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An Interprofessional Collaborative Approach to Fall Prevention Education

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This is to certify that the doctoral study by

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Walden University
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Abstract

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MSN-Ed, University of Phoenix, 2012

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Project Submitted in Partial Fulfillment

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Doctor of Nursing Practice

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Abstract

Hospital falls among medical-surgical inpatients are a safety concern. Inpatient falls that lead to significant injuries may be reduced by fall intervention education, which can lead to the preparedness of the patient and care providers. Orlando's deliberative nursing process theory and the plan-do-check-act model were applied to address the project practice-focused question that explored whether the education of staff nurses on fall prevention interventions would reduce the incidence of falls during a 2-month period. The purpose of the project was to implement and evaluate nursing staff education on the Morse fall scale, an evidence-based fall-prevention intervention. Evaluation of staff nurse knowledge related to use of the scale and data that indicated the number of patient falls were collected before and after implementation of the education project. The education project was effective in decreasing fall rates from 4.2 to 3.4 falls per 1,000 days over a 2-month period; it also resulted in an average Morse fall scale assessment score of 90%. The implications of this project for positive social change include protecting patients from injury and promoting safety through the identification of high-risk patients and application of individualized fall-reduction interventions. The outcome of the project demonstrated that falls can be prevented through improved education and the use of fall interventions.

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Dedication

I am dedicating this project to my Father God and my Lord and Savior Jesus Christ. For without them I would not have made it through the trials and tribulations of school, work, and family. Praise the Lord.

Acknowledgments

To my children, Aubrey, Taylor, and Ryan, thank you for putting up with my school work all this time. Next, I acknowledge my preceptors, Dr. Krista LaRussa and Dr. Sarah Cartwright, who helped me grow into a better leader. Lastly, I recognize my nurse managers, Christa Butler and Rochelle Hunt-Khan, who worked with my schedule to provide the time to complete this project.

Table of Contents

List of Tables

List of Figures

Section 1: Introduction

Patient safety from harm or risk dominates awareness in nursing care (Taylor, Lillis, & LeMone, 2015). Consequently, according to Kim, Lyder, McNeese-Smith, Leach, and Needleman (2015), patient safety became one of the primary focus areas for policymakers, health care organizations, individual health care providers, and experts on safety from various disciplines, including nursing. Hospital falls among medical-surgical inpatients are a pressing safety concern. Most notably, falls cause significant injuries resulting in increased length of stay, unexpected surgeries, and even death (Godlock, Christiansen, & Feider, 2016). The Centers for Medicare and Medicaid Services have identified this issue as a preventable event.

Inpatient falls that lead to significant injuries may be reduced by fall intervention education, which can lead to the preparedness of the patient and care providers. Fall prevention requires an interprofessional approach to care (Agency for Healthcare Research [AHRQ], 2013). The interprofessional collaborative approach includes the supportive stakeholders at the project site. The potential positive social effects are related to the effectiveness of fall prevention education of nursing staff and the effect on patient outcomes. In fact, Tzeng, Hu, and Yin (2011) researched the effectiveness of fall prevention interventions identified in previous literature and prioritizing them to improve clinical efficiency is urgently needed.

I implemented this project to educate nursing staff on evidence-based fall prevention interventions. I used the Plan-Do-Check-Act (PDCA) model (Kimsey, 2010) and Orlando's deliberative nursing process theory (Abraham, 2011; Potter & Perry, 2012)

as theoretical frameworks for this study, in which I used continuous quality improvement that would facilitate a decrease in inpatient falls. The summative outcome of this study demonstrated that falls can be prevented through improved education and the use of fall interventions.

Problem Statement

The World Health Organization (WHO) defines a *fall* as an event that results in a person coming to rest inadvertently on the ground, floor, or other lower level (Avanecean, Calliste, Contreras, Lim, & Fitzpatrick, 2017). According to the American Nurses Association (Tzeng et al., 2011), the incidence of falls is related to nursing quality indicators; thus, a link exists between nursing interventions and patient outcomes. Despite fall prevention efforts by nurses, problems with patient falls occurr at an alarming rate in acute care settings (Tzeng et al., 2011). According to the Metrixcare (2018), the fall rate in health care institutions averaged from 5.09 to 6.64 across the nation. In contrast, the project site had an estimated fall rate of 2.27 falls per 1,000 patient days for the fiscal year 2017. Consequently, management at the project site identified a need to re-educate the nursing staff on fall prevention interventions based on the estimated fall rates.

The Affordable Care Act emphasizes pay-for-performance to reduce events that harm patients (Tzeng et al., 2011). Therefore, it has become an important consideration that Medicare no longer reimburses hospitals for the costs of additional care required due to hospital-acquired injuries (Tzeng et al., 2011). In other words, hospitals are no longer being reimbursed for inpatient falls, increasing the necessity for decreasing falls through

fall prevention intervention education. Fall prevention education can shift how nurses think about and address patient safety as it relates to falls. The field of nursing practice education is called upon to provide support to leadership and nursing staff to help ensure a culture of safety.

Purpose

Insufficient awareness of fall prevention interventions by nursing staff has been identified as a gap in nursing education. In March of 2017, as a doctor of nursing practice (DNP) student, I conducted random fall prevention audits at a 478-bed hospital in the southcentral United States; these included visual audits, documentation, and care plan initiation. The results indicated in 60% of the cases audited that interventions of hospital-issued nonskid socks and bed alarms had not been put into place. In addition, 40% of the audits showed incorrect electronic medication administration record (eMAR) documentation on fall risk and lack of care plan initiation on identified high-risk patients. To bridge the gap, this doctoral project provided education on fall interventions aimed at reducing falls among medical-surgical patients. Thus, in this DNP project, I answered the practice-focused question: Will the education of staff nurses on fall prevention interventions reduce the incidence of falls in the course of a 2-month period?

