falls are the third most common cause of unintentional injury and death across all age groups, as well as the leading cause of falls among people 65 years and older (CDC, 2015). Furthermore, it is estimated that about 1.5 million adults over the age of 65 are living in nursing homes, and by the year 2030, the number will increase to about 3 million residents (CDC, 2015). Falls among older adults are a leading cause of injury-related mortality and morbidity (Seijo-Martinez et Al., 2016). It is estimated that 60% of falls and all injury-related ED visits are older adults from nursing homes (CDC, 2015).

The doctoral project guiding practice-focused question is: In the LTC facility, how will educating nurses to use the STEADI fall prevention program decrease the incidence of preventable falls among the older adult population? I nurses use STEADI,



the overall fall rate could be reduced. Nursing personnel have insufficient knowledge of current EBP regarding STEADI and its relationship to falls. Therefore, it is imperative that the STEADI tool, as used in acute care settings, be translated into nursing practice at the LTC facility to reduce the fall rate. Assessing and implementing EBP is a crucial nurse-sensitive indicator for the advancement of patient safety and care.

### **Nature of Doctoral Project**

The approach for this evidence-based project was to use a quantitative methodology that incorporated a before and after design to evaluate pre- and postimplementation fall rates in the LTC facility. According to Kapu and Kleinpell (2013), to review objective information, the preferred approach is to use the quantitative methodology. Search engines and databases used were Cumulative Index and Allied Health (CINAHL), PubMed, Google Scholar, MEDLINE, Cochrane Database of Systematic Reviews ProQuest, and OVID Nursing Journal Review. Trusted organizations include the CDC and the Agency of Healthcare Research and Quality (AHRQ). Search terms were *STEADI, fall, prevention, fall strategy, long-term care, nursing home, education, advanced practice nurse, nurse champions, nursing model and theories, and fall prevention barriers*. The three Boolean operators used were AND, OR and NOT. Literature that was published between 2011 and 2020 was searched. References were peer-reviewed articles containing systematic reviews, meta-analyses, and randomized control trials, as well as quasiexperimental, case control, and cohort studies. All articles were written in the English language and involved human subjects. Non-English language articles and articles about falls in hospitals or acute settings, pediatric patients,

and injuries not obtained due to falls were excluded. Fall-related injuries are estimated to cost \$34 billion dollars and Medicare spends about \$21,000 for any person who is 65 years and older for every fall admission in acute care hospitals (CDC, 2015). Therefore, it is essential that healthcare organizations make every effort to reduce falls and costs associated with falls by implementing standardized evidence-based fall prevention strategies.

The Plan-Do-Study-Act (PDSA) quality improvement model served as a guide for this project. The director of nursing supervised the process in which nurses provided fall data regarding how many falls occurred in the facility in the month prior to my initial visit for preeducation preparation. The director of nursing has access to electronic databases in which she obtained nonidentified data related to falls and provided the data to me on a USB drive, when I arrived for the preeducation phase of the project. Deidentified data were kept on my password-protected computer that is stored in my private office at home.

A pretest was used to explore LTC staff's knowledge regarding STEADI implementation. All registered nurses (RNs) working at the LTC facility participated in this project. The pretest education phase of the project occurred over a 1-week period. The Fall Knowledge Test (see Appendix A) was adopted from an existing approved survey from the AHRQ's web site, and the test which was provided by the falls champion team lead took approximately 10 minutes to complete in the nurses' breakroom. Pencils were given for the completion of the pretest questionnaire. After completion, nurses placed the pretest in the envelope marked "pretest." The falls champion team lead

returned the sealed pretest envelope to the assistant director of nursing who kept the completed surveys in her locked private office until my return during educational in-service training.

At the time of the second visit to the facility, the educational in-service training in the classroom regarding STEADI was given. A PowerPoint presentation on how to assess fall risks among residents using STEADI core elements and interactive demonstrations was taught by me during two different sessions over a 4-week period. The planned intervention was intended to enhance the LTC nursing team's fall prevention knowledge, and the desired outcome was clinically significant decreases in rate of falls between pre and postintervention. Nurses attended educational in-service training in the classroom designated for training and the first day involved introduction of educational content for the training. I presented findings from the pretest and current data regarding nursing home falls as they were identified on the survey using an open discussion format. As an aid for classroom training, a poster board was used to present information regarding fall prevention using STEADI. Nursing personnel had opportunities to ask questions during and after the in-service training. I made available my email address if there were any questions regarding materials used after the training. The education phase occurred over a 1-week period.

The final visit to the project site was during the fifth week after the initial preeducational visit. During this visit, a 10-minute posttest on falls knowledge (see Appendix B) was given by the falls champion team lead to nurses to complete in their breakroom. Pencils to fill out questionnaires were made available. Nurses then placed

completed posttests in an envelope marked “Posttest” which was left in the breakroom. The posttest envelope was sealed by the falls champion team lead and kept in the assistant director of nursing’s private locked office until my next visit to the facility. Current data regarding falls after in-service education was entered into an electronic spreadsheet and compared to fall data before in-service training. Also, pretest data were compared with posttest data after they had also been transferred to an electronic spreadsheet that was password-protected and encrypted. Data entered on the spreadsheet were analyzed using IBM SPSS Statistics version 23. The total amount of time spent was 6 weeks from preassessment to analysis of results.

### **Significance**

Numerous stakeholders will be affected by this DNP project including my preceptor, the director of nursing, fall prevention champions, the nurses, education and development staff, health information technology personnel facility office staff, residents, family members, and nurse educators at the project site. Knowledge regarding current EBP related to fall prevention will enable nursing staff to provide enhanced and safe quality care. Education and development staff will ensure staff development training related to falls are organized periodically for nursing staff and persons in the facility for their continual education. Nurses can improve fall rates by using STEADI as a routine fall risk assessment tool. They must know all the steps in STEADI in order to apply it at their facility.

The aim of this DNP project was to decrease the incidence of falls by educating nurses in the LTC facility about STEADI as a routine fall risk assessment tool. According

to Chappell (2015), the advancement of nursing practice involves the creation of a method for professional development by making use of evidence and best practices. The project was aligned with DNP competence essentials created by the American Association of Colleges of Nursing because it involved implementing and evaluating therapeutic interventions based on scientific underpinnings of EBP in a LTC facility. Competence essentials were incorporated in this project.

Transferability of the project to other units was a relevant topic that was addressed at the project site. The project site was willing to educate nurses in other units regarding STEADI as a tool for evidence-based fall prevention practice. Therefore, the initiative has the potential of addressing other areas such as the skilled nursing and memory loss unit at the project site. As a result, improvement in safety as a measure of the healthcare institution's performance may increase clinicians' awareness of what they consider as priorities when taking care of patients. If falls are important in terms of care given to patients, the improvement of quality of patient care will be achievable.

This project addressed positive social change and the gap in knowledge related to falls and enhancing strategies to prevent those falls. The CDC STEADI initiative provides nurses the necessary resources to make fall prevention part of their routine care. This DNP project will bring about positive change by transforming residents' quality of life. Also, training of nursing staff regarding fall prevention practices will enable them to prevent patient falls and related injuries in the LTC unit. The potential to create positive social change by advancing nursing practice and reducing fall rates at the project site is the ultimate goal of this project.

## Summary

The LTC facility faces a high prevalence of falls among its older residents who are ages 65 and above. To address the high fall rate, STEADI was implemented as a standardized fall risk assessment tool to prevent or reduce incidence of falls. With such a high percentage of falls, it is important to incorporate an evidence-based practice that is safe, effective, and multifactorial in nature. The practice problem is that as the incidence of falls in the LTC unit rapidly rises, there is a need to develop strategies that will help reduce fall rates. Hence, there was a need to bring awareness through education and adoption of STEADI at the project site to help the nursing team practice safe and efficient nursing care based on quality indicators for falls. This project's goal was to prevent patient falls and fall-related injuries in the LTC facility by educating staff and implementing STEADI to reduce falls. Section 1 outlined implementation of STEADI as an evidence-based practice in the project site to help promote a safe environment for all residents in the LTC unit. In Section 2, the background and context of the practice problem, chosen theory for the project, and relevance of the practice-focused problem are discussed. A description of my role as a DNP student and the role of the project team in relation to education of nurses and implementation of STEADI will also be presented.

## Section 2: Background and Context

### **Introduction**

Falls are associated with high morbidity and mortality rates, although most falls are preventable. Fall-related injuries are estimated to cost \$34 billion, and Medicare costs are about \$21,000 for any person who is 65 years and older for every fall admission in acute care hospitals (CDC, 2015). Therefore, it is essential that healthcare organizations make every effort to reduce falls and costs associated with falls by implementing standardized evidence-based fall prevention strategies. The practice question for the doctoral project was: whether educating LTC staff regarding a fall prevention program could increase their knowledge of fall prevention and decrease the rate of falls. Section 2 includes concepts, models, and theories, relevance to nursing practice, local background and context, and my role and that of the project team.

### **Concepts, Models, and Theories**

The PDSA model was the framework that was adapted to facilitate and guide the staff development project. This framework has four key dimensions: plan, do, study, and act. The ANCC (2008) reported nursing care is “a schematic description of a theory, phenomenon, or system that describes how nurses can practice, collaborate, communicate, and develop professionally to provide the highest quality care for those served by the organization” (p. 64). An assumption when using the PDSA theory is that it assists in improving workflow steps, engaging stakeholders in developing intervention, providing structure for staff to focus on improving care, providing more comprehensive individualized plans of care, and identifying improvements for which changes could be

implemented and results measured. The model provided a framework for the development of a plan for quality improvement, reviewing results, and determining if changes are needed as well as the best way to implement evidence into clinical practice.

The next assumption involving stakeholders in the plan of care for the residents who are at risk for falls was addressed. The Director of Nursing (DON), Assistant Director of Nursing (ADON), fall champions selected, and nurse educators who have been identified as key stakeholders were involved in the at-risk resident's plan of care. Stakeholders met every month to review and update individualized plans of care for residents after screening and assessing them with STEADI. STEADI was introduced through formal education as the appropriate screening tool to increase residents' safety. Nursing staff were provided with the information through a PowerPoint presentation and visual demonstration of STEADI. After the education session, nurses were better equipped with knowledge to effectively perform their roles as care providers to the residents at risk for falls, thus increasing the percentage of patients identified at risk and preventing falls in the facility. Nurses gained confidence due to increased knowledge and improved skill sets to provide excellent and more satisfying care to residents in the LTC. Involving stakeholders and soliciting their feedback regarding critical changes in the process was important. Education and training of staff regarding planned changes to practice interventions were key strategies. The implementation of STEADI will lead to substantial changes in clinicians' daily work and reduce fall-related hospitalizations, as well as lower healthcare expenditures.



