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Nurse-Patient Ratios and Falls in the Acute Care Setting: A Staffing Educational Program

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Abstract

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by

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MS, Walden University, 2017

BS, Virginia Commonwealth University, 2015

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

The correlation between patient falls and nurse-patient ratios in acute care has been a prevalent topic for decades. The lack of nurse-patient ratio guidelines to direct nurse staffing has restricted nursing leaders' efforts to address this issue. The purpose of this staff education project was to educate nursing leaders on nurse-patient ratios and their association to patient falls. The practice-focused question centered on whether education would increase nursing leaders' knowledge about appropriate staffing ratios and practices to reduce falls at a long-term acute care facility. Rogers's diffusion of innovations theory was the change model used to guide this project. There were 11 participants including charge nurses, nurse managers, and nurse supervisors. A pretest was administered to assess participants' existing knowledge about staffing using current nurse-patient ratio guidelines, and a posttest was administered to assess their increase, if any, in knowledge after the educational program. At the conclusion of the project, participants completed a program evaluation. Descriptive statistics were used to compare and analyze the differences between the pre- and posttest scores. The project findings revealed an increase in participant knowledge. Pretest overall scores were 61%, and posttest overall scores were 97%. Conducting fall risk assessments and hiring ancillary staff and agency nurses were among the recommendations arising from this education project. The project's implications for positive social change include providing evidence that nursing leaders at the project site can use to revise nurse-patient staffing ratios and other staffing practices. Implementation of these measures may reduce falls in the long-term acute care unit and promote quality of care.

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Dedication

I dedicate this project to anyone and everyone who is passionate about creating social change in an ever-evolving health care system. This project is dedicated to those who put health care improvement before their own needs to create and sustain a better system for all of us. Last but not least, this project is dedicated to all those who make this project valid, relevant, and necessary. To those patients who have fallen in an acute care facility, with or without injury, I dedicate this project to you. It is because of you that evidence-based-practices are necessary and should remain ongoing. Thank you!

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I would like to acknowledge and give an outstanding honor to my Lord and Saviour from whom all blessings flow. He has provided me the ability to move along this turbulent journey triumphantly even amidst the storm. He provided me with the courage, wisdom, and strength to move forward each passing day even when I felt I could no longer move forward. He showed me that I encompassed a resiliency that I didn't know existed, one that enabled me to break through the barriers of obtaining this degree. I would also like to extend a sincere thank you to my committee chair, Dr. Barbara Barrett; thank you for believing in me and creating the vision when I couldn't see it. Thank you for your patience, dedication, and commitment to make such a dream come true. Dr. Melissa Rouse, thank you for the invaluable input that you brought through your expertise. Dr. Diane Whitehead and Dr. Joan Hahn, thank you for your assistance and input in making this project what it has become. I am forever grateful for everyone's efforts.

To my children, JaQuan and Christian, I love you. Thank you for your unwavering love and continued support through the long days and even longer nights I was away, trying to achieving this goal. I could not have done this without you. I love you. Lastly, to my friends, extended family, and colleagues who rooted for me, assisted in any way possible, and pushed me to carry on, I thank you with all that I have.

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Section 1: Nature of the Project

Introduction

There are 700,000 to 1,000,000 patient falls in acute care facilities across the United States annually (Centers for Disease Control and Prevention [CDC], 2016). Although not all falls result in physical harm to patients, they often sustain multiple injuries including bruising, head trauma, bone fractures, lacerations, and internal bleeding, resulting in an increase in the length of stay. The Agency for Healthcare Research and Quality (AHRQ, 2018) noted that an increased length of stay in turn creates an increase in health care utilization resources and increased health care expenditures.

Delirium, medications, inadequate assessment, lack of leadership, and deficiencies in the physical environment are some of the many reasons for patient falls. Inadequate staffing with increased nurse-patient ratios has also been highlighted as one of the key contributors (The Joint Commission, 2015). The topic surrounding nurse-patient ratios and increased patient falls has been discussed at local, regional, and national levels. With increased life expectancies across the United States and a rapidly evolving health care system, there has been an increased demand for nursing services, specifically nursing staff providing care within acute care inpatient settings (The Joint Commission, 2015). In efforts to keep up with such health care demands, facilities have increased nurse-patient ratios, which in turn has contributed to poor patient outcomes including increased fall rates (American Nurses Association, 2017). Yet, concerns about safe nurse staffing levels and the possible impact on patients, nurses, and hospital organizations

have challenged the nursing profession for decades (American Nurses Association, 2017).

Problem Statement

Nurse-patient ratios have become a mainstream issue in health care as patient outcomes and quality measures have steadily and detrimentally declined (Nurse.Org, 2018). This area of focus has gained the attention of policy makers, researchers, health care providers, and others at local, regional, and national levels. Inadequate staffing levels among experienced RNs are associated with higher rates of patient falls, urinary tract infections, pressure ulcers, increased length of stay, increased readmissions, medication errors, and even death, despite nurse experience (Nurse.Org, 2018). These staffing ratios have been deemed unsafe and have resulted in adverse events for patients throughout inpatient facilities (Nurse.Org, 2018). The National Nurses United (2019) stated that employers often decrease staffing to extremely risky levels in efforts to cut costs and increase organizational profits. Lower nurse to patient ratio assignments provide nurses with more time to spend with an individual patient, watch for subtle changes and pay attention to detail, and educate the patient, all of which reduces the risk for falls (National Nurses United, 2019). Higher nurse to patient ratios limit nurses' time and ability to do important things that prevent adverse events and increase patient safety.

Nursing leaders at the project facility have expressed similar concerns about staffing ratios and patient falls. According to a 2019 personal interview with the chief nursing officer (CNO), nurse-patient ratios are usually around 1:6 but have been as high as 1:7 if the charge nurse is not taking any patients during their shifts. According to

National Nurses United (2019), safe staffing practices reflect nurse-patient staffing ratios of 1:5. Despite every effort to reduce patient falls, patient falls still occur. This project may allow stakeholders within the acute care setting the opportunity to review current evidence-based practice data about nurse-patient ratios with the intent of improving patient care outcomes.

Relevance

Patient falls is a pressing health practice issue that continues to occur affecting patient care outcomes and their quality of life. The average economic burden of falls without injury within U.S. acute care facilities is $3,500-$4,500 per incident, while a fall with injury can carry an estimated cost of $14,000 (The Joint Commission, 2015). Yearly expenditures are considerable and have the ability to climb substantially in populations greater than age 65. Although a fall can be costly to treat, the mortality rate creates a more profound impact. According to the CDC (2018), the leading cause of injury-related death among U.S. adults age 65 and over is falls. Fall death rates among adults age 65 and over have increased by more than 30% from 2012 to 2018, an increase that was noted in 30 states including the District of Columbia (CDC, 2018).

Significance for Nursing

As nurse-patient ratios continue to reach unsafe numbers, the lack of knowledge and awareness of the correlation between nurse-patient ratios and fall rates tends to go unnoticed, dismissing the need to timely address this practice issue. Although existing research provides data that support recommended nurse-patient ratio guidelines, unsafe staffing ratios continue. Although no laws have been passed, official guidelines regarding

nurse-patient ratios have been implemented in several states including Connecticut, Illinois, Massachusetts, Maine, and New York, Ohio, and Texas. In January 2004, the State of California enacted AB-399, a nurse-patient ratio law mandating all of its facilities to reduce and cap the number of patients treated by nursing staff during a single shift (NursingLicensure.Org, 2020). AB-399 established numerically specific nurse-patient ratio guidelines for intensive care units, acute care units, acute psychiatry, and specialty hospitals in the state of California (Kasprak, 2004). The mandate for the intensive care units is 1:2; in labor and delivery units, it is 1:2; emergency rooms, 1:4; step-down units, 1:3; medical surgical units, 1:5, and psychiatric units, 1:6 (Kasprak, 2004).

Nurse-patient ratio guidelines established by National Nurses United (2019) include 1:2 in an intensive care unit, 1:3 on a step-down unit, 1:4 on a medical/surgical acute care unit, 1:4 on a psychiatric unit, 1:2 on labor and delivery units, and 1:5 in a rehabilitation facility. A potential increase in unit fall rates due to increased nurse-patient staffing ratios reinforces the need for this doctoral project (NursingLicensure.Org, 2020). This project may create awareness about this problem and provide a platform that educates stakeholders about the connection between increased nurse-patient ratios and falls, in an effort to reduce falls within the acute care setting. Implications include potentially promoting a safer patient hospital stay and increasing positive patient outcomes as well as increase nursing satisfaction.