Falls are a core measure of care quality; therefore, patient safety and quality initiatives help to guide nursing practice. My purpose in this 2-month project was to educate nursing staff on evidence-based fall prevention interventions. This approach allowed the health care professional to access the best evidence to answer clinical questions and interventions used in clinical practice to improve patient care and

outcomes. In the end, the interventions used were multifaceted to include the Morse Fall Scale (MFS) with targeted interventions (Avanecean et al., 2017).

Documented evidence indicates that the interventions that I used in this project had demonstrated accountability for reducing falls and fall-related injuries. The MFS risk assessment tool was one of the important targeted interventions that I used in this project (Avanecean et al., 2017). This tool allowed the nurse to identify risk factors for falls in hospitalized patients on admission (AHRQ, 2013). Once the nurse had identified that a patient was at risk for falls using this tool, then fall prevention interventions were executed. The nursing staff were required to apply a hospital-issued yellow "Fall Risk" armband and nonslip yellow socks on the patient (West, Rose, & Throop, 2018). The evidence supported by Morse (2002) states that interventions for patients who score at risk should include bed alarms which alert staff to provide assistance before the patient gets out of bed.

Nature of the Doctoral Project

Leaders are responsible for managing quality improvement and maintaining an open dialogue with clinical staff. Educating staff nurses on fall interventions enhanced the care provided to the patients and decreased the number of falls and injury from falls. As it related to this doctoral project, I used sources of evidence developed and based on fall prevention guidelines from the AHRQ (2013). According to Melnyk and Fineout-Overholt (2015), practice based on evidence includes the integration of individual clinical expertise that aligns with *Doctor of Nursing Practice (DNP) Essential VI,*

Interprofessional Collaboration for Improving Patient and Population Health Outcomes (American Association of Colleges of Nursing, 2006).

Use of research evidence in clinical practice is an expected standard of practice for nurses and health care organizations. In this doctoral project, the use of levels of evidence determined the strength and evaluation of interventions that would lead to a decrease in falls (Figure 1). To assist, Fineout-Overholt, Levin, and Melnyk (2004) evaluated the use of the Melnyk pyramid to validate the levels of evidence, strength, and validity of research. This approach provided a supporting foundation for the strongest evidence.

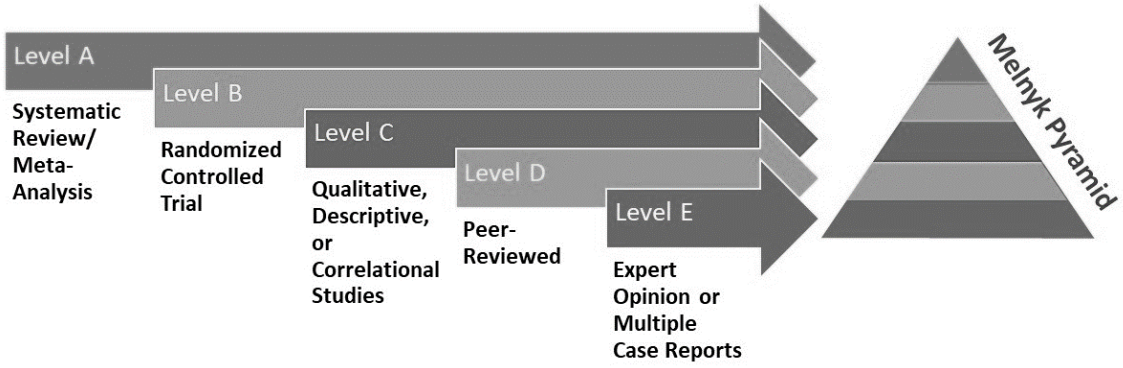

Figure 1. Levels of evidence. Adapted from *Choosing the Best Evidence to Guide Clinical Practice: Application of AACN Levels of Evidence*, by M. H. Peterson, S. Barnason, B. Donnelly, K. Hill, H. Miley, L. Riggs, and K. Whiteman, 2014, *Critical Care Nurse, 34*(2), p. 60. Copyright 2014 by American Association of Critical-Care Nurses.

Current practice guidelines provide nurses with knowledge and research to decrease patient falls and bridge the identified gap of insufficient awareness of fall prevention interventions. Evidence, as cited by Opsahl et al. (2017), has shown positive outcomes from the use of fall prevention bundled interventions. Fall prevention

interventions included: the MFS risk assessment, fall risk armbands, yellow nonskid socks, and bed alarms. In using these interventions, I was prepared to work collaboratively in improving patient and population health outcomes by providing safe quality care. Through the implementation of fall prevention interventions, nurses were prepared to work collaboratively toward the improvement of patient and population health outcomes by providing safe quality care.

Significance

This doctoral project enhanced hospital awareness and provided staff education within the project site related to fall prevention measures. According to Rowan and Veenema (2017), targeted interventions can link holistic, patient-centered assessment to evidence-based actions to reduce risks and improve patient safety. The stakeholders involved in awareness included (a) the chief nursing officer, (b) hospital falls committee, (c) project unit nurse manager, (d) clinical outcomes manager, and (e) nursing staff. These stakeholders played an important role as change agents in this doctoral project. The transformation enhanced hospital awareness and provided education related to strategic interventions within the facility related to fall prevention measures that have potential transferability within the organization.

I designed this DNP project to address a problematic patient safety issue. The project leader collaborated to address the National Patient Safety Goal 9, which has been designated as a priority by The Joint Commission, specifically, to reduce the risk of patient harm resulting from falls (Hur, Jin, Jin, & Lee, 2017). While recognizing the

safety goals involved in decreasing falls, I had a project team prepared to execute a fall intervention education program designed for staff nurses.