Another assumption involved the provision of an individualized and comprehensive plan for residents, which was accomplished by implementing the STEADI strategy steps of screening, assessing, and intervention. Based on individualized fall risk assessment scores obtained from the adult residents in the LTC, priority of needs and care was determined, and nursing staff was able to develop a plan of care for the adult residents with purpose and intent. Considering the potential fall risk of these residents, they were assigned to rooms near nursing stations and identified with color-coded name bands. Scores from the screening also assisted nursing personnel to develop a falls intervention plan as a guideline for Certified Nursing Assistants (CNAs) to care for all the residents. Fall prevention can be integrated into LTC when it is supported by a clinical champion, coupled with timely staff training and retraining, incorporated into the electronic health records (EHR), and adapted to fit into the facility's clinical workflow.

The PDSA model guides the implementation and evaluation of evidence-based practice in organizations. According to Reed and Card (2016), the PDSA model allows practitioners to examine challenges that could hinder optimum implementation of the project as well as identify other challenges that need to be addressed so that they can be tested to determine whether they are resolved. The PDSA can be used to identify rapid changes or rapid-cycle tests of change in an organization. The flexibility and adaptability of the PDSA makes the model attractive in terms of the translation of research to practice in local settings. . The PDSA model has a clear framework to assess perceived needs for improving quality in the practice setting and decreasing the incidence of falls.

According to Taylor et al. (2014), the PDSA cycle is widely accepted in healthcare improvement because it provides a structure to test for changes to improve quality care. Taylor et al. (2014) reiterated that the PDSA as compared to other methods involves a pragmatic scientific method for testing changes in complex systems. This doctoral project will advance nursing practice and fill the gap in practice for nurses at the project site by improving quality of the residents and ensuring that proper tools to screen at-risk residents for falls were provided.

### **Relevance to Nursing Practice**

Falls among the older adults are on the increase in America. According to Lee (2017), every second of the day an older adult falls, and every 20 minutes, an older adult dies from a fall. In 2016, older adult falls resulted in over 29,000 deaths, and 3.2 million emergency department (ED) visits, of which 963,000 were hospitalized (Centers for Disease Control and Prevention [CDC], National Center for Injury Prevention and Control, 2017). They advocate for health care agencies to perform a fall risk assessment along with documentation of a fall-prevention program (Joint Commission, 2019). One of their requirements is that home care agencies and other providers reduce the risk of resident injury resulting from fall-related injuries (Joint Commission, 2019). Sentinel events, as defined by the Joint Commission, are falls involving death or a serious injury, which are unexpected events (Joint Commission, 2019). Falls are the sixth leading and most frequently occurring sentinel event of the 21 categories of events tracked by the Joint Commission sentinel event statistics (Joint Commission, 2019). They require that healthcare facilities implement a fall reduction program and conduct an effective

evaluation of that program (Joint Commission, 2019). Bergen, Stevens, Kakara, and Burns, (2019) reiterated that the American Geriatric Society and British Geriatrics Society's (AGS/BGS) Clinical Practice Guideline recommended a multifactorial approach to fall prevention. It is approximated that about 30% of people over 65 years of age living in the community fall each year (Gillespie et.al., 2012).

In the prevention of falls and fall-related injuries in health care organizations, one must examine the implementation of multiple interventions (Ang, Mordiffi, & Wong, 2011). A reliable and valid fall risk assessment tool to identify risk factors are to be used by the nursing staff to implement fall preventive measures. According to Baek et al., (2014), the use of a tool that focuses on the effectiveness, patient symptoms, and nursing workload are recommended by the Joint Commission. The practice project site has been utilizing a highly recommended fall assessment tool, the Morse Falls Scale, which has been used mostly in clinical trials and is considered a major asset for fall prevention but has failed to reduce the rate of falls in the project site. It is a tool used to categorize patients as low, medium, or high risk for falls (Baek et al., 2014). Failure to prevent the increasing fall rates will result in a significant financial burden on the health care system (Bergen, Stevens, Kakara, & Burns, 2019).

In the past, studies have evaluated how to reduce and prevent falls by implementing practice measures that are safe. In a study, a focus group method was used to explore the importance of fall risk information and methods for the identifying residents at risk for falls among licensed and unlicensed staff in LTC facilities (Wagner et al., 2010). A systematic review of fifty-nine studies evaluated the implementation,

adherence, and effectiveness of fall prevention approaches among acute care hospitals in the United States. It was concluded that most of the interventions (81%) were geared towards provider behavior, such as use of new risk assessments or protocols (Hempel et al., 2013). Even though the outcomes obtained were not reliable due to inconsistent data, the study also noted that fall prevention strategies or approaches can be effective with proper and consistent documentation (Hempel et al., 2013).

Another systematic review suggested that any multi-factorial fall assessment tool may reduce falls by almost 30% (Richardson, Bhagwat, Forster, Robertson, Whitelaw, Thompson, 2015). The diverse health and functional characteristics associated with increased falls and fall injuries confirm the importance of screening and assessing older adult patients to determine their individual unique risk factors. They concluded that health care providers can use tools and resources from the Centers for Disease Control and Prevention's STEADI (Stopping Elderly Accidents, Deaths, and Injuries) initiative to screen their older adult patients for fall risk, assess at-risk patients' modifiable risk factors, and intervene to reduce risk by prescribing evidence-based interventions (Bergen, Stevens, Kakara, & Burns, 2019). The varied functional characteristics associated with increased falls and fall injuries indicates the importance of screening and assessing older adult patients to determine their individual unique risk factors.

The development of fall prevention strategies should be the concern of the nursing staff. The introduction of the STEADI tool and its process would provide measurable results in the prevention of falls. Currently, the project site has an outdated fall screening tool that does not make them compliant per the requirements set forth by CMS. Since the

purpose of this project is to implement a valid, evidence-based tool to improve practice in the LTC, it required the use of one of the best practices that guided the clinical focused question in pursuit of improving practice and patient outcome. The LTC facility for this DNP project currently was without a focused assessment tool in addressing its fall risk residents. The lack of an adequate tool resulted in a lack of fall prevention care planning and intervention. Nursing personnel must have the necessary skills, and resources to protect their residents from falls and injuries. This quality improvement project increased nurses' knowledge on the STEADI for fall prevention and implement the STEADI initiative to increase patient safety. With the proper resources in place as a result of this project, the nurses were equipped to screen and assess at risk residents for falls.

### **Local Background and Context**

This DNP project was designed to introduce a fall prevention tool that will be implemented in a certified and licensed LTC facility. The facility was a 120-bed LTC facility offering nursing, non-nursing and residential care to clients. The mission of the project site was to promote health and provide programs and services that meet the needs of the community it serves. Their vision as a project site was to deliver a broad range of excellent healthcare services to the population. The site was chosen for the practice project because, according to the DON about 30% of unintentional falls are recorded every year (B. Davis, Director of Nursing, personal communication January 20th, 2019). The current experience was that falls have increased in the LTC and an overall needs assessment found that that the facility is not meeting the national benchmarks regarding falls. Therefore, it has become a top priority to educate the nurses on fall prevention

strategies and decrease the total number of falls and fall-related injuries. The number of falls within the past six months reported by the nursing staff has risen to a staggering 60% at the site. On record, only a few nurses conducted or used the standardized fall risk assessment to assess risk for fall at the project site. On average only ten percent of the nursing personnel utilize the fall protocol upon admission of the residents. It was been admitted that the low assessment rate by nurses has caused a high rise in falls for the past three years. Most of the nurses admitted that they felt that they did not know how to conduct fall-risk assessments. Smith et. al (2015) reiterated that if nursing staff lack the knowledge to conduct a fall risk assessment and do not assess the resident at time of admission, there will likely be higher fall rates. According to Bamgbade and Dearmon (2016), growing concern for the care of fall-prone patients have driven recent changes by the Centers for Medicare and Medicaid Services (CMS) as a regulatory body to guide quality monitoring and improvement of potential fall-risk residents.

Falls are a nursing quality indicator monitored by agencies such as the National Database of Nursing Quality Indicators, the National Quality Forum and the Collaborative Alliance for Nursing Outcomes. Nursing quality indicators should be implemented as autonomous nursing functions by frontline staff to achieve expected outcomes. In 2002, the CMS began the Nursing Home Quality Initiative to develop quality measures to assess the resident's physical and clinical conditions and abilities. The Nursing Home quality measures demonstrate how well LTC or nursing homes are caring for their residents' physical and clinical needs, and facilitate discussions with the LTC staff regarding quality of care. The quality measures were intended to give data to

the LTCs to help them in their quality improvement efforts. The practice site utilized the long stay quality measures to report the percentage of long stay residents who are at risk for falls or have had one or more falls with major injury (CMS, 2020). Even though the quality measures are not benchmarks, guidelines or standard of care, they were adopted to ensure the facility's eligibility to participate in Medicare programs and are required to comply with 42 Code of Federal Regulations (CFR) Part 483, Subpart B to receive payments. Adhering to the Code of Federal Regulations also allows the LTC to be in compliance with civil rights and federal requirements. The prevention of falls has become relevant in nursing practice as increased awareness and education of the nursing personnel on the effects of falls and fall-related injuries may significantly decrease the fall rate in an LTC facility.

The falls and its related injuries continue to challenge every healthcare organization since their economic cost is likely to be greater than appreciated (Davis et al., 2010). The Virginia Online Injury Reporting System (VOIRS) indicated that in 2016, there were about 37,000 hospitalizations related to older adults falling and the cost of those hospitalizations amounted to \$2 million for an average length of a 5-day stay (VDH, 2016). In the state, the percentage of older adults who fall is 29.30%, which is equal to the national estimate (CDC, 2019). In order for the State to decrease costs, the State's Department of Health, in collaboration with CMS, has directed all LTCs to implement the American and British Geriatrics Societies' clinical practice guideline for fall prevention and the quality measures developed by CMS as a guide to formulate its own quality improvement program to assess falls and to keep the residents safe and

independent. The American and British Geriatrics Societies recommended a coordinated care plan for each resident to prevent falls (CDC, 2019). Fall strategies can then be translated into or tailored within an LTC environment to help assess and prevent resident falls. Successful health care organizations will only achieve quality when they recognize that quality assessment and improvement programs are central to clinical service delivery and can integrate them to their day-to-day care of the residents. As part of the mission of the project site to comply with regulatory laws, fall prevention must become a routine part of clinical care, which will necessitate the adoption of an evidenced based fall prevention strategy and education for the providers about how to use the strategy to conduct fall-risk assessments.