Purpose

The purpose of this doctoral project was to provide staff education about the correlation between nurse-patient ratios and increased fall rates in acute care facilities. As part of the project, I provided in-depth education to nursing management personnel involved in nurse staffing assignments. This program increased their knowledge about how decreasing the nurse-to-patient ratio can assist and foster an environment that supports measures that will alleviate falls and fall risk. I drew from Walden University's *Doctor of Nursing Practice Staff Education Manual* in developing the project.

Gap in Practice

The increased fall rates within U.S. acute care inpatient settings attributed to unsafe staffing ratios represents a gap in knowledge that exists among health care administrators. Despite efforts to reduce patient falls, including efforts like color coded fall wrist bands and fall assessments on admission, patient falls still occur. Nurse-patient ratios at the project site, which is a long-term acute care (LTAC) unit and medical surgical unit, is typically 1:6 but sometimes have been as high as 1:7. According to National Nurses United (2019), safe staffing practices reflect nurse-patient staffing ratios of 1:4.

Although much of the debate and research surrounding the issue of hospital staffing focuses on RNs, many other professionals and support staff in patient care roles are also affected (National Nurses United, 2015). Collaborative efforts with physical therapists and occupational therapists are necessary in ensuring that smooth patient care transitions occur with each patient interaction (National Nurses United, 2019). Safe

staffing practices have notably improved patient care outcomes throughout the United States (American Nurses Association, 2019). As falls usually occur without warning, it is imperative, in addition to ensuring safe staffing ratios, to assess for the risk on admission and continue the assessment throughout the duration of the patient's inpatient hospital stay. I designed this doctoral project to identify the impact of nurse-patient ratios on patient falls. Specifically, I wanted to address the knowledge deficit of individuals who are responsible for staffing about the increased risk for falls related to high nurse-patient ratios.

Practice-Focused Question

Education is critical to initiating any change process within an organization (AHRQ, 2018). The extent to which one understands the magnitude of the practice problem about the correlation between nurse-patient ratios and fall rates can influence behaviors. The practice-focused question that I addressed in this project was, Will educating nursing leaders at a LTAC facility about nurse-patient ratios and the association with patient fall rates increase their knowledge of appropriate staffing ratios and staffing practices aimed at reducing or eliminating falls?

Addressing the Gap in Practice

In a very fast paced environment like an LTAC health setting, fall rates have the potential to continue to rise, underscoring the importance of addressing unsafe nurse-patient staffing (National Institutes of Health, 2016). The education provided to the CNO, nurse managers, nursing supervisors and charge nurses can potentially address the lack of knowledge, thus bridging this gap. BioMed Central Nursing Journal published a

longitudinal study demonstrating the close association between RN hours per patient day (HPPD) and patient falls. HPPD is the average number of nursing hours needed to care for each patient on a given unit in a 24-hour period (American Nurses Association [ANA], 2015). The literature revealed that an increase in RN HPPD by 22.9% decreased falls within an acute care setting by 18% within a 30-day period (He et al., 2016). The education provided by this project may inform nursing leaders at the project site about staffing protocols that may help to reduce falls in an LTAC setting.

Nature of the Doctoral Project

Falls can occur in any health care setting; however, there are internal or external risk factors that can contribute to the increased risk of those falls (AHRQ, 2018). It is imperative to identify and acknowledge those risk factors that contribute to the high fall incidence and implement measures to decrease those risks. The nature and purpose of this Doctor of Nursing Practice (DNP) educational activity was to educate nursing management about the importance of reducing patient falls through improved nurse-patient ratios, which may thereby reduce the existing knowledge gap. With this knowledge, leaders can reduce this gap in practice, which may foster an environment that facilitates fewer falls and, thus, improved patient outcomes.

Organizing and Analyzing the Evidence

Current literature and information collected from relevant data sources showcase correlations between nurse-patient ratios and fall rates. I searched for information from the World Health Organization, the National Quality Forum, AHRQ, the National Institutes of Health, and the Institute of Healthcare Improvement. Databases including

CINAHL, the Cochrane Database of Systematic Reviews, Medline, and EBSCOhost were used to find literature using the following search terms: *patient falls*, *nurse-patient ratios*, *unsafe staffing*, *nurse ratio*, and *guidelines*.

I used the Walden University Staff Education Manual and the American Association of Colleges of Nursing (AACN) DNP Essentials Manual in developing the project. Rogers's diffusion of innovations model was the theoretical framework for this project. Despite criticism, very little has been done regarding changing increased nurse to patient ratios that are deemed unsafe. Existing evidence of high falls related to high nurse-patient ratios supports the urgency to decrease nurse-patient ratios, which may improve patient safety. This may be done by educating those involved in staffing.

Significance

Stakeholders and Potential Impact

Leadership plays an integral role in the translation of evidence into practice, according to experts, who have identified the leadership role as key to ensuring that evidence is used in practice (Griffin & Otter, 2014). The CNO at the project site reviewed the information about increased falls and the relation to nurse-patient staffing ratios and, as a result, supported this project. Active attendance of all stakeholders within the project implementation site involved with staffing and determining the nurse-patient ratio was pivotal to the success of the doctoral education project. The stakeholders associated with the LTAC unit include the CNO, nurse supervisors, nurse managers, and charge nurses. Each stakeholder communicated their support for this project and the opportunity to create change in the practice environment. Those who actively contribute and partake in

the decision-making process feel a higher degree of ownership and obligation to the change effort as a sense of awareness develops (Griffin & Otter, 2014). Increased involvement from organizational leadership reflects the urgency of planned change (Griffin & Otter, 2014). Involving the stakeholders also gives each person their share of responsibility in the change effort. Each stakeholder was encouraged to contribute their own knowledge, skills, ideas, perceptions, and feelings during the education session. Allowing ample time for each stakeholder to project their feelings regarding the decision to decrease the nurse-patient ratio can create a profound impact and can eliminate the resistance that is often present. This collaborative decision-making and the reduction of resistance will align the efforts to improve staffing ratios and decrease the incidence of patient falls.

Although addressing the practice issue has the potential to create awareness and provide knowledge to all involved, barriers to implementing evidence-based practice frequently exist. The potential impact of addressing the local problem with stakeholders can be both negative and positive. The negative aspect of addressing the issue can create a sense of disruption to the normal work routine causing a lack of interest and further delaying change practices. However, the positive aspect involves potentially decreasing the nurse-patient ratio, which may decrease fall rates, promote positive patient outcomes, and improve quality of life for both the nurse and the patient, while also minimizing undesired health care costs.

Contributions to Nursing Practice

The doctoral project generates evidence that can be incorporated into nursing practice. Information from the doctoral project, if adopted into practice, can serve as a guide to stakeholders for safe staffing when formulating shift assignments. I designed the educational activity to heighten the awareness of essential personnel about safe nurse-patient ratios with the intent that they will implement that practice. Collectively, the project enables the health care industry to further advance the mission of providing quality care, increasing positive patient outcomes, and decreasing health care expenditures globally. This project aligned with the AACN DNP Essential II-Organizational and Systems Leadership for Quality Improvement and Systems Thinking and Essential VII-Clinical Prevention and Population Health for Improving the Nation's Health (AACN, 2006). Essential II assists DNP graduates with cultivating patient and health care outcomes, while eliminating health disparities and increasing patient safety and practice excellence (AACN, 2006). Essential VII focuses on risk reduction and illness prevention for patients including their families (AACN, 2006). Providing education to nursing leadership about current nurse-patient ratio guidelines to eliminate the potential for falls is in congruence with the stated Essentials.