The outcome of this DNP project has resulted in a reduction of direct health care costs and indirect costs associated with inpatient falls. Education on falls improved the ability to manage care during inpatient stays as well as postdischarge while providing savings in health care costs and fall readmission rates. As the project leader, educating the nursing staff helped support the communication and expectations for the health care team toward decreasing the occurrence of falls and to lessen related costs to the project site (Opsahl et al., 2017). As a leader at this project site, the positive social change implications have contributed to protecting and promoting patient safety through the identification of high-risk patients and appropriate interventions.

Summary

Falls are a problem that, with strategic interventions, can be decreased to the possibility of zero incidences. The importance of fall prevention relates to nursing education and clinical practice. It is a standard of practice to keep patients safe from harm and to follow hospital policies and procedures as it relates to falls. This doctoral project translated evidence into practice by reducing the incidence of falls. The next section will discuss the background and context of this doctoral project.

Section 2: Background and Context

Introduction

Patient falls present problems in most health care settings. The number of falls occurring in hospitals is a key concern for patient safety. As the project leader, developing this doctoral project promoted educational competence in nursing staff as it related to fall prevention interventions. Within the scope of this doctoral project, appropriate interventions were implemented that had the potential to result in decreased fall rates. The practice-focused question was: Will the education of staff nurses on fall prevention interventions reduce the incidence of falls in the course of a 2-month period? My overall purpose of this project was to demonstrate how falls can be prevented through improved education and the use of falls interventions. I used the PDCA model (Figure 2; Kimsey, 2010) and Orlando's deliberative nursing process theory (Figure 3; Abraham, 2011; Potter & Perry, 2012) in the development of this project, connecting the information concerning the relevance to nursing practice to include local evidence on inpatient falls and the role of the DNP student.

Concepts, Models, and Theories

The concept of patient safety is the driving force behind nursing. Patient safety has been at the forefront of nursing for centuries. It was important for this doctoral project to educate nurses on how to apply critical thinking and clinical reasoning as it relates to fall interventions. In establishing conceptual clarity about fall prevention, a concept analysis on safety and falls was conducted during project analysis. In the review of concept analysis, the concepts of patient safety and fall prevention were related to falls

as the existing practice problem, and gaps in knowledge were identified in the needs assessment. Nurses must protect and promote patient safety through appropriate interventions to prevent high-risk situations.

The PDCA is a model for continuous quality improvement that I implemented within this doctoral project (Figure 2; Kimsey, 2010). This model includes four components (Kimsey, 2010, p. 54):

- **P**lan: "Recognize an opportunity and plan a change."
- **D**o: "Test the change. Carry out a small-scale study."
- **C**heck: "Review the test, analyze the results and identify what you've learned."
- **A**ct: "Take action based on what you learned in the study step."

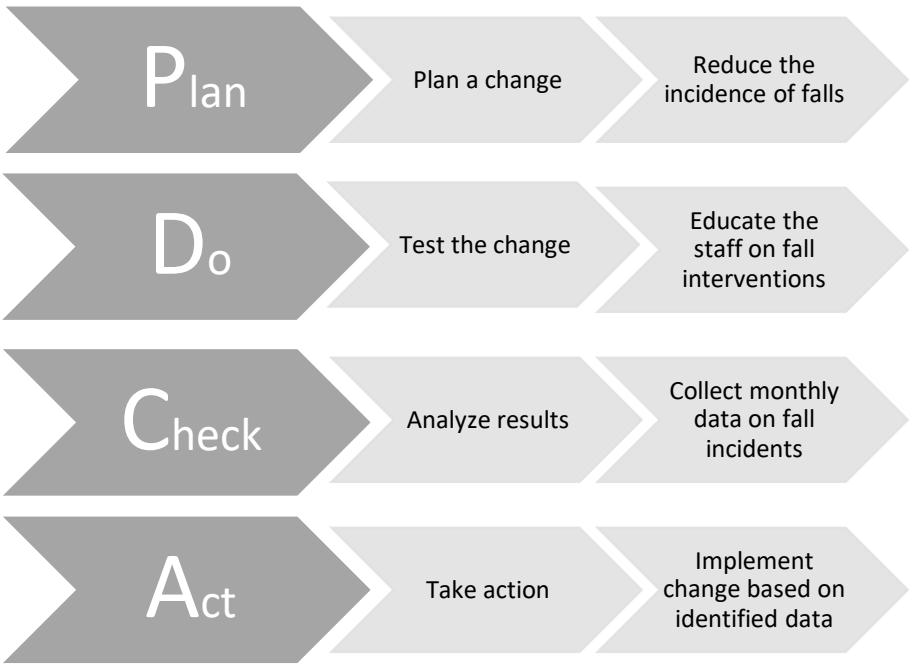

Figure 2. The PDCA model. Adapted from "Lean Methodology in Health Care," by D. B. Kimsey, 2010, *AORN Journal*, *92*(1), p. 54. Copyright 2010 by Elsevier Inc.

In implementing this process, the components flow as follows:

- **P**lan: An education flyer was created to inform the nursing staff of the upcoming event. Biweekly meetings were held for a two-week period to strategize and plan the date, location, time, fall interventions, and the evaluation process. The South Carolina Continuing Education Activity application was awarded for one hour of continuing education units (CEU) for nurses. MFS pocket guides were created for nurses to have a visual reference upon completion.
- **D**o: Implemented PowerPoint presentation on fall interventions to include the MFS Quiz for nurses.
- **C**heck: Monitored fall data and interventions for two-month period.
- **A**ct: Shared data results with RN/management and nursing staff.

Lastly, Orlando's deliberative nursing process theory (Figure 3; Abraham, 2011; Potter & Perry, 2012) helped this project achieve more successful patient outcomes such as a reduction in patient falls. This theory stands in a complementary relationship with the mission of safety at the project site. As cited by Abraham (2011), in any nursing situation, this theory contains three elements: (1) patient's behavior, (2) the nurse's reaction, and (3) anything the nurse does to alleviate the distress. In using this theory, it involves direction for the project site to market and promote staff education and patient safety. According to Abraham (2011), a patient's level of immediate problem decreases when Orlando's concept is used.