### **Role of the DNP Student**

The DNP project is an educational project to evaluate whether the translation of an evidence-based fall prevention strategy, STEADI, into the LTC facility will decrease the high fall incidence rate in the LTC unit. My main motivation for the project was to ensure that older patients' safety is a priority. Most of the falls can be avoided if there was standardized fall risk assessment protocol in place for the nurses to use. As a registered nurse who has worked in a nursing home for 4 years, I have witnessed several falls among the older residents which may have been prevented if there was an evidence based fall risk assessment tool in place. It is also a problem that recently hired nurses were not aware of any risk assessment protocol in use at the LTC. Others who knew about the protocol complained they were not properly trained to conduct the risk assessment to identify at risk residents, except on their admission. Nursing staff at the



project site was equipped with the knowledge and skills to identify and manage residents at risk for falls through the implementation of an educational intervention. Research has shown that falls are preventable in any clinical setting so an effective fall intervention program will include the identification and assessment of each resident's risk factors (Stevens, 2013).

My role as the project leader and facilitator was to gather relevant information from the CDC STEADI initiative and develop the content to educate the staff. As the team leader, I evaluated the peer reviewed literature and present the synthesis of the results to my project team. Also, I developed a plan for the implementation and evaluation of the STEADI, and presented it to the project team for approval. According to Chappell (2015), the advancement of nursing practice involves the creation of a method for professional development by making use of evidence and best practices. I engaged in effective communication in exchanging ideas and finding solutions that could benefit the organization in the fall prevention initiative among the older residents in the facility. According to the American Association of Colleges of Nursing [AACN] (2006), the essential role of an Advanced Practice Registered Nurse (APRN) with a Doctor of Nursing Practice (DNP) degree is to design and implement an evidence-based program. The DNP project aligned with the DNP competency Essentials created by the AACN (2006) by implementing and evaluating therapeutic interventions based on the scientific underpinnings of evidence-based practices in a long-term care and also including the Walden University's positive social change mission.

The goal of the DNP project was to educate the nursing personnel on how to prevent and reduce falls by implementing an evidence-based fall prevention program in the LTC. However, my main motivation for the project was to ensure that older patients' safety is a priority to the nursing profession. As a result, it enhanced the quality of care of the older residents in the LTC by improving outcomes. Walden University's positive social change mission provided an exemplary outlined process to achieve my goals of implementing a quality improvement practice change.

Regular constructive critique related to the project from my preceptor as the project is ongoing was requested to reduce the risk of bias. I supported my efforts to avoid potential biases in the project so that the evidence obtained will be meaningful to the management and nursing personnel at the project site. As such, a decision matrix was developed to aid in organization of the critically reviewed evidence to prevent bias (Technology Evaluation Centers, 2018). The decision matrix method helped in sorting and categorizing the different arguments, identifying how similar the articles are, the relationship between articles, and possible gaps within the various articles (Clark & Buckley, 2017). Since my objective for the project was to reduce the risk of falls and ensure the nurses learn the STEADI, I objectively reviewed the retrospective and prospective data before and after implementation of the STEADI.

### **Role of the Project Team**

The project team consisted of nurse leaders, staff nurses and stakeholders. Stakeholders included my preceptor, fall champions and the nurse educators. The stakeholders and the nurse leaders provided feedback on the curriculum for the staff

development. The nurse educators and the nurse leaders monitored progress of the post implementation of the STEADI. The staff nurses in the team ensured that the process for the collection of data is adhered to and the data is placed in the secured box and sent to the designated place to be stored securely. Arrangements were made to meet with the team so that I can present the background information, best-practice evidence and the education regarding the STEADI via a PowerPoint presentation. Wright, et al. (2007), identified communication, transparency, accountability, and teamwork as the main elements needed to ensure a successful fall prevention program in any LTC.

### **Summary**

The DNP project evaluated whether an educational initiative using the STEADI will reduce the incidence of falls in the LTC facility. The goal of this proposed project was to bridge the gap in knowledge and practice of nursing personnel related to falls in the LTC facility. The PDSA model provided a cohesive approach of planning, doing, studying, and adopting a change. The PDSA framework guided the project as it asserts that when there is an efficient and effective improvement in workflow steps, engaging the stakeholders in developing an intervention, providing structure for staff to focus on improving care, providing a more comprehensive individualized plan of care, and identifying areas in need of improvement for which a change could be implemented and the results measured, the project will be more likely to succeed. This project was relevant to nursing practice because it helped fill a gap in nursing practice related to the use of STEADI to improve safe clinical practice, and resident outcomes. As an advanced practice nurse and the project leader, I decided to conduct an educational project to

develop a positive culture of safety among the nursing staff by translating the best evidence into current practice to enhance the care given to the residents. The members of the project team offered expertise into the translation of evidence into clinical practice, assist with the collection of data and monitor progress on the post-project implementation. I supported the nursing staff before, during, and after the implementation of the proposed project as a project leader. In Section 3, I discuss the practice-focused question, sources of evidence, methods for collection, data analysis, and synthesis of the evidence-based data supportive of the proposed project.

## Section 3: Collection and Analysis of Evidence

### **Introduction**

Falls among older adults are increasing and result in significant burdens on the healthcare system. Falls may be prevented if an effective EBP program is adopted. Education was provided to the nursing staff to increase their awareness of falls, fall risk assessments, and evidence-based fall prevention approaches. STEADI was incorporated into routine patient care through team training and standardized workflow to manage falls and fall risk at the LTC facility. The main aim in terms of educating nursing staff about evidence-based fall prevention programs in the LTC was to enhance the safety and quality of care of older residents by improving outcomes. Another aim of this project was to evaluate whether the translation of evidence-based fall prevention strategies into the LTC facility through staff education and implementation of STEADI would decrease fall incidence rates in the LTC unit. Section 3 includes the practice-focused question, its purpose, and how approaches align with the practice-focused question. I also discussed sources of evidence as well as research. In addition, I explained in detail how evidence was collected, organized, analyzed, and synthesized. Then, I addressed the relationship between evidence and the purpose of the project.

### **Practice-Focused Question**

The project site had been facing a higher prevalence of falls among its older residents aged 65 and above. The local problem was that the practice site lacked an evidence-based risk assessment tool to support nursing staff in their clinical practice. Evidence-based clinical guidelines for fall prevention at the facility had not been updated

since 2014. A newer evidence-based practice tool can enable the project site to reduce falls. The gap in practice identified was that nurses in the LTC lacked knowledge related to evidence-based fall prevention practices. The purpose of the project was to educate nursing staff to bridge the gap in practice by educating and implementing an EBP guideline in the LTC to decrease the chronic problem of falls. The practice-focused question was: whether educating LTC staff regarding a fall prevention program could increase their knowledge of fall prevention and decrease the rate of falls. STEADI was designed to help healthcare providers incorporate fall risk assessment and individualized fall interventions into routine clinical practice and thus promote resident safety (Stevens & Phelan, 2013).

Implementing an innovative evidence-based fall prevention measure in the LTC will have a substantial impact on the facility in terms of reducing the rate of falls. Also, when nurses' knowledge regarding fall prevention increases, it will have a positive effect on patient-centered outcomes and directly cause decreases in elderly falls in the LTC facility. The organization's goal of patient safety will be fulfilled when the fall clinical practice guidelines are introduced to the LTC unit. An effective fall intervention involves assessing and addressing fall risk factors (Stevens & Phelan, 2013). American and British Geriatrics Societies' clinical practice guidelines will help to assist management at the project site in terms of preventing falls, improving health outcomes, and reducing healthcare expenditures.

## **Terms Used in the Project**

*Centers for Medicare and Medicaid Services (CMS):* A United States government entity that provides health services to over 100 million individuals with Medicare and Medicaid coverage. The CMS aims to improve the U.S. healthcare system while maintaining low costs (CMS, 2015).

*Fall:* The result of unintentionally ending up on the ground or lower level because of factors such as faintness, poor gait, physical weakness, or some other factor (Palumbo et al., 2015). Falls can result in moderate to severe injury and even death in some cases (Jiramontree et al., 2015). According to the National Center for Patient Safety (2015), fall is the loss of an upright position that results in landing on the floor or ground in a way that is uncontrollable, unintentional, or nonpurposeful, or an unplanned flight to the floor with or without injury to the individual (AHRQ, 2013).

*Fall-related major injury:* A fall that results in fractures that requires an emergent treatment (NCPS, 2015).

*Long-term care (LTC) unit:* A unit that holds residents for 30 days or longer which includes rehabilitation facilities, nursing homes, and hospice residents.

*Nursing staff:* RNs, licensed practical nurses (LPNs), certified nursing assistants (CNAs) and health technicians (HTs) working as frontline staff.

## **Sources of Evidence**

STEADI was developed by the CDC National Center for Injury Prevention and Control as a multifactorial risk assessment approach to fall prevention using the recommendations of the American Geriatric Society and British Geriatric

Society(AGS/BGS) clinical practice guidelines. STEADI has training modules that include videos, material resources, fact sheets, and clinical algorithms to help providers incorporate effective fall prevention strategies in their practice settings.

An extensive scholarly search of literature was done using the databases PubMed, CINAHL, Medline, Google Scholar, and ProQuest, as well as the use of web sites such as the CDC and AHRQ. Sources were published between 2015 and 2020. All sources were manuscripts published in the English-language about LTC facilities, older adults, and falls and fall risks. non-English language articles as well as those about patient falls acquired in an acute care setting and injuries other than falls were excluded. The Prisma flow chart (see Appendix C) shows 140 articles were located, of which 128 were excluded based on their title and abstract, which left 12 articles. Two additional articles were excluded for not comprehensively reflecting the targeted group for the project. In sum, the synthesis of literature included 10 articles.

### **Review of Findings**

As falls contribute significantly to mortality and morbidity in older adult populations and have also become a public health concern, there have been responses to explore a standardized fall prevention program that will assist in reducing the fall rates. Fisher (2019) said nurses' knowledge of using the STEADI toolkit increased by 99.25% after completion of the staff education initiative.

A descriptive cross-sectional study was conducted to guide clinical practice change with the use of the STEADI toolkit. Three hundred and sixty patients were screened during the first 3 months of its implementation (Casey et al., 2016). The Kotter



framework and the Practice Change model was used for the successful implementation and the development of electronic health record (EHR) tools and workflow to guide clinical practice (Casey et al., 2016). The STEADI was implemented by developing a workflow that aligned with the usual clinic flow, and integrating the STEADI algorithm within their EHR system (Casey et al., 2016). The implementation of the STEADI was a success due to early buy-in from clinic leadership, faculty, and staff, and the clinic workflow met provider and staff needs (Casey et al., 2016). The development of the EHR tools to allow staff and providers to complete all the questions confidently and efficiently on the STEADI algorithm was also a huge factor in the success of the practice change. It was recommended that implementing falls prevention programs in any clinical setting required support and effort across multiple stakeholders (Casey et al., 2016). The findings in this study supports the project as it increased nursing knowledge on the STEADI toolkit by using the 1-hr in-person training to educate providers and medical assistants on fall burden, fall risk assessments, and how to use the workflow and EHR tools (Casey et al., 2016).