Potential Transferability

The transferability of this project is high as goals to eliminate patient falls, regardless of the setting, exist for many organizations (National Nurses United, 2019). The setting in which the program was implemented is an LTAC unit, which is considered a medical surgical acute unit, that is currently being operated within another facility. The

LTAC is its own entity with its own leadership. Collaborating and disseminating education to other independent LTAC units and to nursing management teams of other units within the facility may raise awareness of safe staffing measures and help to reduce patient falls. This widespread dissemination effort supports the National Nurses United (2019) goal of eliminating patient falls in many settings. Providing the given information to other units within the organization may allow them to examine their current nursing practices regarding nurse-patient ratios and implement the necessary changes to reduce the risk of falls on their units. Distributing evidence-based practice data provides solid information, which practitioners can use to begin the change process**.**

Implications for Positive Social Change

According to Walden University (2018), positive social change is defined as a deliberate process of creating and applying ideas, strategies, and actions to promote the worth, dignity, and development of individuals, communities, organizations, institutions, cultures and societies. The issue of falls sustained within a health care facility has garnered global attention, and nurse-patient ratios have been identified as a significant factor related to fall rates (Lake et al., 2017). As falls are evaluated across the nursing profession, researchers and policy makers have examined key indicators such as RN composition, including nursing staff, nursing skill sets, nursing education, and experience, and the hospital's Magnet status (Lake et.al, 2017). When the multiple factors contributing to patient falls and patient safety are thoroughly assessed, hospital staff may be better prepared to make legitimate evidence-based recruitment and more effective staffing decisions across the United States (Lake et. al, 2017). This DNP education

project may help to positively contour health care by providing additional evidence that nursing leaders can use to potentially reduce falls on the LTAC unit and promote quality of care in nursing. Developing and implementing this project may address the issue of patient falls associated with nurse staffing ratios and advance health care thereby supporting Walden University's mission of promoting positive social change.

Summary

The incidence of falls associated with nurse-patient ratios remains high despite expanded efforts to decrease patient falls. The annual injuries sustained, the increased mortality, and increased economic burden severely diminishes patient outcomes and creates unnecessary expenditures for all involved. Better hospital staffing combined with evidence-based education has been associated with lower hospital mortality (ANA, 2019). When making shift assignments, management should consider educational preparation, experience, professional needs, and critical thinking aptitude. It is evident that there is a need to address the nurse-patient ratio in the United States as it has been shown to have a direct association with patient falls (ANA, 2019). In this doctoral staff education project, I sought to increase stakeholders' awareness and knowledge regarding safe nurse-staffing ratios and the potential impact on decreasing fall rates. In Section 2, I discussed the theoretical framework I used to guide this project and provide a more in-depth review of how increased nurse-patient ratios contribute to more patient falls.

Section 2: Background and Context

Introduction

Eliminating patient falls is critical to patient safety and is a key organizational initiative within U.S. health care. A single patient fall impacts both the patient and the health care organization from extended hospital stays, increased resource utilization, increased medical costs, and patient fatalities (Nurse.Org, 2018). Prompt assessment and timely preventative measures to decrease the risk of patient falls are key interventions to reversing the incidence of falls, research shows. Key initiatives such as evaluating staff shift assignments with a goal of safe nurse-patient ratios can significantly reduce falls. The closer health care leaders are to understanding the correlation between high nurse-patient ratios and increased incidence of falls, the quicker evidence-based practice changes in staffing ratios can be implemented.

Concepts, Models, and Theories

This staff education project imparted a foundation of knowledge about the effects of high staffing ratios on increased falls. The anticipated outcome of the education is that a change in staffing ratios will occur. According to Marquis and Huston (2009), change is often met with resistance, therefore, it was necessary to incorporate a framework that would not only allow change to occur in incremental stages but one that would facilitate a smooth transition within the organization. The model employed has prepared the staff for a transitional change on the unit with minimal disruption in everyday workflow. This change has the potential to alleviate the risk for falls on the unit thus improving patient outcomes. Rogers's diffusion of innovations model was the theoretical framework for this

project. This model is open access to the public, and permission is not needed for utilization.

Roger's Diffusion of Innovations Model

Planned change, which is a purposeful, calculated and collaborative effort to bring about improvements with the assistance of a change agent, is the most commonly adopted method to implement the change process (Marquis & Huston, 2009). Everett Rogers's diffusion of innovations theory has been identified as a practical theory to initiate and sustain change efforts in the workforce. According to Marquis and Huston (2009), the framework includes a five-stage process in employment settings:

- Stage 1: Imparting of knowledge in terms of the reason for change, how it will occur, and who will be involved.
- Stage 2: Persuasion of employees to accept change by relaying of essential information and formation of attitudes, both favorable and unfavorable.
- Stage 3: Decision-making regarding whether to ultimately adopt the change by analyzing the data and implementing a pilot study or trial of the new process triggered by the change.
- Stage 4: Implementation of the change on a more permanent basis as the organization evolves to accommodate the change.
- Stage 5: Confirmation of the adoption of the change by the employees responsible and affected by the change.

Using this theory allowed a systematic process and progress towards change in the practice environment, which was much needed. Although this change will extend beyond

this education project, arming the key stakeholders with the knowledge needed to discuss, plan, and implement change is integral to the change process.

This staff education project served as Stage 1, where knowledge will be disseminated to the nursing leaders who make staffing assignments. Stage 2 started as the nursing leaders obtained new knowledge about the impact high staffing ratios can have on falls. Stages 3-5 are outside the scope of this staff education project, but if this project leads to the adoption and implementation of a staffing ratios change, the leaders of the institution can incorporate Rogers's theory, which analyzes five personality traits of individuals to determine the level of success the change will have. The five personality groups are innovators (those who usually implement the changes), early adopters (those that adopt quickly to change), early majority (those who are cautious about change), late majority (those who are skeptical about change), and, last, the laggards (those who are very resistant to change; Sullivan & Decker, 2009).

Relevance to Nursing Practice

History

Advocates for nurse-patient ratios have committed themselves to the task of decreasing nurse-patient ratios to improve U.S. health care. In 2015, the ANA partnered with several organizations across the United States to explore the utilization of optimal nursing staff models to achieve improvements in patient outcomes (ANA, 2016). The collaborative effort emphasizes safe staffing measures to be implemented in all facilities to ensure the safety of all patients.

Current State of Practice and Recommendations

Today, unsafe nurse-patient ratios are considered a global care issue that requires continuous efforts by nursing administration to address the issue for both patients and nurses. The National Nurses United have established guidelines to create safer nurse-patient ratios. However, the underutilization of nurse-patient ratio guidelines within health care increases the risk for falls thus often increasing the gap in practice (ANA, 2016). The literature review reveals evidence that supports the need to decrease the ratio of nurses to patients being cared for during shift assignments. Modification of nurse-patient ratios have the potential to provide great benefit in health care practices. To reiterate, patient falls are an international health issue that not only impacts the patient, but healthcare as a whole (AHRQ, 2018). Established nurse-patient ratios lead to positive patient outcomes (National Nurses United, 2019). Nurse-patient ratio guidelines established by National Nurses United (2019) include 1:2 in an intensive care unit, 1:3 on a step-down unit, 1:4 on a medical/surgical acute care unit, 1:4 on a psychiatric unit, 1:2 on labor and delivery units, and 1:5 in a rehabilitation facility. Success is achieved for nurses, patients and health care organizations across the board when established nurse-patient ratio guidelines are implemented. The quality of patient care increases as the number of patients in a nurse's care decreases, and studies show that employing more nurses is cost effective for health care facilities in decreasing medical expenditures overall (Lake et al., 2017).

Strategies Addressing the Gap in Practice

Over the last decade, several organizations have made attempts to decrease patient falls by revamping guidelines that address nurse-patient ratios. Patient falls can occur any time during a hospitalization. One approach taken is the implementation of nurse-driven staffing committees that create staffing plans that are reflective of patient acuity and match the skills and experience of the nursing staff (ANA, 2016). The second approach is the mandating of specific nurse-patient ratios in legislation or regulatory bodies, and the third approach is mandating organizations to disclose staffing levels to the public or regulatory bodies (ANA, 2016). Hospitals that are certified to participate in Medicare are guided by the federal regulation 42CFR 482.23B (CMS, 2020). This regulation requires all hospitals to have adequate numbers of licensed RNs, LPNs, and other personnel providing patient care (ANA, 2016).

The ANA supports a statutory model in which nurses are authorized to generate unit specific staffing plans. This measure is an effort to create staffing plans that increase safety for patients based on the type of unit in which care is being provided. The approach assists nursing leaders in establishing flexible staffing ratios and takes into account additional factors within an organization that may include patient acuity, admissions, discharges, and transfers during a shift; level of experience; unit layout; resource availability; ancillary staff; and adequate technology (ANA, 2016).