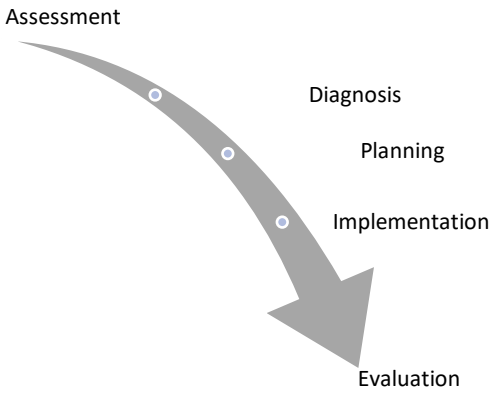

Figure 3. Orlando's Deliberative Nursing Process. Adapted from I. J. Orlando, 1990, "*The Dynamic Nurse-Patient Relationship: Function, Process, and Principles*," Philadelphia, PA: Wolters Kluwer Health.

Relevance to Nursing Practice

The PDCA model and Orlando's deliberative nursing process theory (Abraham, 2011; Potter & Perry, 2012) have been used in current scholarly research to formulate a plan of action. Both ideas can be applied to any practical problem involving safety and physiological needs. As the project team leader, managing quality improvement and maintaining an open dialogue with clinical staff were essential for engaging clinical nurses in a fall prevention program. A cultural change needed to take place for improvement to occur. Implementing education on fall interventions to the nursing staff ultimately enhanced the care provided to the patients and decreased the number of falls and injury from falls.

Knowledge is built on relevance to nursing practice and contributed to the development and evaluation of the existing problem of falls. As it relates to the practice problem, the theory should be congruent with the research findings and not just

qualitative data. Contrary to the nursing process, researchers are constantly evaluating data as it relates to patient outcomes. As the project leader, the importance was not only in the evaluation, but literature review and evidence related to fall prevention education that would guide the nursing staff to better knowledge related to in-patient fall interventions.

A literature search was conducted to identify the best fall education practices for staff education in the inpatient setting. Keywords used were fall education, nursing staff, acute care setting, and fall prevention interventions. Databases used were Medline, Ovid Nursing Journal, ProQuest, and the Cochrane database of systematic reviews.

Fineout-Overholt, Levin, and Melnyk (2004) evaluated the Melnyk pyramid to validate the levels of evidence strength and validity of the research. By using this approach, it allowed for a supporting foundation for the strongest evidence for the implementation of falls intervention education. The listed references provided strong evidence on fall education, staff education, and fall prevention interventions that support measures to decrease falls. The sources of evidence identified were systematic reviews, qualitative descriptive studies, peer-reviewed scholarly journals, and national organizations. This review of literature discussed various evidence of fall data and variations in recommended interventions.

An integrative literature review by Rowan and Veenema (2017) shows that falls in health care facilities are the second leading hospital nonfatal event affecting 30% of hospitalized patients and costing more than $20 billion annually. The negative outcome of falls is seen in the decreased quality of life for patients and rising health care costs. As

it relates to staff education, current falls interventions target interdisciplinary staff to support patient care.

McKenzie et al. (2016) supports the effectiveness of falls prevention education that identifies specific components and practices related to falls. In this DNP project, education for collaborative practice offered an opportunity to engage nursing staff in interactive learning relevant to patient safety. A systematic review by Avanecean et al. (2017) discusses how patient-centered intervention strategies refer to any intervention that is directed towards a patient's assessment of fall risk.

Fall prevention requires that nursing staff be educated on interventions. This involves having basic knowledge around fall prevention and interventions. Including a clear, concise education process would make way for eliminating knowledge gaps. Cangany, Back, Hamilton-Kelly, Altman, and Lacey (2015) discuss how growing evidence indicates that falls occurring in the hospital can be reduced with planning and intervention techniques. This article also explains how bedside nurses led the way to fall prevention by improved education on the existing falls policy and intervention education.

Local Background and Context

This education project exemplified the core value of excellence by providing the highest level of quality health care, "reflected in distinction, effectiveness, efficiency, enthusiasm, [and] passion" (Augusta University, 2018, para. 3). Hospitals in the project area have been expanding efforts to reduce fall rates. Strategies that have been implemented include fall prevention interventions. The project site leaders also had addressed this issue that will lead to the goal of promoting a culture of safety.

The need for conducting this education project resulted from the existing fall rate. Improving fall prevention intervention education and developing new follow-up strategies were anticipated to hopefully decrease fall rates at the project site. Nurse-focused approaches included fall prevention interventions, the MFS, and post-evaluation methods. In using this approach, CEU credit was awarded to the nursing staff participants. These approaches enabled the nursing staff to be more informed on reducing patient falls.

The cause of many of the inpatient falls at the project site could be traced back to the overall nursing indicators for the last 2 fiscal years. Falls ranged from 2.70 to 2.46; the target goal aimed for at the time of this study was 2.10 per 1000 patients per day (Augusta University Health System, 2017). This presented a significant problem for the project site with respect to high fall rates. Although not every patient fall is preventable, the project site was focused on reducing the number of falls. Addressing this issue had been expected to increase nurse awareness, to decrease the fall rates, and to decrease the overall costs to the hospital.

Role of the DNP Student

Having worked in a medical-surgical unit, I have been privileged to have been involved in being part of the solution to this issue. Through this project, I have addressed leadership with the problem of inpatient falls. For example, I have supported the nursing staff in small evidence-based projects, promoting hourly rounding to help decrease fall rates. Despite my efforts, I perceived the necessity for an interprofessional approach to include educating nursing staff with the goal of minimizing fall rates. As the project

leader, I represented the practice focus of fall prevention education to nursing staff. The aim of this project was to demonstrate that proper education along with additional fall interventions has the potential to significantly decrease falls in the inpatient setting.