A cohort study was conducted to evaluate the impact of the United Health Services (UHS) Broome County implementation of STEADI on the rate of medically treated falls (Johnston et al., 2018). The UHS was the largest health care provider in the county to implement the STEADI initiative into its outpatient practices (Johnston et al., 2018). The RE-AIM Framework was used in this project to evaluate the UHS STEADI initiative. There were more than 12000 participants who had a primary care visit at one of 14 outpatient clinics between 2012 and 2015. The participants were screened using the

STEADI into 3 groups for fall risk: At-risk and no Fall Plan of Care (FPOC), At-risk with a FPOC, and Not-at-risk (Johnston et al., 2018). In assessing the participants, the nurses conducted medication review and administered the Timed Up and Go (TUG) test. The results were recorded in the EHR and the primary care providers were informed on the Fall Prevention Referral Form (Johnston et al., 2018). Based on the patient's screening results, the PCP then perform a medical assessment and develop a FPOC to address the identified issues (Johnston et al., 2018). Johnston et al., concluded that the implementation of the STEADI initiative into the outpatient clinic workflow at UHS was associated with a reduced number of fall-related hospitalizations for older adults prescribed a FPOC. It was also suggested that increasing the proportion of at-risk older adults with a FPOC had the potential to further reduce falls (Johnston et al., 2018). The findings aligned with the proposed doctoral project because it demonstrated that implementing the STEADI fall risk screening and prevention strategies among older adults can reduce fall-related hospitalizations and lower fall rates.

Lohman et al., examined the evidence of the STEADI algorithm to predict older adults at risk for falls by evaluating and comparing its effectiveness with other fall prevention interventions. The sample of 7,392 participants was a nationally representative survey of adults aged  $\geq 65$  years obtained from the National Health and Aging Trends Study (NHATS). The data collection was based on five waves such as a baseline interview and four follow-up waves from members of the NHATS and participants who live in a nursing home or an unspecified residential facility (Lohman et al., 2017). The data was analyzed based on the odds of incident falls across the four follow-up waves

(Lohman et al., 2017). By adapting the STEADI fall risk algorithm to determine the fall risk level, participants were asked to report whether they have experienced a fall or multiple falls in the past year. The results were analyzed using the logistic regression and mixed-effects longitudinal logistic regression models to estimate the correlation between STEADI fall risk categorization at baseline and subsequent falls (Lohman et al., 2017). It was found that an estimated 51.7% of US adults aged 65 years and older had low fall risk, 38.4% had moderate fall risk, and 9.9% had high fall risk (Lohman et al., 2017). The study identified the importance of using the STEADI risk algorithm to accurately measure fall risk among older adults and forecast future fall occurrence in survey data (Lohman et al., 2017). It was found that the implementation of STEADI algorithm was smoother and specific to falls, independent of general health or disability (Lohman et al., 2017). Adapting the STEADI fall risk algorithm has the potential to assess fall risk in community settings. The application of this study to the proposed project is the anticipation of an evidenced based fall risk algorithm to be used by the nursing staff to assess and predict at risk for fall residents.

The aim of a cross-sectional cohort study was to analyze the STEADI algorithm for strengths and weaknesses, and to improve the sustainability of a fall risk identification initiative (Nithman & Vincenzo, 2019). The convenience sample included 39 Arizona older adults who resided in private residences and 41 Arkansas older adults who resided at a retirement housing complex (Nithman & Vincenzo, 2019). The participants completed the Stay Independent Brochure (SIB) and the algorithm's mobility, balance, and lower extremity strength tests. The results from the study indicated that the STEADI algorithm

was equally effective with identifying fallers retrospectively and prospectively with the combined cohort (Nithman & Vincenzo, 2019). Outcomes from this study aligns with the proposed project objective to increase nursing knowledge and awareness of the screening tool to reduce falls by assessing at risks for fall residents and developing a care plan for the residents. Hence, the educational intervention given to the nursing staff to increase their knowledge in the fall risk assessment tool is a step towards improving nursing care and patient safety.

To prepare health sciences students to use the STEADI initiative to manage older adult falls a qualitative study of 41 students and faculty members covering health sciences programs (n= 5) was used (Taylor et al., 2019). Twenty-seven older adults living in the community were recruited as the convenience sample. The students and faculty members were trained to conduct a fall risk screening, assessment, and intervention activity with older adults using STEADI tools (Taylor et al., 2019). The older adults were categorized into low, moderate, or high fall risk based on the findings and recommendations after their assessment. Findings illustrated a significant improvement in fall prevention and that the STEADI training module and the live class increased student knowledge of fall risk screening, assessment and intervention and the outcomes of falls in the elderly (Taylor et al., 2019). It was concluded that the use of educational intervention as part of fall prevention programs was important to the students and the learning experience gained from the STEADI initiative promoted better understanding of roles and responsibilities in caring for older adults (Taylor et al., 2019). This study supports the proposed project as the incorporation of fall prevention strategies into clinical practice

may help sustain beneficial outcomes that address challenges that the nursing staff faces in addressing falls.

### **Evidence Generated for the Project**

The participants for the proposed project included all the 55 registered nurses (RNs) and licensed practical nurses (LPNs) at the LTC facility who provide direct care to patients. The nurses' educational background ranges from Associate Degree in Nursing (ADN) to Masters' Degree in Nursing (MSN), and their clinical experience ranges from 1 to more than 20 years. The nurses in the LTC lack the knowledge related to evidence-based fall prevention practices. Also, the nursing team reported a lack of education regarding the importance of fall prevention program. The purpose of the project was to educate the nursing staff to bridge the gap-in-practice by implementing an evidence-based practice (EBP) guideline in the LTC to decrease the chronic problem of falls. Since the facility's fall assessment tool has not been updated for the past seven years, a newer evidence-based practice tool can enable the project site to reduce falls.

### **Procedu re**

After I receive Institutional Review Board (IRB) approval from Walden University for my proposed project, I began the initial stage of the proposed project by providing staff with a pre-test. A 13-point multiple-choice pre-test was given to the LTC nurses will be used to assess the nurses' knowledge prior to the education session (see Appendix A). The pretest paper questionnaire and pencils were distributed to the participants in the unit classroom prior to the educational presentation. Participants were given 10 minutes to complete the pretest and asked to place them in an envelope marked

“Pretest” which was collected by the nurse educator. At the end of the education session, the Pretest envelope was secured in a file cabinet.

The implementation of the educational program took place in one of the classrooms. The education sessions were provided for all shifts in the classroom to give adequate opportunity for all staff members to attend. A 20-minute educational training on STEADI was given to the nurses on STEADI using a PowerPoint presentation describing the steps in the STEADI approach. A 15-minute visual demonstration took place using the STEADI to visually enhance the nurses’ knowledge of this fall prevention strategy. A session for questions and answers and a practice session immediately followed the presentation.

Upon completion of the education session the participants were asked to complete the paper/pencil posttest (see Appendix B). The 7-point multiple choice posttest took no more than 5 minutes to complete and the participants were asked to place their responses in an envelope labeled “Posttest”, which was collected by the nurse educator. The envelope was then sealed, placed, and stored in a secure filing cabinet located in a private, locked office.

After attending the educational sessions, 10 minutes was given to the nurses administered the STEADI screening tool to some of the residents. The nurse explained the purpose of the screening tool to the patient and answer any questions the patient has. The nurse scored the screening tool after it has been completed by the patient, according to the instruction provided by the developer of the screening tool. After the scores for the

fall risk was determined, it assisted the leadership at the project site to put proven fall prevention plans into practice.

The completed pretest and posttest surveys was then be uploaded into an Excel file on the password-protected computer in my home office that is only accessible to me. After, the data is uploaded in an Excel spreadsheet, descriptive statistics was used to compare the number of scores of the questions from the pretest and posttest, and the overall mean score percentages calculated.

The deidentified retrospective falls data was obtained within the 3 months prior to the educational intervention from the Assistant Director of Nursing (ADON) before the educational intervention begins. The deidentified prospective data was also provided by the ADON via confidential email within a month after the educational sessions and was entered into an Excel spreadsheet to be compared to the deidentified retrospective fall data. The number of falls before and after the educational intervention was then reviewed and compared by me using the descriptive statistics. The purpose of reviewing both the retrospective and the prospective data was to determine if the education on the fall prevention strategy, the STEADI, decreased the prospective fall rates. Results from the analysis was shared with the leadership, ADON, staff of the facility, and my Project Chair.

### **Analysis/Synthesis**

Data collected obtained from the pretest, posttest and deidentified fall data was analyzed using descriptive statistics and the findings synthesized. The pre- and post-test surveys was compiled at the end of each session to ensure that all tests are returned and

placed in a sealed envelope labeled with the appropriate pretest or posttest label. The Excel program was used to generate descriptive statistics comparing the pre-test and post-test scores. I calculated the mean score percentages by comparing the pretest and posttest using descriptive statistics. The data was compared to assess whether the educational intervention improved nurses' knowledge of falls and how to use the STEADI to prevent falls.

Retrospective data was obtained from the number of falls 3 months prior to the educational intervention. Prospective data was also obtained from the number of falls one month after the educational intervention. The data collected was entered into an Excel spreadsheet and analyzed using descriptive statistics. The goal was to see at least a 40% decrease in fall rates in a month after the educational presentation.

### **Summary**

Educating the nurses on fall prevention programs has increased their knowledge in assessing and identifying at risk for fall residents. Evidence has shown that the standardized use of a valid screening tool is effective to identify at risk for fall residents. The literature review was conducted using PubMed, CINAHL, Medline, Google, ProQuest, CDC.gov and AHRQ.gov. The sources of evidence have concluded that lack of an evidence-based risk assessment tool increases the fall rates and the cost associated with fall injuries. The proposed educational presentation developed for the nursing staff will better equip them to identify at risk for fall residents in their care. The education was provided to all nursing staff on the LTC unit in a 35-minute verbal and visual presentation. During the presentation, nursing staff was administered pre-test and post-



test questionnaires, a PowerPoint presentation, and demonstration of the administration of the STEADI. The staff was encouraged to participate in the discussion and demonstration and was allowed to ask questions during the presentation to clarify any unclear information. A report of deidentified retrospective and prospective aggregate data was used to compare and analyze whether the educational intervention improved nurses' knowledge on falls caused an increase or decrease in number of residents identified at risk for or experienced a fall. The fall pretest/posttest and the STEADI algorithm was used to collect and analyze data on whether the intervention of fall prevention education and the implementation of the STEADI toolkit decreased the number of older adult falls in the LTC facility. In Section 4, I discuss the findings and recommendations identified after the implementation of the proposed project.