Local Background and Context

Relevance of Practice Problem

Currently, 72% of inpatients sustain falls with injury while 48% of those patients sustain falls that result in a fatality within a 30-day period within the United States (CDC, 2016). Literature reveals that decreasing the nurse-patient ratio increases the nursing hours per patient per shift (National Institutes of Health, 2016). A cross-sectional study in which data were extracted from the 2004 National Database of Nursing Quality Indicators demonstrated that low RN hours per patient (HPPD) day was negatively associated with falls; an additional hour of RN care per patient day reduced the fall rate by 2% (National Institutes of Health, 2016). Patient falls are notably preventable, and the evidence in the literature is worthy of taking immediate action and implementing new guidelines to decrease fall rates. Creating new guidelines, policies, and protocols or simply incorporating existing evidence-based data into practice are means to support the effort.

Institutional Context

This doctoral project took place on a 34-bed LTAC unit within an acute care facility. Long-Term Acute Care Hospitals (LTAC) or units also referenced as LTAC hospitals or units specialize in treating critically ill patients who require extended treatment in hospital settings (FAH.org, 2021). These facilities are certified as acute-care hospitals with patients who, on average, stay more than 25 days, have the potential to improve, and thereafter transition to home (Medicare.gov, 2019). Individual LTAC units are sometimes housed in acute care hospitals but can be separate entities with their own

governing body like the unit utilized for this staff education project. LTACs, because they are acute care units, should follow the recommended acute care staffing ratios of 1:4 rather than the current staffing ratios of 1:6 and sometimes 1:7 that currently prevail. Participants who attended the education session included all health care personnel who are responsible for creating staffing shift assignments. This included the unit nurse managers, nursing supervisors, and charge nurses. Due to change in the administration structure, the CNO did not participate but was replaced with another nursing leader. During an assessment, I found that there was a lack of awareness and very little knowledge regarding the correlation between nurse-patient ratios and falls. This content was included in this staff education project. In their research, Lake et al. (2017) found that only 26% of nurses felt that patient falls were due to nurse-patient ratios while 74% felt that the falls were associated with patient age, medications, mental capacity, and patient acuity. In addition, 38% of nurses failed to complete the required fall risk assessment at certain intervals such as on admission, between transfers, and on administering a new medication, often due to various reasons including high nurse-patient ratios (Lake et al., 2017). This lack of knowledge of the correlation between falls and nurse-patient ratios, which is reflected in the literature, was the foundation of the educational program.

Within the institution where the staff education project was implemented, there were no staffing guidelines for assigning nurses patients other than those patients requiring nurses with major skill sets such as being able to perform peritoneal dialysis or care for vented patients. Also while making the shift assignments, charge nurses take into

consideration whether the nurse cared for the patient on previous consecutive shifts to provide continuity of care. The education provided to those involved in staff assignments may not only foster a safer practice environment but increase positive patient outcomes. All health care practitioners have the ability to promote and lead change within healthcare settings as they continue to care for patients who are at risk for falls (Welton, 2017).

Definition of Terms

Following are key terms that will be used within the context of this DNP project for added support:

Acute care facility: A facility that provides inpatient medical care and other related services for surgery, acute medical conditions or injuries, usually for a short-term illness or condition (Centers for Medicare & Medicaid Services, 2015).

Long-term acute care (LTAC) facility: A facility that is certified as an acute-care hospital with a focus on patients who on average stay more than 25 days (Centers for Medicare & Medicaid Services, 2015).

Nurse-patient ratio: The number of nurses on a particular floor, ward, or unit to the number of patients (National Institutes of Health, 2018). Another definition is the total number of RN hours divided by the sum of patients during a shift (The Joint Commission, 2015).

Nurse-patient staffing ratio: The minimum number of nurses to safely care for a certain number of patients (National Nurses United, 2019).

Patient fall: An unplanned descent to the floor with or without injury to the patient (AHRQ, 2018)**.**

Practitioner: An individual who is licensed or otherwise authorized by a state to provide health care services; the term may also be used by individuals who, without authority, claim to be licensed or authorized (U.S. Department of Health and Human Services, 2019).

Role of the DNP Student

Professional Context and Relationship

As the DNP student that implemented this project, it was necessary for me to create awareness regarding nurse-patient ratios and the correlation to patient falls. Addressing the incidence of patient falls and closing this practice gap is of significance to me because while working on a post-op surgical unit, as a RN, I witnessed a patient fall that resulted in the patient being transferred to the ICU. Two weeks later the patient died from complications related to the fall. The 67-year-old male patient was admitted to the unit after undergoing a right hip arthroplasty and was 1-day post-op prior to the incident occurrence. The premature death was devastating to the patient's family and friends especially as it could have likely been prevented. During the debriefing of the incident, the nurse felt that her patient load was "too heavy" as she was caring for 6 patients and she stated she was not adequately trained to care for the level of acuity of her patients. Typically, acuity is taken into consideration, however, due to severe nursing shortages, acuity is not always prioritized when staffing assignments are being developed. As the

discussion continued, all stakeholders understood fall risk modalities but had very limited awareness of how nurse-patient staffing guidelines impact fall rates.

Role in Doctoral Project

In this DNP project, I served as the project leader responsible for providing a staff education project that may result in change. Providing evidence-based information can be the first step towards change. Therefore, as a certified RN and DNP student, my role in the doctoral project was to develop a staff education program that will increase the knowledge and awareness of the CNO, unit nurse supervisors, nurse managers, and charge nurses regarding utilizing nurse-patient staffing guidelines on the unit. My hope is that this staff education project will prevent or decrease fall rates, reduced the economic burden, improve patient quality of life and increase positive patient care outcomes allowing patients to live longer and more meaningful lives. Creating such a change within one facility, provides the opportunity to disseminate information to generate change in other facilities locally, regionally, and nationally.

Summary

It is inevitable and without question that health care providers play an integral role in shaping health care and its practices for all patients (Marquis & Huston, 2009). As health care continues to evolve, we must be willing to question current practice and re-invent the wheel with new and modern innovations, as needed. Much of this questioning can be achieved through continual assessments within our practice settings and evaluating current evidence-based practices. This doctoral project began that process as it aimed to increase awareness and assess knowledge about nurse-patient ratios to assist in

decreasing the practice gap. Moving forward to section 3: Collection and Analysis of Evidence provided the methodology of the doctoral project. In section 3, I will focus on addressing the gap in practice and generating the evidence to address the practice-focused question.

Section 3: Collection and Analysis of Evidence

Introduction

Nurse-patient ratios are an issue within the U.S. healthcare industry that have gained the attention of local, regional, and national health care officials. Advocates continue to speak out against nurse-patient ratios that have been thought to negatively impact quality measures such as increased falls within the inpatient population. As health care demands increase and health care budgets decrease, staff assignments have resulted in inflated nurse-patient ratios (Nurse.Org, 2018). Inadequate staffing ratios have been associated with increased fall rates resulting in lengthier hospital stays, poor prognosis, increase in family role strain, cumulative economic burdens on health care, and in worst cases, preventable mortalities (Nurse.Org, 2018).

Using Rogers's diffusions of innovation model, I sought to increase participants' awareness and knowledge about the association between fall rates and increased nurse-patient ratios. Fall risks should be continually assessed throughout the inpatient stay. Early assessment and implementation of prevention measures are critical to improving fall rates and patient outcomes. In my experience, I have found that when the nurse patient ratio is increased, nurses are not able to adequately assess or round on patients, which increases the risk for falls. As fall rates continue to rise, the need to educate nursing leaders and close the knowledge and practice gap is evident. I have witnessed detrimental incidents that have resulted when nurses were given a staffing assignment that was greater than the National Nurses United (2019) guideline of 1:4 on a medical/surgical acute care unit.