My role in this education project was to promote quality of patient safety by helping the nursing staff to become competent in fall prevention. A worthwhile goal involved facilitating a better connection between the nursing staff and patients. The project site provided engagement with the nursing staff that offered practicum experience to assist in meeting the over project goal. The practicum experience set the relationship with nursing staff to promote success in the project.

Personal perspectives while conducting this project required metacognition. To be a project leader represents the focus of clinical practice that is innovative and evidence-based, reflecting the application of credible research findings. The DNP-prepared nurse improves clinical practice through nursing research. Therefore, the expectations were to collaborate with senior leadership and all interdisciplinary departments to provide knowledge on fall prevention interventions.

To address bias, it was important to adopt an interprofessional collaborative approach while conducting this project. It was significant to focus on the positive ways the project would assist the nursing staff in promoting fall prevention. To facilitate a successful outcome, it was valuable to have confidence in the project as well as the people who would be involved. The DNP student is clinically focused and centered on leadership, knowledge, and refining skills in the areas of scholarly practice improvement, innovation, and testing of care delivery modes, and on clinical expertise for advanced

nursing education. It was important for the DNP nurse leader to use transformational leadership skills to facilitate change during this education project to empower team members working towards a common goal of fall prevention.

Summary

In this section, I emphasized the development of this project, connecting the information concerning the relevance to nursing practice and decreasing inpatient falls in relationship to my role as the DNP student. The role of the project leader is essential during a change process toward quality improvement. It is important for the reader to understand how the DNP-prepared nurse focuses on translating the best evidence and knowledge into practice. The PDCA model (Kimsey, 2010) along with Orlando's deliberative nursing process theory (Abraham, 2011; Potter & Perry, 2012) were introduced to establish the underpinnings for Section 3 of this doctoral project, which focuses on evidence collection and analysis.

Section 3: Collection and Analysis of Evidence

Introduction

The importance of safety and making a patient feel safe is the responsibility of all health care workers and disciplines alike. Preventing falls and fall-related injuries in health care facilities is a priority. In doing this doctoral project, it was my premise to decrease falls in my facility through collaboration and commitment. It is a standard of practice to keep our patients safe from harm and to follow hospital policies and procedures as it relates to falls. In the collection and analysis of evidence, fall prevention was promoted through the identification of high-risk patients and the utilization of appropriate interventions.

Practice-Focused Question

The guiding practice-focused question was: Will education of staff nurses on fall prevention interventions reduce the incidence of falls in the course of a 2-month period?

This DNP project involved direct clinical intervention in the change of practice, thereby improving the culture of patient safety and reducing or preventing falls. Promoting change in practice is evident in providing patient safety. The outcome was focused on the results of patient care, which would ideally be no falls. Intervention verifies the efficacy, effectiveness, and efficiency needed in evidenced-based nursing (Gray, Grove, & Sutherland, 2016). Subsequently, the practice focus was on fall prevention to improve the culture of patient safety, including nurse education. In identifying the literature strength and weakness, the sources of evidence validated whether the research problem could or would have positive outcomes.

Sources of Evidence

The sources of evidence identified were peer-reviewed scholarly journals, national organizations, and publications. The rationale for using the highest level of evidence support fall prevention practices. The evidence collected support the fact that effective fall interventions provide significant results and clinical guidelines empower staff to decrease falls. In addition, research supports the fact that educating staff, patients, and families leads to positive patient outcomes. Thus, I anticipated a reduction in fall rates, which would show a relationship between the evidence collected and the purpose of this doctoral project.

Bonuel, Manjos, Lockett, and Gray-Becknell (2011) demonstrated that practice improvements lead to decreased fall rates. Their study identified the best practice fall prevention strategy to include reevaluation of hospital policies and procedures to bring them into alignment with those of The Joint Commission and evidence-based fall prevention practices. It demonstrated that a nurse-led and collaborative team improves the practice environment by declaring fall prevention to be a top priority.

A study by Titler et al. (2016) described how hospitals had implemented fall risk assessment tools, but few had implemented interventions to mitigate patient-specific fall risks. This article cited how translating research into practice interventions improves the use of fall prevention interventions. The study also demonstrated improvement in reduction of fall rates and types of fall injuries. Fall prevention interventions were grouped by categories of risk to address (a) previous falls, (b) mobility limitations, (c)

factors that increase risk for serious injury from a fall, and (d) cognitive and mental status (Titler et al, 2016).

Similarly, Sutton, Windsor, and Husk (2014) aimed to introduce FallSafe, an initiative in which falls prevention interventions were applied in care bundles in acute care units. Care bundles were incorporated to create ownership and involvement, create a positive environment, and anticipate conflicts and resistance. In a quasi-experimental study by Opsahl et al. (2017), research has shown positive outcomes from using fall prevention bundled interventions by staff with a focus on educational engagement. In an integrative review by Rowan and Veenema (2017), targeted risk-reduction interventions and the continuous evaluation of process adherence and outcomes have been shown to reduce falls on acute medical units.

Evidence Generated for the Doctoral Project

With this project, I endeavored to analyze whether the education of staff nurses on fall prevention interventions would reduce the incidence of falls at the project site. The evidence generated by this DNP project revealed effectiveness of specific fall interventions on some units through the comparison of fall rates pre-implementation and post-implementation of the interventions. This section provides a step-by-step description of the participants, procedures, and protections involved in this DNP project.