## Section 4: Findings and Recommendations

### **Introduction**

Falls are frequent in older adults regardless of race or ethnicity. In order to enable older adults remain healthy and independent by reducing their risk of falls, providers need to incorporate a fall risk assessment tool and individualized fall interventions into their clinical practice (Eckstrom et al., 2017). The primary purpose of the proposed project was to educate nursing staff regarding the purpose and process of administering a standardized fall screening tool to all residents who are 65 years and older. Nursing personnel had insufficient knowledge of current evidence-based fall prevention strategies, and therefore, it was imperative that education which is focused on fall prevention and fall risk assessment was given to these personnel. Educating staff with an EBP fall prevention tool for patient care will allow them to be better equipped in terms of identifying residents at risk or those who are experiencing falls. Because the project site had a high prevalence of falls among its older residents, it was essential that EBP that is safe, effective, and multifactorial in nature was implemented in the LTC unit. The practice-focused question was: In the LTC facility, how will educating nurses to use the STEADI fall prevention program decrease the incidence of preventable falls among the older adult population? One objective of the project was to educate nursing staff regarding STEADI as a fall prevention strategy and introduce the STEADI toolkit as the standardized fall assessment tool. The second objective was to decrease the percentage of falls experienced in the LTC. Section 4 will include discussions of findings, implications

for social change, and recommendations for implementations, as well as strengths and limitations of the project.

### **Summary of Findings**

The goal of the doctoral project was to implement STEADI to reduce falls in the LTC. STEADI was designed by the CDC to improve nursing practices and decrease the rate of falls in acute care settings. Sources of evidence for the project were obtained by searching PubMed, CINAHL, Medline, Google, and ProQuest. Search-generated articles related to causes, complications, interventions, and preventative measures for falls among older adults living who are residents of nursing homes or LTC facilities. Evidence obtained for assessing fall risk included results of pre and posttest questionnaires given to nursing staff. Also evaluated was a comparison of deidentified data of retrospective fall rates to prospective fall rates using descriptive statistics.

#### **Objective 1**

Before the educational session, I collected fall knowledge survey from staff members using the 13-point multiple choice pretest (see Appendix A). The purpose of administering the pretest was to determine knowledge before staff was provided educational information. I administered pretests prior to the educational presentation, which took no more than 10 minutes to complete. I requested the assistance of a non-nursing personnel team member to observe the nurses completing the pretest. Participants placed the completed pretest in the envelope marked "Pretest," which I collected at the end of the session. Pretests were counted at the completion of the education session to ensure all tests were returned and placed in the envelope. The pretest envelope was then

placed in a secured file cabinet located in a private office to be compared to posttests which were completed at the end of the presentation.

I developed a PowerPoint presentation with information I obtained from the literature review and statistical data gathered from the CDC and AHRQ during the educational session. One repeated education session was held during various shifts in a classroom to provide adequate opportunity for all nursing personnel to attend. The PowerPoint presentation lasted 20 minutes and a visual demonstration of the administration of STEADI took place over 15 minutes. A question and answer session along with a practice session regarding how to use STEADI lasting 10 minutes immediately followed the presentation. The educational session in its entirety lasted 1 hour.

Upon conclusion of the presentation, I administered the seven-point multiple choice posttest (see Appendix B) to the nursing staff. The paper-pencil test took no more than 5 minutes to complete. I requested the assistance of a non-nursing personnel team member to observe the nurses completing the posttests. Participants placed the completed posttest in the envelope marked "Posttest," which I collected at the end of the session. Posttests were counted at the completion of the education session to ensure all tests were returned and placed in the envelope. The posttest envelope was placed in a secured file cabinet located in a private office until time of analysis.

### **Data Analysis and Synthesis**

Data analysis was conducted using descriptive statistics based on deidentified data obtained from the multiple choice pretest and posttest questions to determine whether

goals set for the project were met (see Table 1). Answers provided during the pretest and posttest were entered into an Excel spreadsheet to show variance in the number of all correct responses, with a goal of a 20% increase in correct responses after the educational presentation. Data were also analyzed to assess whether there was a reduction in falls after the educational program for the nurses regarding the STEADI toolkit.

**Table 1**

*Percentage of Knowledge Gain from Pretest to Posttest Questionnaires*

Educational Session	Percentage of Knowledge Gained
Pre-Education Knowledge	21.8%
Post-Education Knowledge	96.3%

Initial knowledge was calculated according to the number of staff members who had all correct responses on the pretest questionnaire. Data showed that out of the 55 nursing staff who participated in the educational session, 21.8% (12) staff members had correct responses to all 13 questions. During the posttest questionnaire, 96.8% of staff members had the correct response to all seven questions. Results from comparison of pretest and posttest questionnaires found a 75% increase in staff knowledge regarding fall prevention, STEADI, and its process of administration in the LTC setting. The original goal for nurses to gain 20% knowledge was exceeded, indicating that almost all participants in this educational session gained knowledge regarding STEADI. Therefore, the 1-hour educational session successfully increased nurses' knowledge.

## **Objective 2**

The goal of the project was to educate LTC staff regarding STEADI as a fall prevention and standardized screening tool to help decrease the fall rate in the LTC. To

achieve this objective, 3-month retrospective deidentified data before the educational session and implementation of STEADI was obtained to compare with prospective deidentified data collected during the month after completion of the education session and implementation of administration of STEADI. Deidentified 3-month retrospective data was examined to determine the percentage of patients who had falls within 3 months prior to the educational intervention. All participants were 65 years and above. The number of residents 65 years and older who fell within this 3-month period was 97 (59.8%; Table 2).

**Table 2**

*Percentage of Residents Falls Experienced by Adults Aged 65 and Older*

	Percentage of adults aged 65 and older who experienced fall
3-month Retrospective Study	59.8%
1-month Prospective Study	23.3%

After deidentified 30-day prospective data were obtained, they were examined and compared to the retrospective 3-month review to determine the percentage of residents identified at risk for, or who experienced falls. Of the 120 residents in the project site, seven residents were found to have had a fall in the 30-days after the educational intervention compared to an average of 19 residents falls in every month noted in the deidentified retrospective data before the education session. The results indicate a trend of a 40% decrease in the fall rate after implementation of STEADI (see Table 2). Collecting further data over a longer period of time will be needed to determine if the fall rate remains decreased.

### **Findings and Implications**

The proposed project educated the nursing staff on how to assess and identify residents who were at risk for falls in the LTC using the STEADI. The data collected from the pretests and posttests indicated that the knowledge gained through the education provided to staff, exceeded the initial goal of a 20% knowledge gain. Also, descriptive statistics determined that the deidentified retrospective and prospective data regarding number of falls by residents generated a decrease in falls after implementing the standardized fall risk assessment tool, STEADI. The percentage of 59.8% in the 3-month deidentified retrospective data compared to a decrease of 23.3% in the 1-month deidentified prospective data was found (Table 2). It is clear that the assessment tool positively impacted the incidence of falls, and exhibited a trend of decreased percentage of the falls during the one-month period following implementation of the STEADI. The results also demonstrated the ability of the CDC's STEADI to reduce the incidences of falls and their severity. The project outcome implied that a lack of a fall prevention program contributed to the high rate of falls among the residents who were 65 years and above. The DNP project was also evaluated for its effectiveness with the goal of enhancing the nursing staff's knowledge on evidence-based practices to help them recognize, assess and prevent falls among older adults in the LTC facility. The successful implementation of this practice change gave the nursing personnel a greater confidence to provide a higher quality care by using the STEADI screening tool. According to Boddy et al., (2012), clinical practice will be greatly influence the fall and fall-related injury outcomes among older adults in LTC facilities when a change is implemented. The

implementation of the STEADI revealed a trend towards a reduction in fall incidence rate.

### **Education**

The educational session highlighted a positive social change to benefit the nursing staff. The nurses saw the need to apply a higher degree of urgency in their effort to prevent and manage residents' falls. It increased the nurses' knowledge on fall prevention to improve the quality of care provided to the residents. Additionally, the educational intervention proved a success in increasing the staff's awareness of current evidence-based strategies for fall prevention and management. The STEADI educational module also resulted in a change in behavior among the nursing personnel regarding fall prevention. The fall champions and the nurse educators verbalized their commitment to ongoing education by way of incorporating it as one of the mandatory staff orientation modules. The nursing staff became more comfortable in the process of screening residents and scoring them. The knowledge gained by the nurses surpassed the initial goal of a 20 % knowledge gain, implying the nurses were equipped adequately to begin administering the STEADI algorithm to the residents in the LTC.

### **Stopping Elderly Accidents, Deaths, and Injuries**

The STEADI, a fall risk assessment initiative, was developed by the American and British Geriatric Societies, and was launched in 2012 by the CDC. It is a combination of researched clinical practice guidelines to assist providers in acute care and primary care settings in the prevention of falls. According to Stevens and Phelan (2013), the STEADI fall prevention tool kit contains an array of resources to benefit health care



providers in assessing and addressing fall risk in any clinical settings. The STEADI toolkit consists of the 3 core elements Screen, Assess and Intervene. The STEADI algorithm usage in clinical practice helped to improve residents' safety and decreased the rate of falls in the LTC facility. The STEADI was user-friendly and nurses had access to download and print the materials as they were made available on the CDC's website. The STEADI became an evidence-based guideline needed in the project site since it was not time consuming and was simple to comprehend. The STEADI algorithm as an evidence-based fall prevention guideline positively influenced safety awareness among nurses and detected behavioral changes among the residents that could lead to a potential fall. After completion of the evidence-based educational session on STEADI, the nurses began utilizing the toolkit to conduct more frequent observations of the residents who were at-risk for falls and those who had experienced falls. The nurses' interest in the practice change resulted in the 40% decrease in falls within the 30 days after the educational intervention.

### **Recommendations**

The purpose of this project was to investigate whether implementation of the CDC's STEADI toolkit in a primary care setting increased the nurses' knowledge about fall prevention strategies. The increase of falls and fall-related injuries among 65 and older residents constituted a substantial risk in the project site. An action was taken on the results of the implementation by making some recommendations to ensure that the residents' risk for falls were addressed to maintain their safety and quality of life.

It was recommended to continue to use the STEADI to address the lack of fall prevention knowledge gap in the project site. The project team members agreed to commit to ongoing education to include all the nursing care team members including the Licensed Practical Nurses (LPNs) and Nursing Care Assistants (CNAs) and to ensure the setting up of a falls committee. Expanding the education to include the LPNs and CNAs will allow them to identify at risk residents when they are caring for them. Multifunctional team approach facilitates best practices and as such, it has been proven that a decrease in the number of falls and fall rates can be achieved by utilizing a team approach in clinical practice (Oliver, Healey, & Haines, 2010; Spoelstra, Given, & Given, 2012).