Practice-Focused Question

Gap in Practice and Focused Question

Patient falls contribute to an alarming 63% of injuries in the inpatient setting (AHRQ, 2018). The objective of the doctoral project was to increase awareness about safe nurse-patient ratios and to address the existing lack of knowledge. This project included current practice guidelines that exist to improve patient safety in the acute care setting. Patient safety is a responsibility that lies with all providers and health care staff who participate in rendering health care services. Several organizations, including the CDC, the World Health Organization, and AHRQ, have contributed to the initiative of creating better nurse-patient ratios. The practice-focused question that I sought to address in this educational program was, Will educating nursing leaders at an LTAC facility about nurse-patient ratios and the association with patient fall rates increase their knowledge of appropriate staffing ratios and staffing practices aimed at reducing or eliminating falls?

Educating the stakeholders can facilitate conducive learning where fall risks are decreased and possibly eliminated. As awareness regarding nurse-patient ratios are increased, the information obtained can be applied to daily practice ensuring early intervention. This educational project, guided by care essentials from one of the leading educational organizations, the AACN, highlights the principles of practice management, including conceptual and practical strategies for balancing productivity with quality care (AACN, 2006).

Sources of Evidence

A variety of literature and data sources provided information regarding the incidence of fall rates and the alignment with nursing staffing within an LTAC facility. To find sources with evidence-based data, I searched databases such as CINAHL, the Cochrane Database of Systematic Reviews, Medline, and EBSCOhost. Other sources of evidence included organizations such as Hospital Compare, the National Quality Forum, the CDC, the World Health Organization, the National Institutes of Health, and the AHQR. Additional data sources included department fall rates as well as current staffing ratio practices. Information derived from these sources provided quality data that demonstrate the correlation between nurse-patient ratios and fall rates within an inpatient facility and support the premise that high nurse-patient ratios have the potential to negatively impact fall rates.

The collection and analysis of evidence supported the practice-focused question by providing information that reflects the association between increased nurse-patient ratios and patient falls. I used the data collected to show the current standards and guidelines that can enhance current practice on an LTAC unit. Information presented in the doctoral project demonstrated a practice deviation from current nurse-patient ratio guidelines and standards and a recommendation to follow evidence-based practice guidelines for nurse-patient ratios. The evidence presented highly supports the need for an educational program relating to staffing that aligns with current staffing guidelines as the nurse-patient ratio on the unit often exceeds 1:6. Additionally, evidence was derived from witnessing a fall that occurred on the acute care unit and the resulting harmful

effects from that fall on a day that staffing reflected an increased nurse-patient ratio. Witnessing that patient fall led me to review organizational data about other patient falls, fall prevention efforts, and the nurse-patient ratios during the occurrence of falls, all of which provided further motivation to complete this project.

Evidence Generated for the Doctoral Project

In assessing unit practices for nurse-patient ratios on the unit, I found organizational data that revealed that there was lack of utilization of standard guidelines. Literature emphasizes that initial change begins with the unit that has the greatest impact and influence on initiating change and in areas of an organization in which the gap in knowledge is greatest (AHRQ, 2013). Initiating change in the form of short-term goals decreases the margin for error; in turn, the success of implementation creates change that is not only sustainable but permanent (Kotter, 2018). This project serves as the first step to initiating change by increasing nursing leaders' knowledge about safe nurse-patient ratios to prevent falls.

Participants

The participants in this staff education project were those who are able to initiate change within the unit and/or are directly involved with creating the nurse-patient assignment for staff nurses. Participants included the organization's nursing administrators and managerial team that included three nursing supervisors, two-unit nurse managers, and five unit charge nurses totaling 11 participants. Initially the CNO was involved and supportive of the project, but due to leadership changes, she was not able to attend the education. I sent an email invitation that included information about the

project to the potential participants inviting them to the educational activity. The CNO highly encouraged the educational activity; however, due to the current pandemic and the resulting staffing limitations, the PowerPoint, pre- and posttest, and program evaluation were sent via Survey Monkey to the target participants.

Procedures

The approach for the doctoral project was a staff educational learning activity that addressed safe nurse-patient ratios within the LTAC setting and showed the alignment of unsafe ratios to increased falls. The curriculum for this educational program included goals and objectives that were aligned with Stages 1 and 2 of Rogers's diffusion of innovations theory, the theoretical framework for this project. I included the remaining stages of Rogers's diffusion model in the project recommendations for future implementation. An expert panel at the organization, which consisted of two masters-prepared RNs, the CNO, and a nursing supervisor, reviewed the educational program as well as the pre- and posttest to ensure that the content aligned with the objectives and goals. No changes were recommended. The alignment of the program curriculum with Rogers's theory is reflected in Appendix A.

Due to the current COVID-19 pandemic, I conducted this educational activity virtually rather than face-to-face as originally planned. This project involved providing participants with an online educational session that would take less than 60 minutes to complete and was available over a 2-week period. This was chosen at the request of the CNO, due to the inability to gather all participants at once because of the current global health crisis which requires social distancing. The pretest, posttest, and program

evaluation were built in Survey Monkey, which is a virtual data collection platform. The educational program invitation and content was delivered over a series of three emails including the program instructions and program documents. The program documents included a link to complete the pretest; the educational program, which was in PowerPoint form; the posttest; and the program evaluation. The pre- and posttest were conducted to assess participant knowledge about nurse-patient ratio safety prior to the educational session and to reassess knowledge on completion of the educational session. The pre- and posttest scores are reflected in Appendix B. The program evaluation was conducted to evaluate satisfaction with the education program. Participants were instructed to complete the program evaluation after viewing the educational activity and taking the posttest. The program evaluation is shown in Appendix C. The PowerPoint presentation of the educational program can be found in Appendix D.

The education program included information about the relationship between nurse-patient ratios and patient falls with supporting statistics, guidelines that are currently being used in acute care settings, and the economic burden of falls on both the patient and the healthcare industry. Additional content that was provided in the educational sessions included information on two national safe patient ratio bills currently in the Senate, S. 1357 (Brown) and the House HR 2581 (Schakowsky), that relate to improving nurse-patient ratios and federal nurse-patient ratio best practice guidelines according to the National Nurses United and National Database for Nursing Quality Indicators. Participants were encouraged to email me to ask questions and share comments within the 2-week project period. I responded via email.

Protections

To support this project, I obtained approval from the intended project implementation organization, which I provided to the Walden University's Institutional Review Board for additional approval prior to implementing the project. The project did not include any patient participants. Confidentiality was strictly maintained. Project participants were reminded that names should not be included on any project document. Participants were given a unique identifier to be used on the pretest and posttest. Participants were informed that participation was highly encouraged by the CNO but voluntary and that withdrawal from the educational program could occur at any time during the project. Participants were also informed that completion of the pretest served as consent to participate in the education project. To ensure confidentiality, I handled all participant data. All project data and information were maintained via a password protected computer accessible only to me. Project data will be stored for one year as specified by the Walden Institutional Review Board.

Analysis and Synthesis

Data collection for this project included the pretest, posttest, and program evaluation. I synthesize and analyzed the pre- and posttests and the program evaluations using results generated from Survey Monkey. The results yielded a report used to describe if there was improvement in participant knowledge about fall prevention after attending the education session. Data outcomes are shared in Section 4.

Summary

Nurse-patient ratios have generated much debate across the United States about what is considered safe-staffing for medical/surgical acute care units. Nursing leaders are responsible for deploying adequate staffing and other resources to support the delivery of safe, high-quality, and cost-effective patient care (Butler et al., 2019). I undertook this educational project to increase the awareness and knowledge about the link between patient falls and high patient ratios of those responsible for staffing the unit. Implementation of this educational project included a PowerPoint presentation. Participant knowledge was assessed using pre- and posttests. The project findings are analyzed, synthesized, and discussed in Section 4.

Section 4: Findings and Recommendations

Introduction

Falls, a preventable issue in the hospital setting, occur at an alarming rate. Nurse-patient ratios are a documented factor that impact patient falls (ANA, 2015). Charge nurses, nurse supervisors, and nurse managers play an instrumental role in creating staff assignments to help with fall prevention. As health care essentials, it is vital that these leaders are engaged in fall prevention and able to employ the necessary education, protocols, and policies to reduce the incidence of falls in facilities. As the incidence of falls continue to rise in health care, it is important to continue to identify and eliminate risk factors that contribute to the growing number of falls. Falls often create a physiological, psychological, and economical burden for patients, families, health care organizations, and policy makers (Donna et al., 2017).