Participants

After identifying a need for education on fall prevention, a project plan was developed. The focus was on the education of staff nurses on fall prevention interventions to reduce the incidence of falls. The participants were volunteers from among all the

medical-surgical registered nurses who work at the project site hospital at the Central Savannah River Area of the United States. They were recruited through an in-house email issued through the nurse managers describing the importance of the project to the safety mission of the hospital. The email mentioned that one CEU would be credited to those who participated in the study. Participants were also recruited through flyers that were posted in the employee break rooms. Participants were required to be medical-surgical nurses, as they are the care providers who would be directly responsible for utilizing the interventions. Participants were required to be current full- or part-time employees of the project site. They could work any shift. They had to be directly responsible for response to patient calls for assistance and for implementation of interventions, such as providing non-skid slippers and fall-risk arm bands. They had to be able to read and speak English to facilitate comprehension of the instructions and completion of the MFS quiz and evaluation tool.

The identified stakeholders of this education project included the clinical outcomes manager (COM), the nurse managers (NM), the hospital fall committee chair, and the director of adult nursing for adult inpatient administration.

Procedures

The project site had consistent high fall rates; therefore, consistent fall rate monitoring would be instrumental in determining the effectiveness of fall prevention interventions. Upon obtaining appropriate permissions from the Walden University institutional review board and the hospital administration, the quality department unit at the project site was asked to assist in compiling fall data. The project design that I used

was Kimsey's PDCA, a model for continuous quality improvement (Figure 2; Kimsey, 2010). The data collection method consisted of descriptive statistics (frequencies and percentages or means and standard deviations) for 2 months preimplementation and post-implementation. This elucidated whether the education of staff nurses on fall prevention interventions would reduce the incidence of falls over a two-month period.

The project awarded a 1-hour CEU for the nurse participants who completed the class, including the MFS Quiz and evaluation. Providing CEU credit gave nurses an opportunity to gain knowledge while receiving valuable credit for time and effort. All nursing staff were encouraged to participate, including regular and as-needed (PRN) staff.

In preparation for this project, participants received training from the DNP student. Following instruction, participants demonstrated understanding of fall prevention material as evidenced by the MFS Quiz. I provided a CEU evaluation to gather nurses' feedback after the project implementation instruction had been completed. This feedback covered (a) content, (b) setting, (c) presenter effectiveness, (d) learner achievement of objective, and (e) instructional methods.

For the training aspect of the project, learning objectives were introduced to participants via a PowerPoint presentation that included fall interventions preventions. The project leader developed the following learning objectives:

The learner will be able to:

a. Identify the importance of fall prevention.

b. Recognize the common causes and types of falls.

c. Assess and employ fall interventions among fall risk patients.

d. Relate fall interventions with documentation requirements.

Learning activities included a hands-on MFS quiz for nurses. These were completed after the training session, prior to implementation of interventions, and after the two-month intervention project. I used the following specific interventions: fall risk assessment, arm bands, non-skid slippers, and the use of bed alarms. Fall safety posters were also displayed in prominent locations, such as rest rooms, employee lounges, hallways, and stairwells.

The method of fall risk intervention evaluation was summative. I used analysis of variance (ANOVA) tests to determine whether there was a difference in the number of falls pre-implementation and post-implementation of in-patient falls interventions at the project site. The findings were presented to the hospital nurse management together with recommendations for continuation of successful falls prevention strategies.

Protections

The timeline for the project was a 2-month consecutive implementation of fall risk interventions that commenced upon prior approval of the institutional review board of Walden University and the hospital administration. Confidentiality of falls data was sustained at the highest level. Obtained falls data were strictly used only for the sole purpose of the DNP project. No actual patient interaction occurred between the project leader and patients. Once documented, fall data collected were deleted from the project leader's electronic email and/or any printed material were shredded. Data were only shared with the identified stakeholders for this project. Confidentiality of participants'

names were sustained at the highest level. Names of nurse participants were replaced with numerical indicators. At the opening of the falls-prevention training session, nurse participants were assured of their right to withdraw from the project at any time with no adverse consequences other than the loss of the CEU credit.

Analysis and Synthesis

To conduct a DNP project, one must understand the ontological and epistemological underpinnings of concepts and concept analysis (Cronin, Ryan, & Coughlan, 2013). In the review of concept analysis, the concepts of patient safety and fall prevention were summarized as they related to an existing practice problem, identifying gaps in knowledge as they related to safety and falls (McEwen & Wills, 2014). Primarily, this education project was aligned with the strategic plan at the project site for the fiscal year 2017 which was related to quality improvement and was directly tied to decreasing falls.

Data analysis consisted of comparing fall rates 2 months preproject and postproject implementation. I collected falls data through the quality control department that maintains this information monthly. Monthly fall rates are calculated using the number of falls divided by total patient days × 1000. I used ANOVA tests to estimate the difference between data pre-implementation fall scores and the post-implementation fall scores.

I used a two-way ANOVA to determine whether the fall rates before the prevention education differed from the proportion of falls after. A two-way ANOVA facilitates study of the effect of two categorical independent variables on one normally

distributed dependent variable (Rosner, 2006). I used Tukey's test for multiple comparisons, which is a multiple comparison procedure used when evaluating significant ANOVA results and is the preferred test when all pairwise comparisons are of interest, for assessment when results were statistically significant (Kutner, Nachtsheim, Neter, & Li, 2005). The dependent variable was the fall rate and the independent variables were intervention (pre-education or post-education) and unit. The interaction term between the two independent variables was assessed.

Summary

In this DNP project, the importance of educating nursing staff on fall prevention was clear. It is the responsibility of all health care workers to provide safety to patients. Preventing falls and fall-related injuries in health care facilities is a priority. Completing this DNP project and reviewing the highest levels of evidence promoted an environment that decreased falls at the project site. It is a standard of practice to prevent falls and to implement interventions that have been validated through current research. It is the collection and analysis of evidence that facilitates the promotion of fall prevention in high-risk patients. Section 4 explores the results of the information collected in this project.

Section 4: Findings and Recommendations

Introduction

Insufficient awareness of fall prevention interventions by nursing staff has been identified as a crucial gap in nursing education. In this project, I implemented and evaluated staff education using records of fall rates preintervention and postintervention. The practice-focused question was: Will education of staff nurses on fall prevention interventions reduce the incidence of falls in the course of a 2-month period? Falls are a core measure of care quality; therefore, patient safety and quality initiatives help to guide nursing practice. The purpose of the 2-month project was to educate nursing staff on evidence-based fall prevention interventions.