Another recommendation was that the nursing profession development team would further develop modules to enhance the staff's knowledge on STEADI and have the staff complete these modules as an annual in-service education for all the staff to improve the quality of care provided to the residents. The modules would also be used as mandatory staff orientation modules for new hires. To ensure that residents are receiving the highest level of care, the new hires would be taken through a session on the STEADI by incorporating some of the modules from the DNP project such as the STEADI, the process of administering the STEADI and fall prevention. Mandatory training for the new hires would enable them to be well equipped on the STEADI before they are scheduled to work. Also, the mandatory training for the new hires is a concerted effort with approval from management to adequately train them on evidence-based fall prevention measures. Organizations that provide education addressing factors that contribute to falls among

older adults in long term care facility can improve awareness and contribute to the success of fall management in practice (Kennedy, 2010). Implementing and translating change into clinical practice can greatly influence fall and fall-related injury outcomes among older adults in long term care facilities (Boddy et al., 2012).

### **Contribution of the Doctoral Project Team**

The project team was composed of the stakeholders who included the Director of Nursing, Staff Development Coordinator, Unit Managers, Registered Nurses, Licensed Practical Nurses, Nurse Educators, my preceptor, and the fall champions. According to White, Dudley-Brown, & Terharr, (2016), the transformational leadership style provides an opportunity for team engagement to maintain the quality outcome of interventions. At the initial meeting I presented a 30-minute scholarly PowerPoint presentation on the background information related to falls in the LTC facility, current best-practice evidence, education regarding the STEADI and my recommendations on the STEADI. The primary stakeholders provided feedback on the modules for the staff education, and revisions were made to the education outline, and the data collection and evaluation processes. Utilizing a team approach in clinical practice has been proven to decrease the number of falls and fall rates (Oliver, Healey, & Haines, 2010; Spoelstra Given, & Given, 2012). The assistant DON ensured that the de-identified data of the residents were protected and secured for data analysis reporting. Continuous communication through email and meetings on the Zoom virtual classroom were conducted every week throughout the project development to ensure that the progress of the project was going according to plan and concerns were addressed promptly. The team agreed with the

outline of the project and considered it a good assessment tool to reduce falls in the facility. The nurse educators and the nurse leaders also monitored the progress of the post implementation of the STEADI. Finally, the DON approved the plan of the project and authorized the staff development project to begin. The essential role played effectively by the project team ensured a successful planning, implementation, and evaluation of the fall prevention program.

### **Strengths and Limitations of the Project**

#### **Strengths**

A notable strength of this project was the practice advancement from an outdated clinical guideline for fall prevention to the use of the STEADI as a standardized tool to assess the older adults for fall. The training of the nursing staff on the fall prevention practice enabled them to prevent patient falls and its related injuries in the LTC facility. The education gave the nurses confidence to use the STEADI as an assessment tool to identify at risk for fall residents. The nursing staff acknowledged their understanding of the screening tool and were eager to use it as a standardized screening tool. According to Boddy et al (2012), long term care facilities can thrive on the implementation and translation of change into clinical practice to influence fall and fall-related injury outcomes among older adults.

The senior leadership wanted the initiative and was ready to implement an evidence-based practice guideline to improve nursing practice to reduce the fall rates in the facility. Kennedy (2010) noted that to ensure the delivery of effective care and implement fall prevention strategies, current evidence-based practice is essential. The

initiative also provided the leadership of the LTC facility with an evidence-based fall prevention guideline to continually screen the residents to determine their risk for falls. With such a high percentage of falls occurring in this project site, it was of the essence that an evidence-based practice that is safe, effective and multifactorial in nature was implemented (Pinto & Biancofiore, 2016).

### **Limitations**

One limitation was my unavailability at the project site to answer questions on the STEADI and to guide the nurses on the assessment, which extended the timeline for the completion of the implementation phase of the project by five days. As the nurse leader, my presence at the project site was a means to maintain communication with the nursing staff during implementation. Realizing the impact my unavailability at the project site more frequent would have on the project, I changed my once-a-week schedule to the facility to three times a week to help the staff with any concerns they would have encountered during the assessment. According to Olrich et al (2012), the presence of the project lead would assist with any questions on the knowledge content of the educational session and will be able to provide timely resolution of barriers and staff concerns.

The limited time used to evaluate the effectiveness of the STEADI was not enough time to fully determine the long-term impact of the project. The time interval to evaluate the project was one month, which was not enough to assess the long-term impact of the initiative on decreasing the rate of falls. The fall rate will be continued to be evaluated by the LTC facility to collect data and evaluate the efficacy of implementation of the STEADI. One of the steps in evaluating a program is the gathering of credible

evidence that strengthens the results of the evaluation and its recommendations (ATSDR, 2015).

### **Summary**

The proposed project was to educate the nursing staff on fall prevention strategies for the residents of a LTC facility and provide a standardized screening tool to better identify at risk residents for falls. The primary purpose of the project was to educate the LTC nursing staff on the purpose and process of administering a standardized fall risk assessment tool to all the residents. The analysis of the pretest and posttest results demonstrated that implementation of the STEADI showed a trend to be successful in determining the resident who are at risk for falls and a decrease in the fall rate. The educational sessions also increased the awareness of falls and preventative measures among the nursing staff. The staff's knowledge in recognizing, assessing, and managing falls was as a result of the educational sessions given as part of the DNP project. The staff used skills and knowledge they gained from the educational session to initiate the use of STEADI as the screening tool for falls. Findings obtained from retrospective and prospective data demonstrated a trend towards a decrease in fall rates among residents age 65 and older. Section 5 will include my dissemination plan, analysis of self, and a summary.

## Section 5: Analysis of Self

### **Introduction**

Dissemination is the process of presenting project findings and recommendations through oral presentation, publication in journals, or professional poster boards.

According to Curtis et al. (2016), it is no longer acceptable to implement a clinical change in care and not evaluate the impact of the change. It is the responsibility of the DNP scholar to disseminate project results in a scholarly manner by sharing findings with stakeholders, the academic community, and professionals in similar fields (White & Dudley-Brown, 2012).

My opportunity to translate evidence to practice and disseminate the results of this project was achieved. In advancing nursing beyond the project site, I will present my findings via poster sessions at a state and national conference for nurse practitioners next spring and summer, respectively. Also, I will review the author guidelines for *The Journal for Nurse Practitioners* to note requirements for publication, and locate other opportunities to create positive social change by using my DNP skills.

Dissemination of research findings improves clinical practice in healthcare organizations. The project team will be included in the dissemination of the project implementation and findings. The content and format of disseminating the findings may vary depending on the audience. The project was shared with facility leaders during an oral presentation. I will develop a professional poster board to present my project findings and recommendations to reach both management and staff at the project site upon approval from management. Poster boards involve maintaining an EBP scholarly

approach to synthesize evidence and present clarity in terms of communication of key components of research (Williams & Cullen, 2016). Publishing work in selected journals and presenting at professional organization conferences will be part of the plan for dissemination of findings. This doctoral project answered the practice focused question: In the LTC facility, how will educating nurses to use the STEADI fall prevention program decrease the incidence of preventable falls among the older adult population? As such, I integrated all acquired DNP essentials into clinical practice by translating knowledge and demonstrating positive outcomes within the LTC environment and organization as a whole.

### **Practitioner**

As a practitioner, I understood the importance of having the proper skill set to advance nursing practice in regard to fall prevention. A DNP project like this QI project is essential to nursing practice since it advances nursing and solves a gap in practice for nurses through education at the project site. The DNP project improved my skills set and enhanced my development as an APN. I applied DNP essentials and was able to appraise evidence-based literature, identify a practice change supported by evidence, implement and evaluate practice changes, interpret findings, and disseminate findings to address the health and safety of older adults in the LTC facility. To improve patient care delivery, APNs must have the ability to design an effective method of implementation, evaluate measurable outcomes, and disseminate findings into nursing practice (AACN, 2006). I now understand the importance of evidence-based practice and have been more productive with my clinical practice to improve efficiency in terms of fall prevention and



safety. With this project, I am more effective than before and have more confidence to evaluate, identify, and educate them on fall risk interventions. Additionally, I will advance nursing beyond this project site by using my findings as a proposal to various LTCs in my community to implement evidence-based fall prevention programs to improve the quality of care for older adults.

### **Scholar**

I have grown as a result of this project as a nurse leader, advocate, and scholar. As a DNP-prepared student, DNP essentials were instrumental in guiding my thought processes, and I am able to evaluate therapeutic interventions to improve healthcare outcomes. I am committed to contributing to the nursing profession's body of knowledge by collaborating with interprofessionals to improve patient and population health outcomes. Knowledge gained during my DNP program will be applied throughout my career as a nurse leader in terms of providing highest quality patient care and outcomes. According to the AACN (2016), a DNP program's goal is to produce nurses that are uniquely prepared to bridge the gap between the discovery of new knowledge and the scholarship of translation, application, and integration of new knowledge in practice.

### **Project Manager**

DNP Essentials and use of my DNP skills guided my quest to identify a significant practice problem at the project site. Through planning and implementation of the DNP project, I identified a healthcare problem, proposed a change based on evidence-based literature, implemented the fall prevention program using STEADI that will improve the rate of falls. Advanced practitioners must have the skills to create, initiate,

accomplish, and evaluate interventions grounded in nursing science (AACN, 2006). My responsibilities included practice gap analysis, evidence-based research review, education of involved parties, application of practice changes, and evaluation of effectiveness of nursing practice changes.

I used my project management tools in my role as the project leader by creating a project team that consisted of interdisciplinary professionals to embark on a change project. I developed my skills to be an effective and efficient project manager as I progressed through the DNP program at Walden University. During the DNP program, I learned about elements in a QI project, including planning, designing, developing, and implementing, and how to use them in any EBP project. A project manager is an essential component of implementing practice change. As a project manager, I saw the need and urgency to introduce nursing practice changes to stakeholders, management, and nursing staff to help improve knowledge regarding fall prevention and assess at risk for fall residents with an EBP assessment tool. The goal of this project was to increase nurses' awareness of falls, causes and complications, and preventive approaches to reduce falls. As project leader, I acted as a change agent through communication in terms of helping staff to accept changes to improve healthcare outcomes. I assessed nursing staff readiness for changes to be implemented. Amarneh (2019) argued that before a change can take place, nursing staff's readiness to change must be assessed, since it enhances the introduction, management, and maintenance of the change. I will apply the knowledge I gained to lead future nursing practice changes.