In review, the purpose of this doctoral project was to provide education to the participants, those individuals in charge of scheduling and making staffing assignments, to enhance their awareness regarding the correlation between nurse-patient ratios and fall rates. The practice-focused question was, Will educating nursing leaders at an acute care facility about nurse-patient ratios and the association with fall rates increase their knowledge of appropriate staffing ratios and staffing practices aimed at reducing or eliminating falls? Increasing the nursing leaders' knowledge about the correlation between nurse-patient ratios and falls may result in a reduction in the organization's fall rates through the adoption of standard staffing guidelines.

Evidence and Analytical Strategies

I collected the evidence for this project via a pretest, posttest, and a program evaluation. The participants included 11 RNs varying from charge nurses, nurse supervisors, and nurse managers, all employed on a 34-bed LTAC unit. Each participant completed a pretest to assess existing knowledge and viewed an 18-slide educational PowerPoint presentation consisting of information regarding the association between nurse-patient ratios and falls. After reviewing the PowerPoint presentation, participants completed a posttest and program evaluation. I used descriptive statistics to analyze the data collected. Analysis involved measuring the increase in participant knowledge about appropriate staffing ratios and staffing practices by comparing the pretest and posttest scores. The program evaluation responses were analyzed to determine the effectiveness of the program in meeting the program goals.

Finding and Implications

The pre- and posttest each consisted of seven questions averaging 14.3% per question for a total of 100%. In evaluating the pre- and posttests scores, it was apparent that the participants had some prior knowledge of staffing ratios and falls but there was significant room for improvement. When the pretest scores were analyzed, the participants' group average score was at 61% out of 100%. An analysis of the posttest scores revealed the participants' group average score was 97% out of 100%.

For the pretest, the participant responses reflected in Questions 4 and 6 revealed a gap in knowledge. In question 4, it was revealed that only 18% (n = 2) had knowledge about the proposed federal RN ratio guidelines according to the National Nurses United

and in question 6 that none of the participants, 0% (*n* = 0) knew what percentage of patient falls are attributed to nurse-patient ratios (see Table 1).

The graph analysis shown in Figure 1 depicts the participants' knowledge before reviewing the education PowerPoint presentation. Awareness and knowledge increased among all participants, from 61% out of 100% possible on the pretest to 97% out of 100% possible on the posttest (see Figure 1). Table 2 depicts the results of the course evaluation. Out of the 11 participants, only 9.09% (*n* = 1) "somewhat agreed" that teaching aids and visuals were effective for learning. However, 90.09% (*n* = 10) of the participants "strongly agreed" that the education program was 100% effective.

Figure 1

Descriptive Analysis of Pretest and Posttest Scores

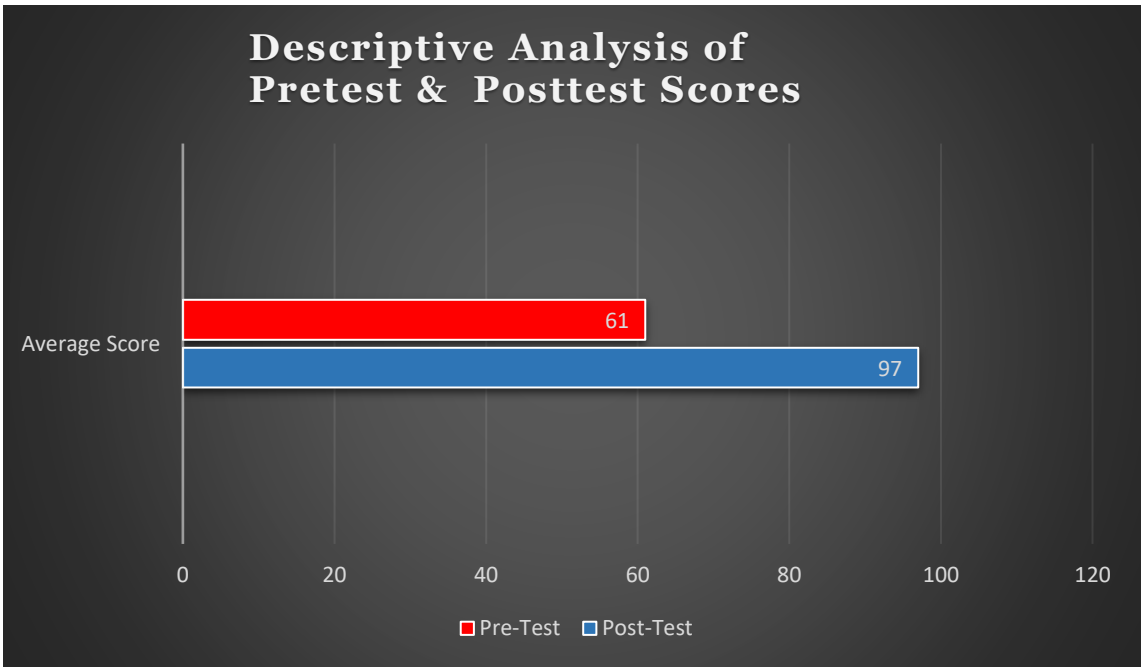

Table 1

*Pre- and Posttest Results per Question (*N= *11)*

Questions	Pretest % correct	Pretest % incorrect	Posttest % correct	Posttest % incorrect
Q1. True/False: Nurse-patient ratios play a major role in patient falls within acute care facilities.	100	0	100	0
Q2. True/False: According to the National Nurses United Association, the proposed federal RN to patient ratio is 1:6.	36.36	63.64	100	0
Q3. True/False: Rogers Diffusion of Innovation theory contains 5 parts to implement change within an organization.	9.09	90.9	90.91	9.09
Q4. _____ is the only state to enact staffing ratio laws in the United States.	18.18	81.82	100	0
Q5. The average annual cost of patient falls for both fatal and nonfatal incidents total?	36.36	63.64	100	0
Q6. What percentage of patient falls are attributed to increased nurse-patient ratios?	0	100	90.91	9.09
Q7. What can substitute quality nursing care?	81.82	18.18	100	0

Table 2

*Percentage for Program Effectiveness (*N = *11)*

Evaluation criterion	1 Strongly agree (%)	2 Somewhat agree (%)	3 Neutral (%)	4 Somewhat disagree (%)	5 Strongly disagree (%)
1. Content presented was clear and organized.	100	0	0	0	0
2. Teaching aids and visuals were effective for learning.	90.91	9.09	0	0	0
3. Teaching style and delivery method were effective.	100	0	0	0	0
4. Content met stated objectives.	100	0	0	0	0
5. Content presented was applicable to the problem and to nursing practice.	100	0	0	0	0

Unanticipated Limitations

As a result of the COVID-19 pandemic, there were a few changes that had a potential impact on the project findings. The first limitation included a change in the administration team at the facility that led to the CNO no longer being my key contact. This change resulted in the need for a second approval process to conduct the project at the institution. As a result of the change, the original CNO was not able to participate in the project. However, the CNO was replaced with another nurse manager from the unit who was aware of the project and participated in the education program. The change in leadership may have had an impact on the participation as the CNO was very supportive of this project. Another limitation is the current nursing shortage. Despite organizations wanting to follow lower nurse-patient ratios, many have nurse vacancies. The ANA (2015) estimated that by the year 2022, there will be approximately 100,000 RN job vacancies per year in the United States, which is far greater than any other profession. With more than 500,000 seasoned RNs anticipated to retire by 2022, the U.S. Bureau of Labor Statistics projects the need for 1.1 million new RNs for expansion and replacement of retirees (ANA, 2015). In addition, the volume and acuity of patients continue to rise. Even after receiving the education about how nurse-patient ratios impact patient falls, the nursing administrators may be challenged to put their new knowledge into practice. Even with good intentions, they may not be able to make lower nurse-patient ratio assignments to prevent falls.

Implications to Positive Social Change

The findings of the staff education project support the practice gap relating to the lack of knowledge of the participants about staffing ratios as they relate to falls. The project findings demonstrate the increased participant knowledge and awareness after reviewing the education content regarding the correlation between high nurse-patient ratios and falls. The project can create positive social change in the acute care environment and benefit patients, their families, and the organization. This project serves as a resource to assist the nursing leaders with implementing staffing ratio guidelines in an effort to decrease falls in a LTAC setting. The project findings can assist the organization's administrators in implementing staffing ratio guidelines that may decrease falls and subsequently decrease length of stay and increase quality of life for patients. In addition, this information can decrease caregiver role strain. It can also potentially reduce the economic burden for organizations by reducing falls, as they are not reimbursed for injuries related to a patient fall.