This staff education project was conducted in a 478-bed hospital in the southcentral United States between January 2019 and March 2019 using registered nurse participants. To reduce falls and improve patient safety, I strategically implemented an evidence-based fall prevention education project. Participants were required to attend staff education classes on fall prevention using the MFS and targeted interventions. I taught the educational sessions over a 6-day period. The 1-hour classes were offered during this period and, upon completion, the nurse participants received a 1-hour CEU sponsored by the state Nurses Association and approved by the American Nurses Credentialing Center's Commission on Accreditation. I assured participants that test results would be matched with their employee number, and that only the project leader would know the identity of participants.

Findings and Implications

Participants

The participants were 43 registered nurses who were directly responsible for implementation of interventions, such as providing non-skid slippers and fall-risk arm bands. Two types of data were collected and examined (a) nurse education data (the nurse education project included the MFS competency and a CEU evaluation to gather nurse's feedback after project implementation), and (b) fall outcome data (this portion of the project involved the measurement of preimplementation and postimplementation fall rates that were instrumental in determining the effectiveness of the fall prevention interventions). The fall prevention classes and fall data collection period took place from January to March 2019.

Nurse Education Data

The results of the two-way ANOVA showed that the interaction term between pre-education and post-education and the unit was not statistically significant (p = .4693), meaning that the intervention had the same effect no matter the unit. The results of the two-way ANOVA simple main effects analysis showed a statistically insignificant difference in rates among the units (p = .8014) and a statistically insignificant difference in rates among the interventions (p = .4100). Table 1 shows the mean fall rates by intervention type (preintervention and postintervention project implementation and individual unit. Some units showed a noticeable increase of fall rates (4S, 5N, and 6 IMC). Four units had comparatively sizeable decreases in fall rates (6N, 3N, 7S, and 8S).

Table 1

Descriptive Statistics of Mean Fall Rates by Intervention Type and Unit

Unit	Pre-education intervention (N = 2 months) Mean ± SD	Post-education intervention (N = 2 months) Mean ± SD
6N	3.3 ± 2.4	1.7 ± 2.4
4S	1.6 ± 0.0	6.1 ± 6.6
4W	5.3 ± 1.9	5.1 ± 1.6
5N	3.9 ± 5.5	5.6 ± 2.9
3N	7.9 ± 4.9	2.3 ± 0.2
7S	4.6 ± 0.0	0.8 ± 1.1
7NT	3.9 ± 0.3	3.0 ± 4.2
8S	4.7 ± 4.5	0.8 ± 1.2
6IMC	1.3 ± 1.9	3.7 ± 5.2
5S	5.7 ± 0.6	5.1 ± 0.3

Note. Darker grey shading indicates units with the largest decreases in post-intervention fall rates. Pale grey shading indicates units showing the greatest increases in postintervention fall rates.

Fall Outcome Data

Table 2 shows the mean fall rates by intervention type. The fall rate decreased in the 2 months following the educational intervention, although it was not a statistically significant decrease (Table 2).

Table 2

Descriptive Statistics of Mean Fall Rates by Intervention Type

	Pre-education intervention (N = 2 months) Mean ± *SD*	Posteducation intervention (N = 2 months) Mean ± *SD*
Rate	4.2 ± 2.9	3.4 ± 3.1

The Shapiro-Wilk test for normality determined that the normality assumption of the dependent variable (square root [rate]) was met (p = .3732). The results of the two-way ANOVA simple main effects analysis showed a statistically significant difference in rates among the units (p = .0399) and a statistically insignificant difference in rates among the fiscal years (p = .8804). Tukey's test for multiple comparisons showed that unit 3N had a statistically significantly higher fall rate than units 7NT and 5S. Table 3 shows the mean monthly fall rates across the three fiscal years by unit. During this span of time, unit 3N demonstrated a consistent decrease in fall rates, whereas units 7S and 5S had been showing a steady increase in fall rates, with the rest of the units fluctuating from year to year.

Table 3

Descriptive Statistics of Mean Monthly Fall Rates Across the 3 Fiscal Years by Unit

Unit	AY17 (*N* = 12 months) Mean ± *SD*	AY18 (*N* = 12 months) Mean ± *SD*	AY19 (*N* = 7 months) Mean ± *SD*
6N	2.8 ± 2.5	3.7 ± 2.6	1.4 ± 1.8
4S	2.7 ± 1.2	2.4 ± 2.3	3.6 ± 3.3
4W	2.4 ± 2.5	4.2 ± 3.4	3.6 ± 2.1
5N	4.0 ± 2.8	4.2 ± 2.3	2.5 ± 2.9
3N	7.9 ± 6.1	5.9 ± 5.2	5.6 ± 4.7
7S	3.0 ± 2.8	3.2 ± 2.0	3.5 ± 2.4
7NT	0.9 ± 1.5	3.9 ± 4.9	2.5 ± 2.5
8S	4.2 ± 4.4	3.3 ± 2.6	4.2 ± 2.8
6IMC*	4.5 ± 4.3	1.3 ± 2.3	2.6 ± 2.5
5S**	1.1 ± 3.4	2.5 ± 5.0	3.1 ± 2.9

Note. **N* = 8 months; ** *N* = 9 months.

The project design used for development of fall prevention interventions in this doctoral project was Kimsey's PDCA, a model for continuous quality improvement (Kimsey, 2010). Quality and safety have implications for nursing, demonstrating the efficacy of fall prevention education. Thus, educating staff about evidence-based interventions promoted interdisciplinary collaborative efforts at the project site. The interprofessional collaborative approach included the supportive stakeholders at the project site. This collaboration facilitated the promotion of safety at the project site.