## **Completion of the Project**

One essential role of the DNP-prepared nurse is to apply scholarship to disseminate findings and outcomes to the nursing profession. Disseminating the project will play an important role in helping staff to accept proposed changes to improve quality of life for older adults in LTCs. According to Curtis and DeMaio (2017), disseminating knowledge could provide the opportunity to use relevant research findings to bring improvement to healthcare organizations and maintain successful client care outcomes. The DNP project gave me the opportunity to grow and demonstrate my skills as a DNP level practitioner, scholar, and project manager. Innovative ways of thinking were achieved through identifying the research problem, collection of evidence, and synthesizing the literature, which is guided by theory to create an evidence-based plan for the project site to improve rate of falls among older adults.

The completion of this project was challenging, but perseverance and patience made an impact in this project. Some of the challenges encountered included the inability of the project team to meet as scheduled to discuss project development however, that was resolved with a solution to meet. The team then finally decided to communicate via email and on Zoom virtual classroom to meet the project timeline and goals. Also, the iterative nature of this project came with another challenge of staying focused on the project's educational content. With frequent communication with my chair, Dr. Verklan, and my constant review of published articles for form and style made me stay focused on the project. In future, strategy of collaborating with inter-professionals to create a project

team will be used again. I realized that all obstacles in the completion of the project were part of the process of growth as a scholar.

### **Summary**

The high rate of falls and fall-related injuries in older adults in the LTC facility was because the clinical practice guideline on fall prevention was outdated. The purpose of the quality improvement project was to educate the nurses on the fall prevention program to increase their knowledge and implement the STEADI tool to decrease the rate of falls. The educational sessions and the implementation of the STEADI increased the nurses' ability to recognize, assess and manage falls using the STEADI algorithm. The goal of enhancing the knowledge of the staff was met. Residents who were at risk for falls in LTC were more effectively identified during the fall-risk assessment. Evaluation of the findings showed a trend of 40% in the decrease of falls and an improvement in residents being identified at-risk for or experiencing falls. There was improved collaboration among inter-professionals in the planning and implementation of the current evidence-based practice at the project site. Nurses were empowered to use the current evidence-based practice in the care of the residents by providing quality and safe patient care.

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## Appendix A: Fall Knowledge Test

Name:

Date:

Each question may have more than one option as the correct answer.  
Please circle the letters that correspond to the correct answers.

1. Which of the following statements is correct?
  - a. Falls have multifactorial etiology, so fall prevention programs should comprise multifaceted interventions.
  - b. Regular review of medication can help to prevent patient falls.
  - c. The risk of falling will be lessened when a patient's toileting needs are met.
  - d. The use of antipsychotic medications is associated with an increased risk of falls in older adults.
  
2. A multifaceted intervention program should include:
  - a. Individually-tailored fall prevention strategies
  - b. Education to patient/family and health care workers
  - c. Environmental safety
  - d. Safe patient handling
  
3. Risk factors for falls in the Long term care (LTC) include all of the following except:
  - a. Dizziness/vertigo
  - b. Previous fall history
  - c. Antibiotic usage
  - d. Impaired mobility from stroke disease
  
4. Which of the following statements is true?
  - a. The cause of a fall is often an interaction between patient's risk, the environment, and patient risk behavior.
  - b. Increase in hazardous environments increases the risk of falls.
  - c. The use of a patient identifier (e.g., identification bracelet) helps to highlight to staff those patients at risk for falls.
  - d. A fall risk assessment should include review of history of falls, mobility problems, medications, mental status, continence, and other patient risks.



5. Patients with impaired mobility should be:
  - a. Confined to bed
  - b. Encouraged to mobilize with assistance
  - c. Assisted with transfers
  - d. Referred for exercise program or prescription of walking aids as appropriate
  
6. The management of the acutely confused patient should include all of the following except:
  - a. Moving patients away from the nursing station
  - b. Involving family members to sit with the patient
  - c. Orienting patients to the hospital environment
  - d. Reinforcing activity limits to patients and their families
  
7. Which of the following statements is false?
  - a. Fall prevention efforts are solely the nurses' responsibility.
  - b. A patient who is taking four or more oral medications is at risk for falling.
  - c. A patient who is taking psychotropic medication is at higher risk for falling.
  - d. Testing or treatment for osteoporosis should be considered in patients who are at high risk for falls and fractures.
  
8. In the long term care settings, intervention programs should include:
  - a. Staff education on fall precautions
  - b. Provision and maintenance of mobility aids
  - c. Postfall analysis and problem-solving strategy
  - d. Fall risk arm bands for all patients, regardless of risk
  
9. When assessing patients, which of the following statements is false?
  - a. All patients should be assessed for fall risk factors at admission, at a change in status, after a fall, and at regular intervals.
  - b. Medication review should be included in the assessment.
  - c. All patients should have their activities of daily living and mobility assessed.
  - d. Environmental assessment is not important in the hospital as it is all standardized.
  
10. Risk factors for falls include:
  - a. Parkinson's disease
  - b. Incontinence
  - c. Previous history of falls
  - d. Delirium

11. Exercise programs for ambulatory older adults should:

- a. Be very aggressive
- b. Be unsupervised
- c. Be ongoing
- d. Include individualized strength and balance training

12. Which of the following statements on education in fall prevention is false?

- a. Education programs should target primarily health care providers, patients, and caregivers.
- b. Education programs for staff should include the importance of fall prevention, risk factors for falls, strategies to reduce falls, and transfer techniques.
- c. Instruction on safe mobility, with emphasis on high-risk patients, should be provided to both patients and families.
- d. Education should only be given at the start of the fall prevention program.

13. Which of the following is recommended to improve patient safety?

- a. Locking wheeled furniture when it is stationary.
- b. Having nonslip flooring.
- c. Placing frequently used items (including call bell, telephone, and remote control) within reach of the patient
- d. Rounding hourly to address patient needs.

Adopted from Singapore Ministry of Health Nursing Clinical Practice Guidelines on Prevention of Falls in Hospitals and Long Term Care Institutions and subsequent version by Dr. Serena Koh. Previously used in Koh SLS. Singapore Med J 2009;50(4):425. Original may be found at [www.moh.gov.sg/content/dam/moh\\_web/HPP/Nurses/cpg\\_nursing/2005/prevention\\_of\\_falls\\_in\\_hosp\\_ltc\\_institutions.pdf](http://www.moh.gov.sg/content/dam/moh_web/HPP/Nurses/cpg_nursing/2005/prevention_of_falls_in_hosp_ltc_institutions.pdf).

## Appendix B: Posttest Fall Knowledge

## Posttest Fall Knowledge

1. Which of the following statements is false?
  - a) Falls prevention effort is solely the nurses' responsibility.
  - b) A resident who is taking four or more oral medication is at risk of falling.
  - c) A resident who is taking psychotropic medication is at higher risk of falling.
  - d) Hip protectors should be considered for patients who are at high risk for falls and fractures.
  
2. In long- term care, intervention programs should include:
  - a) Staff education on fall precautions
  - b) Provision and maintenance of mobility aids
  - c) Post fall analysis and problem-solving strategy
  - d) All the above
  
3. In the assessment of nursing home patients, which of the following statements is false?
  - a) Nursing home residents should be assessed on admission, when there is a change in status, after a fall and at regular intervals.
  - b) Medication review should be included in the assessment.
  - c) All nursing home patients should have their ADL and mobility assessed.
  - d) Environmental assessment is not important in the nursing home as it is all standardized.
  
4. Risk factors for falls in the nursing home residents include:
  - a) Parkinson's disease
  - b) Incontinence
  - c) Previous history of falls
  - d) All of the above
  
5. Exercise programs for the ambulant elderly should:
  - a) Be very demanding.
  - b) Be unsupervised.
  - c) Be ongoing.
  - d) Include individualized strength and balance training.

6. Which of the following statements on education in fall prevention is false?

- a) Education programs should target primarily at healthcare providers, patients and caregivers.
- b) Education programs for staff should include: the importance of falls prevention, risk factors for falls, strategies to reduce falls and transfer techniques
- c) Safe mobility, with emphasis on high risks patients, should be educated to both patients and their families.
- d) Education should only be given at the start of the falls prevention program

7. Which of the following is recommended to improve patient safety?

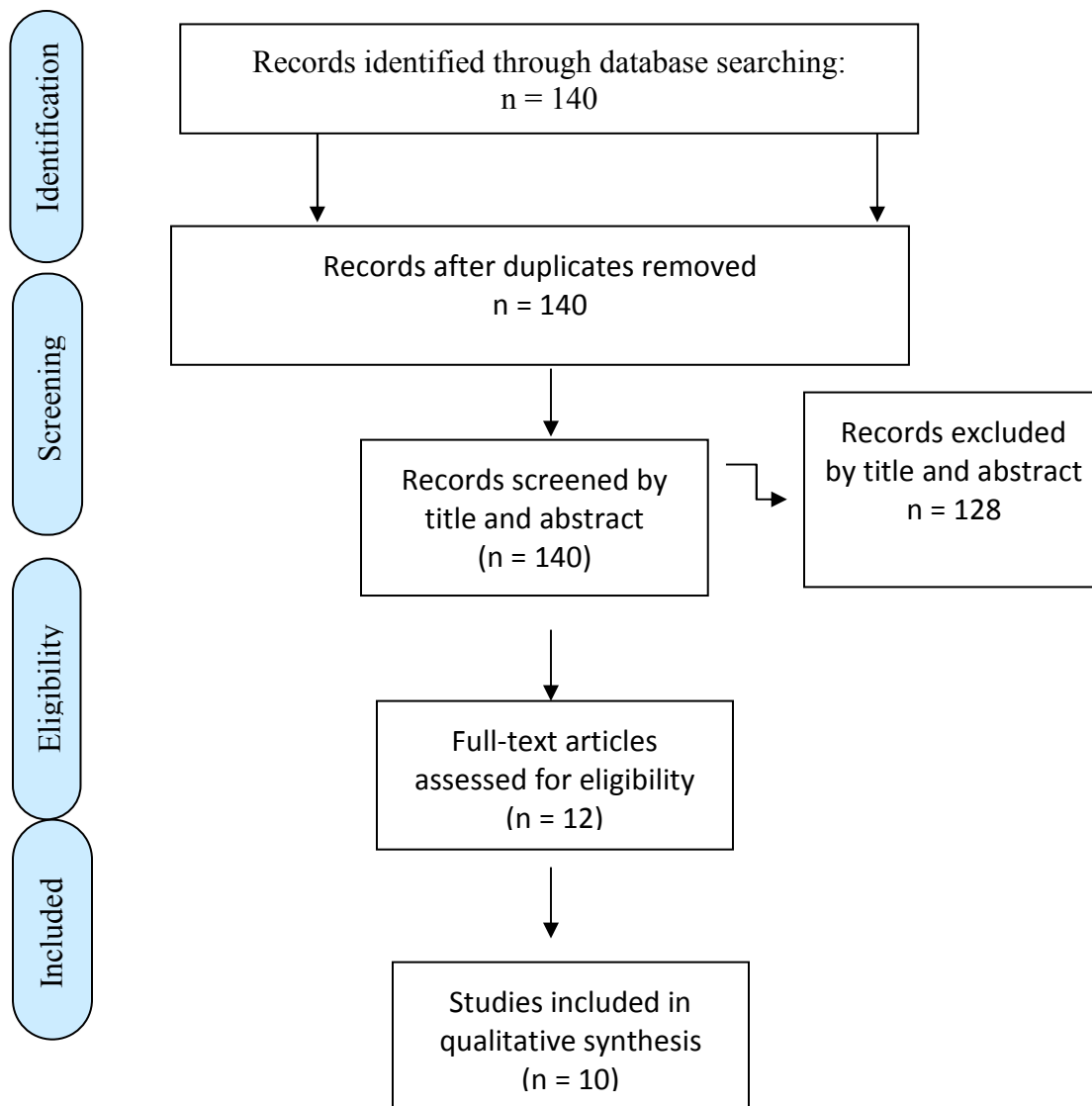
- a) Wheeled furniture should be locked when stationary
- b) Have non-slip flooring
- c) Place frequently used items (including call bell, telephone and remote control) within reach of the patient
- d) Bed should be in lowest practical height when the patient is in bed