Recommendations

Nurse-patient ratios and fall rates are a topic of concern and discussion within the health care organization. In order to address the gap-in-practice, there are several recommendations that can support this need. It is essential that a thorough fall risk assessment is completed on admission and between unit transfers on each patient. As a part of the risk assessment, the nurses should identify fall risk factors including previous fall history, polypharmacy, existing chronic illness, physical, mental or environmental factors (Lee et al., 2014). It is recommended that the organization hire agency travel

nurses to fill the deficit of nursing staff. Even if administrators want to create lower nurse-patient ratio assignments, they are hindered by the number of RN vacancies and the growing volume of patients. With the reality of the current nursing shortage, another recommendation is to utilize ancillary staff to assist nursing staff with hourly rounding on patients to help improve safety. Lastly, continuing to educate everyone involved in the process is critical so there is awareness. This can be completed via continuing education courses or online resources such as Medscape, Up-to-date, or Epocrates. These resources allow quick and easy access to information regarding practice issues and are available on hospital computers as well as via mobile application. Health care providers including physicians, nurse practitioners, nurses and ancillary staff can assist in educating patients and families about how they can help with fall prevention. It is imperative to assess the practice issue from all angles and utilizing all employee resources can aid in facilitating positive patient outcomes.

Strengths and Limitations of the Project

The staff education project was conducted utilizing 11 nursing personnel from a LTAC unit. One of the strengths identified in implementing this project was there was no financial cost to the organization. The nurses completed the education on work time as part of their normal workday. An additional strength was the willingness and active engagement of all participants. Each participant responded and participated in the pretest, education, post test and evaluation in less than 3 days despite the two-week time frame allotted. Another strength was using Rogers's diffusion of innovation theoretical framework. The framework allowed for maximum structure and organized

implementation. Lastly, the effectiveness of the education project was apparent as the findings revealed that the intent and purpose of the project were both achieved and beneficial.

While there were strengths, there were also limitations. One limitation identified was the change in delivery method due to the COVID-19 pandemic. The education delivery method was changed from a live class which could support discussion and question and answer time for the participants, to an online forum utilizing email for the pretest, education content, post test and evaluation. Another limitation was that the staff education was limited to only one unit, an independently run unit in the facility, and not the entire facility. High nurse-patient ratios and falls are problematic throughout the facility and it would have been beneficial to reach a larger audience with the education. Future project recommendations addressing similar topics using similar methods include presenting the education project via a live audience as well as presenting to multiple units within the facility.

Section 5: Dissemination Plan

Introduction

Plans to disseminate this work to the institution involve encouraging all participants involved to apply the information obtained from the staff education project to current practice. To disseminate project information, I will make the PowerPoint presentation available to everyone who wishes to obtain it. The education presented in the project can also be used during daily huddle-meetings prior to start of the shift as well as within in-service education meetings held quarterly on the unit. The American Organization for Nursing Leadership would be an excellent venue to publish a manuscript with the findings of this staff education project. Additional opportunities for dissemination involve presenting the project material at local clinics; hospitals; conferences; and local, regional, and state nursing organizations targeted to nursing leaders. Expanding this staff education to other independently run LTACs or nursing units may increase the potential for positive outcomes in units that are operated locally and nationally.

Analysis of Self

Throughout my journey in reviewing the literature and implementing the doctoral staff education project, I have grown both personally and professionally. This project has allowed me the ability to enhance my communication skills, both written and oral. As a scholar, developing and implementing this project has allowed me to expand my thought process and think critically about the practice issue locally, regionally, and globally. As a project manager, addressing this practice issue allowed me the ability to identify current

issues in health care. Furthermore, I was able to use a stepwise approach to design, plan, build, and implement this education because of the detailed project process, which helped to enrich my thinking. These skills will allow me to facilitate future projects that have the potential to eliminate the practice problem. As a leader, constructing this staff education project provided me with the opportunity to expand my leadership abilities as well as to work collaboratively with an exquisite group of team leaders to promote safer outcomes for current and future patients. Creating safe patient staffing ratios as well as reducing fall rates within organizations are among the many issues I have been an advocate for throughout my nursing career as well as in this project.

This project brought me unwanted, yet necessary, challenges and changes that I had to embrace and persevere through in order to see the bigger picture and accomplish the intended objective. COVID-19 was a huge barrier that brought about many struggles; however, my willingness and dedication to the greater good allowed me to carry on, remain resilient, and continue my quest to promote social change. Although I faced varying obstacles, it was important to me to continue to strive for improved patient outcomes not only for the facility but more so for the patients, their families, and health care as a whole.

Summary

Nurse-patient ratios play a fundamental role in occurrence of patient falls (Coppedge, 2016). It is crucial to patient care that nursing leaders continue to educate everyone on the importance of nurse-patient ratios to increase and sustain awareness about the impact staffing ratios can have on patient falls and overall outcomes. The

project findings of increased participant knowledge from the pretest to the posttest demonstrate that continuing education is effective and can positively impact improved patient outcomes. As caregivers, nurses must exert due diligence in maintaining patient safety for those in their care. The negative effect of patient falls is felt along the continuum beginning with each individual patient who fell and extending to their families who are left to care for them, the staff who were caring for them when they fell, and the organization in which they are being cared for after the fall. This project may contribute knowledge that helps nursing leaders to address the issue of patient falls through more effective staffing ratios, with potentially beneficial impacts for patients, their family members, nursing staff, and healthcare organizations.

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Appendix A: Educational Program Curriculum

Rogers's diffusion theory	Program objectives	Program goals
1. Imparts knowledge in terms of the reason for change.	Discuss the five parts to Rogers's innovation theory. Discuss current problems of high nurse-patient ratio and the impact on patient falls, nationally and locally at the site.	Understand Rogers's innovation theory and its application to nursing practice. Understand the implications of nurse-patient ratios to current practice.
2. Relaying essential information. Noting favorable and unfavorable attitudes. Persuades employees to accept change.	Discuss current problem and impact on patient falls. Discuss hospital nurse staffing models. Discuss benefits of implementing a staffing guide for the unit. Explain current legislative bills in the Senate and House Describe nurse-patient ratio guidelines according to National Nurses United.	Enhanced knowledge regarding the correlation between nurse-patient ratios and fall rates and benefits of change.
3. Analyzing the data; decisions whether to adopt the change, consider implementing a pilot study.	Discuss readiness for change based on organizational data. Discuss and develop plans for change. Discuss adopting and implementing change – a pilot study.	Understanding nurse-patient ratios that follow National guidelines and current practice data and the potential change.
4. Implements the change as the organization evolves to accommodate the change.	Discuss adopting and implementing change. Develops plans to accommodate and move toward change adoption.	Understands the components that support implementation of permanent change.
5. Confirms the future adoption of the change by those responsible and affected by the change.	Confirms change plans. Adopts permanent change plans.	Considers and understands practice change adoption.

Appendix B: Pre-Posttest

Topic Title**:** Nurse-Patient Ratios and Fall Rates

Participant ID: _____

Completion of this pre-posttest serves as your consent to participate in this educational program. Please, do not include your name on this pre-posttest document; for identification purposes, each pre-posttest will be numbered. Thank you.

True/False

1. Nurse-patient ratios play a major role in patient falls within acute care facilities. _____

2. According to the National Nurses United Association, the proposed federal RN to patient ratio for an acute care setting is 1:6. _____

3. Rogers Diffusion of Innovation theory contains 5 parts to implement change within an organization. _____

Multiple Choice

4. _____ is the only state to enact staffing ratio laws in the United States.
   A. North Dakota
   B. Washington State
   C. Atlanta
   D. California

5. The average annual cost of patient falls for both fatal and nonfatal incidents total_____
   A. $50 Billion per year
   B. $26 Million per year
   C. $90 Thousand per year
   D. $45 Million per year

6. There are approx. 850,000 annual falls according to the National Quality Forum. What percentage are attributed to increased nurse-patient ratios?
   A. 15%
   B. 28%
   C. 50%
   D. 12%

Fill in the Blank

7. _____ can substitute quality nursing care.