Recommendations

My recommendation is to continue education and communication among nurses. The fall rate decreased on some units in the 2 months following the educational intervention, although not by a statistically significant amount. 3N had a statistically significantly higher fall rate than units 7NT and 5S. During this span of time, unit 3N demonstrated a consistent decrease in fall rates, whereas units 7S and 5S had been showing a steady increase in fall rates, with the rest of the units fluctuating from year to year. Improving the nurse staffing ratio and decrease hiring traveling nurses on the units would be factors to consider implementing in the next PDCA to show relevance to fall prevention education on the units. Utilizing a consistent timeframe of greater than 2 months would also be a recommended.

Falls are a risk to the safety of patients in the medical-surgical setting. The validity of the MFS for identifying patient risk of falling has been well-documented (Avanecean et al., 2017; Morse, 2002). Literature reveals the importance of correlating interventions with fall-risk assessments to reduce patient fall-risks (Opsahl et al., 2017; West et al., 2018). The need for this education project was identified by the project site. The goal of this staff education project was to implement education to staff nurses related to evidenced-based fall interventions and assessment. Based on the results, the leadership at the project site recommended my video-taped presentation be uploaded on *HealthStream* (https://www.healthstream.com) as a mandatory competency for nurses. *HealthStream* is dedicated to improving patient outcomes through training and learning management for nurses. The significance of *HealthStream* to nursing practice at the

project site is its potential to expand nursing knowledge by providing an evidence-based intervention that will decrease patient fall outcomes in the medical surgical setting. The overall recommendations have transpired based on the time frame of the project. The project was a 2-month pre-intervention and post-intervention project implementation.

Strengths and Limitations of the Project

A strength of this project was the use of the PDCA model (Kimsey, 2010), which was used as a guideline for implementation of falls strategies for this educational project in the following manner:

- **P**lan: Discussion involved plan for research-based changes that should reduce fall rates.
- **D**o: Education sessions were conducted on the fall-risk assessment and interventions, including the MFS risk assessment tool and the targeted interventions.
- **C**heck: The nursing staff gained understanding of how the scale functioned paired with the targeted fall prevention interventions as evidence by the MFS competency scores.
- **A**ct: Evidence-of the nurses' evaluation of the education project using a Likert scale (1 = strongly disagree to 5 = strongly agree; see Table 4).

Table 4

Fall Prevention Education Evaluation by Content Area Using a Likert Scale (1 = strongly disagree to 5 = strongly agree)

Content Area	*N*	Mean
Content	43	4.53
Setting	43	4.60
Instructional methods	43	4.66
Learner achievement of objectives	43	4.69
Faculty/presenter effectiveness	43	4.62

Another project strength was the passing score on the MFS, which was set at 80%. All participants passed the MFS with a score of 80% or better. The mean score was 89% (±9.1%). This score demonstrated the efficacy the MFS in contributing to project compliance in the identification of fall-risks with targeted interventions.

Despite the positive strengths, there were some limitations in the generalizability of this project. Although the project contributed to knowledge on the use of fall-risk assessments with targeted interventions in the management of fall-risk patient populations, the number of participants in the project was small. Out of approximately 500 nurses employed at the project site, only 43 nurses attended the education classes. In addition, the timeframe of the project was limited to 2 months.

Section 5: Dissemination Plan

It is vital to disseminate evidence-based practice findings to stakeholders and other health care professionals so that innovations for practice can be replicated or applied in other settings (Forsyth, Wright, Scherb, & Gaspar, 2010). I plan to present this project to the Falls Committee and National Executive Counsel. This project has inspired nursing leadership to pursue placing my instructional video presentation on *HealthStream* as a mandatory competency for nurses. *HealthStream* is dedicated to improving patient outcomes through training and learning management, for nurses. In addition, I plan to submit this study as an abstract for presentation at the Academy of Medical-Surgical Nurses. This project could result in publication in the journal, MEDSURG Nursing, as an education forum for all medical-surgical nurses in promoting patient safety outcomes as it relates to falls.

Analysis of Self

This DNP project explored strategies to ameliorate the problem of patient hospital falls. The evidence generated by this DNP project revealed the effectiveness of specific fall interventions through the comparison of fall rates pre-implementation and post-implementation of the interventions. I had a few interesting challenges with this project. Due to the brief time between IRB approval and the projected start date of project, I only had 4 weeks to advertise the fall prevention classes to the nurses. It was disappointing that over 50% of the potential participants could not complete the program due to scheduling conflicts caused by the limited time-frame from initiation to conclusion of the

project. Nevertheless, the path with this project was detailed and helped me understand the importance of research and the role of DNP-prepared nurse.

Implications for Practice

A nurse practice scholar needs to have a fundamental and strong understanding of research design and interpretation in order to appraise and implement research-based evidence into practice and conduct clinical projects (Buchholz et al., 2013). At this point, I have met my learning objective as it relates to the AACN (2006) DNP Essential VI (Interprofessional Collaboration for Improving Patient and Population Health Outcomes). I am well on my way to becoming a leader who has transformed evidence into practice by educating staff nurses on fall prevention.

The most rewarding aspect of this project was the encouragement and support provided by nursing leadership and colleagues. It was also gratifying to be acknowledged for my efforts with placement of my teaching video on the *HealthStream* system. This recognition affirmed my leadership abilities and demonstrated the positive social effect that lead to the effectiveness of fall prevention education of nursing staff and the effect on patient outcomes expected by the organization in the future.

Summary

This doctoral project is a summative scholarly product that demonstrates the synthesis of academic work and achievement of Section VI of the DNP Essential (AACN, 2006), focusing on interprofessional collaboration to improve population health outcomes. The opportunity to apply this DNP Essential facilitated the translation of evidence into nursing and health care which, for this project, had the goal of

implementing staff education for the implementation of evidence-based fall prevention interventions.

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