Adopted from Singapore Ministry of Health Nursing Clinical Practice Guidelines on Prevention of Falls in Hospitals and Long Term Care Institutions and subsequent version by Dr. Serena Koh. Previously used in Koh SLS. Singapore Med J 2009;50(4):425.

Original may be found at

[www.moh.gov.sg/content/dam/moh\\_web/HPP/Nurses/cpg\\_nursing/2005/prevention\\_of\\_falls\\_in\\_hosp\\_ltc\\_institutions.pdf](http://www.moh.gov.sg/content/dam/moh_web/HPP/Nurses/cpg_nursing/2005/prevention_of_falls_in_hosp_ltc_institutions.pdf)

## Appendix C: Prisma Flow for Database Search



## Appendix D: Elkins Literature Review Matrix

Citation	Theoretical Conceptual Framework	Research Question(s)/ Hypotheses	Research Methodology	Analysis & Results	Conclusion	Grade for Level of Evidence
Lohman, M.C., Crow, R.S., DiMilia, P.R., Nicklett, E.J., Bruce, M.L., & Batsis, J.A. (2017).	none	To operationalize the STEADI fall risk algorithm using data from an existing nationally-representative cohort of older adults in the US. To evaluate the predictive validity of the adapted STEADI.	Analytic sample respondents (n=7392) were categorized at baseline as having low, moderate or high fall risk. The sample of 7,392 participants for the study was a nationally representative survey of adults aged ≥ 65 obtained from the National Health and Aging Trends Study (NHATS). The data collection was based on five waves such as a baseline interview and four follow-up waves) from members of the NHATS and participants who live in a nursing home or an unspecified residential facility	Logistic mixed-effects regression and longitudinal logistic regression model The results proved that an estimated 51.7% of US adults aged 65 and older had low fall risk, 38.4% had moderate fall risk, and 9.9% had high fall risk.	The adapted STEADI clinical fall risk screening tool is a valid measure for predicting future fall risk using survey cohort data. The application of this study to the proposed project is the anticipation of an evidenced based fall risk algorithm to be used by the nursing staff to assess and predict at risk for fall residents	Level III
Johnston, Y. A., Bergen, G., Bauer, M., Parker, E. M., Wentworth, L., McFadden, M., Reome, C., & Garnett, M.(2018).	RE-AIM Framework	To determine the impact of a STEADI initiative on medically treated falls within a large health care system in Upstate New York. evaluate the the hypothesis that the implementation of STEADI would result in fewer medically treated falls.	Cohort study to evaluate the impact of the United Health Services (UHS) Broome County implementation of STEADI on medically treated falls would result in fewer medically treated falls. The UHS was the largest health care provider in the county to implement the STEADI initiative into UHS's outpatient practices. The RE-AIM Framework was used in this project to evaluate the UHS STEADI initiative.	Older adults who were screened for fall risk in 3 groups: (a) At-risk and no Fall Plan of Care (FPOC), (b) At-risk with a FPOC, and (c) Not-at-risk. Poisson regression examined the group's effect on medically treated falls when controlling for other variables. The sample consisted of 12,346 adults aged 65 or older who had a primary care visit at one of 14 outpatient clinics between September 11, 2012, and October 30, 2015.	Older adults at risk for fall with a FPOC were 0.6 times less likely to have a fall-related hospitalization than those without a FPOC. Implementation of STEADI fall risk screening and prevention strategies among older adults in the primary care setting can reduce fall-related hospitalizations and may lower associated health care expenditures.	Level III

Nithman, R.W., & Vincenzo, J.L. (2019).	Descriptive Theory	To analyze the STEADI algorithm for strengths/weaknesses based upon inferential data and provide recommendations for additional research	Quantitative, cross-sectional cohort design	A <i>t</i> -test was used to determine if any statistical differences existed between groups. Descriptive statistics were calculated for both samples and the combined sample of community-dwelling and retirement-facility seniors ( $n = 77$ ) from two regions	Sensitivity of the STEADI with discriminating fallers and predicting future falls was better among community-dwellers (73-80%) versus the retirement facility-dwellers (56-62%). It is important to conduct more than one mobility or balance screening test.	Level III
Lee, R (2017).	none	To explore evidence based intervention STEADI that can prevent falls.	Descriptive	Screened patients to identify their fall risk, assess patients' modifiable fall risk factors, and intervene to reduce fall risk. STEADI has a streamlined clinical algorithm adaptable to clinical workflow to guide how to conduct a comprehensive falls risk assessment	A substantial impact on reducing falls, improving health outcomes, and reducing health care expenditures. Recommended an integration of STEADI with EHRs to help prompt the health care team on when to screen an older patient for fall risk and can flag potential risk factors.	Level III
Eckstrom, E., Parker, E.M., Lambert, G.H., Winkler, G., Dowler, D., & Casey, C.M. (2017).		To help primary care providers (PCPs) identify and manage fall risk, and comparing a 12-item and a 3-item fall screening questionnaire.	Retrospective Study	Incorporated STEADI into routine patient care via team training, electronic health record tools, and tailored clinic workflow. Eighteen of 24 providers (75%) participated, screening 773 (64%) patients over 6 months; 170 (22%) were high-risk. Of these, 109 (64%) received STEADI interventions (gait, vision, and feet assessment,	Systematic implementation of STEADI could help clinical teams reduce older patient fall risks	Level III

				orthostatic blood pressure measurement, vitamin D, and medication review). Providers intervened on 85% with gait impairment, 97% with orthostatic hypotension, 82% with vision impairment, 90% taking inadequate vitamin D, 75% with foot issues, and 22% on high-risk medications		
Casey, C.M., Parker, E.M., Winkler, G., Liu, X., Lambert, G.H., & Eckstrom, E. (2016).	Kotter framework	to guide clinical practice change.	Practice Change Model	Fifty-six patients were screened during pilot testing; 360 patients were screened during the first 3 months of implementation. Key to successful implementation was (a) the development of electronic health record (EHR) tools and workflow to guide clinical practice and (b) the proactive leadership of clinical champions within the practice to identify and respond to barriers.	They found out that multiple individual and multifactorial interventions have been shown to reduce fall risk but despite these strategies, provider uptake of falls screening and interventions has been low(Casey et al., 2016). The implementation of the STEADI was a success due to early buy-in from clinic leadership, faculty, and staff, building a clinic workflow that met provider and staff needs(Casey et al.,2016). The development of Epic EHR tools that allowed staff and providers to confidently and efficiently complete all components of the STEADI algorithm was	Level III



					also a huge impact to the success of the implementation. Implementing falls prevention in a clinical setting required support and effort across multiple stakeholders.	
Shammas, C.C. (2017).	Kotter model	To evaluate the success of the STEADI at the (UKFCM) Clinic and introduce STEADI into clinical practice.	Descriptive statistics were used in the analysis of pilot results.	There were 129 patients age 65 or older seen in the UKFCM clinic during the five day pilot. Of those, 64, or 49.61 percent, were screened for fall risk. Of those screened, 28 answered yes to one or both of the first two screening questions. Based on a positive response to at least one of these questions, 44 percent were determined to have screened positive. Thirteen of the 64 screened (20.31 percent) had fallen in the past year, and 21 of the 64 (32.81 percent) were worried about falling or felt unsteady while walking or standing.	The STEADI algorithm and toolkit promise to reduce falls in older adults nationally and in Kentucky.	Level III
Fisher, C. (2019).		whether fall prevention would improve following the implementation of a staff education project using the STEADI toolkit. to improve the participants' knowledge and highlight interventions to reduce the incidence of falls and injuries as a result of falls.	Iowa model of evidence-based practice Lewin's change theory.	Twenty-six nurses were assessed to determine their knowledge deficits. Pretest and posttest data were analyzed, and as a result of the staff education initiative, the nurses' knowledge increased by 99.25%.	Adopting the STEADI toolkit at the practice setting is expected to improve patient safety, reduce falls with injuries and prevent fall-related deaths	

Bergen, G., & Shakya, I. (2019).	CDC Evaluation Framework	To describe and evaluate key steps to measure and report on the success of implementing a STEADI-based	Logic model and Descriptive study			Level III
Taylor, D., McCaffrey, R., Reinoso, H., Mathis, M. W., Dickerson, L., Hamrick, J., Madden, S. L., Heard, H. H., Perlow, E., & Klein, C. M. (2019)		To assess changes in student knowledge of fall risk screening, assessment, and intervention after training in the STEADI initiative, determine student and faculty perceptions of the IPE activity, address competencies related to roles and responsibilities, inter-professional communication, teams and teamwork, and to serve older adults in the community	Interprofessional education (IPE) and service-learning activities using STEADI focused on geriatric conditions.	Students (N = 31) and faculty (N = 10) from five health sciences programs and local older adults (N = 27) participated. Results indicated a statistically significant improvement in student knowledge of fall prevention and STEADI as assessed by pre and post activity measures	indicated improved understanding of the roles and responsibilities of participating disciplines, related to management of falls in older adults. recommended further study to be developed as part of the fall prevention knowledge assessment tool and to determine how to translate it into practice when students enter the workforce.	