Appendix C: Program Evaluation Form

Topic Title: Nurse-Patient Ratios and Fall Rates

(Please circle the number to indicate your level of agreement/disagreement. (1 Strongly Agree, 2 Somewhat Agree, 3 Neutral, 4 Somewhat Disagree, and 5 Strongly Disagree)

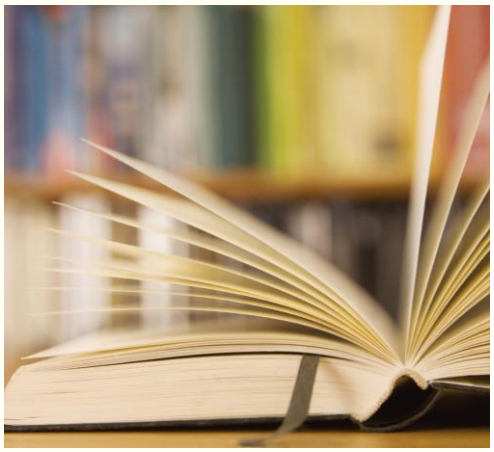
1. Content presented was clear and organized.	1	2	3	4	5
2. Teaching aids & visuals were effective for learning.	1	2	3	4	5
3. Teaching style and delivery method was effective.	1	2	3	4	5
4. Content met stated objectives.	1	2	3	4	5
5. Content presented was applicable to the problem and to nursing practice.	1	2	3	4	5

Appendix D: Educational PowerPoint

NURSE-PATIENT RATIOS & FALLS IN ACUTE CARE

A Staffing Educational Program

Trinia Williams AGACNP-BC



Introduction

- There's an estimated 700,000 to 1,000,000 patient falls within acute care facilities nationwide.
- Not all result in INJURY……..
- 22% of patient falls occur without injuries in the inpatient setting.
- However, 72% of those falls result in injury including head trauma, bone fractures, lacerations, internal bleeding from organ injury, and a decreased quality of life.
- Eliminating falls: critical to patient safety and key organizational initiatives.

Introduction

- Increased nurse-patient ratios have been deemed one of the leading causes of patient falls in the acute care setting amongst many other risk factors.
- Fall risk factors: delirium, medications, inadequate assessment.
- Adequate nurse staffing: a very complex process that changes on a shift-by-shift basis.
- As the health care demand has increased, so has the nurse-patient ratio, in efforts to meet health care needs.

PROBLEM????

- 15% of patient falls are associated with inadequate staffing.
- Employers utilize increased ratios to cut costs & increase organizational profits.
- The impact is felt across the continuum.
- Patient: Injury, decreased quality of life or DEATH.
- Family: Increased caregiver role strain.
- Hospital: Increased economic burden and yearly expenditures.
- Annual costs include $45 million per year.

PROBLEM???

- The incidence of fall rates has continued to rise.
- The Gap in Practice has continued to increase.
- Thus creating an exponential increase in detriment to:
- PATIENT
- FAMILY
- HEALTH CARE

Sources of Evidence

World Health Organization

Centers for Disease Control

National Institutes of Health

Agency for Healthcare Quality and Research

National Quality Forum

Institute of Healthcare Improvement

INDEPENDENT

STUDIES

Study #1

- What: Nurse-Patient Ratio and Fall Rates Retrospective Study
- When : July 2004 to December 2004
- Where: Southeastern suburban Hospital in United States
- Method: Study reviewed prior patient data and factor analysis using mixed effect model.
- Background: 5 month review of N-P ratios and fall data on an acute care unit.
- Results: 12% increase in patient falls with a 32% spike in months August through September as staffing critically low.
- Conclusion: Adequate staffing is an essential factor that weighs heavily on patient falls in the acute care setting.

Study #2

- What: Nurse-Patient Ratio and Fall Rates Retrospective Study
- When : July 1, 2006 to September 30, 2010.
- Where: Medical surgical, critical care, post-op surgical units in 1263 hospitals in United States.
- Method: Data retrieved from NDNQI database that reviewed falls and N-P ratio synchronously.
- Results: Total falls 315,817 during study period, 36.1% resulted in injury when staffing numbers exceeded the National Proposed Federal Guidelines
- Conclusion: Increased N-P ratios have a significant affect on patient outcomes.

Study #3

- What: Nurse-Patient Ratio and Patient Outcomes Prospective Study
- When : 2000-2003
- Where: 452 bed hospital in north-western United States.
- Method: Staffing measures by HPPD and skill mix and total falls per 100 patient days.
- Background: 48 month analysis of N-P ratios and patient outcomes including falls on critical care and medical surgical unit.
- Results: 34% rise in patient falls with a 16% decrease in HPPD.
- Conclusion: Patient outcomes including falls were significantly higher with decreased N-P ratios.

Nurse-Patient Ratio Guidelines

- National Nurses United established N-P ratio safety guidelines for hospitals to follow.
- 1:2 – Intensive Care Units
- 1:2 – Labor and Delivery Units
- 1:3 – Stepdown and Telemetry Units
- 1:4 – Psychiatric Units
- 1:4/5 – Medical Surgical Units
- 1:5 – Rehabilitation Units

Nurse-Patient Ratio Model

- The American Nurses Association supports a statutory model in which nurses are authorized to generate unit specific staffing plans and models.
- **Three Main Models:**
- *Budget Based*: Nursing staff is allocated according to nursing hours per patient day.
- *Nurse-patient ratio*, in which the number of nurses per number of patients or patient days determines staffing levels
- *Patient acuity*, in which patient characteristics are used to determine a shift's staffing needs.

Legislation: Political Intervention

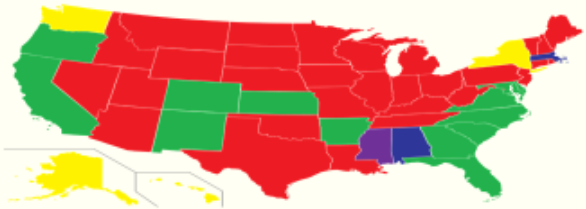
- The Nurse Staffing Standards for Hospital Patient Safety and Quality Care Act.
- H.R. 2392- S.1063 Introduced May 2017
- Recognizes that adequate nurse staffing is crucial to improving patient outcomes.
- Bill requires hospitals to implement staffing plans that complies with specified N-P ratios by unit.
- Bill states that nurses have a duty/right to act based on professional judgement.

Legislation: Political Intervention

- H.R. 2392- Continued
- Hospitals may not take specified action against a nurse based on reason to refuse for such reason.
- Hospitals may not discriminate against individuals for good faith complaints of violation of such Acts.
- Reimbursement: Hospitals receive Medicare reimbursement related to cost incurred related to compliance with this bill
- Promoting Nurse Workforce: Bill creates preceptorship and mentorship programs for practical clinical experience and transitioning nurses.
- Nurses may object to any assignment violations if not adequately prepared by education or experience without compromising patient safety.

Legislation: States Take The Lead

- As of 2021, California is the only state that mandates a safe patient ratio LAW.
- January 2004, law passed that stipulates in law and regulations a REQUIRED minimum N-P ratio to be maintained AT ALL TIMES!!
- 14 states currently address nurse staffing with official regulations: CA, CT, IL, MA, MN, NV, NJ, NY, OH, OR, RI, TX, VT & WA.
- 7 of those states require hospitals to employ staffing committees.



Implementing Change

- Rogers Diffusion Theory: 5 parts to change theory:
- Imparts knowledge in terms of the reason for change.
- Relaying essential information. Noting favorable and unfavorable attitudes.
- Analyzing the data; decisions whether to adopt the change; consider implementing a pilot study.
- Implements the change as the organization evolves to accommodate the change.
- Confirms the future adoption of the change by those responsible and affected by the change.
- CHANGE IS INCREMENTAL and A STEPWISE approach!!!

Additional Measures to Decrease Falls

- Assess for risk on admission & every shift.
- Assess previous fall history.
- Address polypharmacy.
- Assess patient age.
- Assess LOC.
- Implement fall wrist bands.
- Implement Hourly Rounding.
- Educate the Staff!!

REMEMBER

- NOTHING CAN SUBSTITUTE QUALITY CARE IN NURSING!!