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Strategies to Reduce Fall Rates in a Long-Term Care Facility

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Walden University

College of Nursing

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Kimberly Brewer

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Walden University

2021

Abstract

Strategies to Reduce Fall Rates in a Long-Term Care Facility

by

Kimberly Brewer

MS, Walden University, 2017

BS, Norfolk State University, 2013

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

Walden University

November 2021

Abstract

Falls among residents of long-term care facilities (LTCFs) pose significant threats to their health and quality of life, as falls often lead to life-threatening injuries such as traumatic brain injury and hip fractures. The etiology of the falls is multifactorial and complex; thus, interventions to reduce the falls typically combine two or more evidence-based interventions. The objective of this doctorate project was to develop an evidenced-based clinical practice guideline (CPG) outlining a multifaceted, evidenced-based bundled set of interventions for a fall prevention program to reduce falls for elderly patients living in the LTCFs. Lewin's 3-step model of change was used to inform this project's planning and evaluation of the CPG. Peer-reviewed journal articles and published clinical practice guidelines were the sources of evidence for the CPG development. Inclusion selection criteria considered evidence rated at Levels I to IV based on the AGREE II tool method and published later than 2011, preferably in the latest 5 years. Staff ($N = 23$) inclusive of members of the project team of stakeholders representing registered nurses, licensed practical nurses, and certified nursing assistants assessed the CPG for its quality and usability. This CPG had an overall quality rating of 5.4 (based on a Likert scale ranging from 1 as *lowest* to 7 as *highest*) and a mean domain score of 75.3%. The findings showed support for this CPG using the Morse falls tool as a suitable risk assessment tool along with bundled interventions. The CPG was strongly recommended by staff for implementation. This CPG has potential for promoting positive social change when used to evaluate the fall policies and promote use of evidenced-based CPGs to reduce the incidence of falls among residents of LCTFs.

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Dedication

I dedicate this work to my late mother, father, mother-in-law, and maternal grandmother for each being a pillar in my life. Their love, support, and encouragement have given me the strength to pursue life's greatest challenges.

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Section 1: Nature of the Project

Introduction

The U.S. Census Bureau estimated that 2 in 10 persons in the U.S. population will be aged 65 years and above by 2030 (as cited in Centers for Disease Control and Prevention [CDC], 2017), representing nearly 25% of the U.S. population. According to the U.S. National Research Council on Aging (NCOA, 2019), 1 out of 4 older people fall each year, and falling once doubles one's chance of falling again. The CDC (2017) noted that 95% of traumatic brain injuries and hip fractures in the elderly population are a result of falls. These falls increase the risk of death. Moreover, falls cost an average of approximately \$50 billion annually in treatment costs (Florence et al., 2018). Given these facts, falls are a cause for concern amongst the aging U.S. population. Additionally, statistics have indicated that 1.6 million Americans aged 65 years and older reside in long-term care facilities (LTCFs) and are in need of assistance with activities such as bathing, dressing, grooming, and disease management (Bergen et al., 2014). Thus, falls are more likely to occur in LTCFs because this population has the highest disability rate and the need for long-term care services (Harris-Kojetin et al., 2016).

The primary purpose of this doctorate of nursing practice (DNP) scholarly project was to develop a clinical practice guideline (CPG) to reduce falls for the older adult population living in LTCFs. These facilities strive to provide patients with high quality and safe care. Even with the implementation of fall prevention interventions, falls continue to be one of the most common adverse events reported in LTCFs (Rheume & Fruh, 2015). Nurses play an important role in providing safe care to their patients, which

includes the prevention of falls. Implementation of this project has the potential for impacting positive social change by increasing awareness of the problem of falls occurring in LTCFs and the need for measures to prevent these occurrences to improve quality of life for the elder population. Patient safety can be achieved by providing the nursing staff with a CPG that is supported by research. The intended benefit to patients is helping to enhance assessment of fall risks and to put in place interventions that can prevent falls from occurring. Lessening falls among LTC facility residents has the potential to positively affect their quality of life. Also, prevention of falls can decrease cost of adverse consequences to patients and reduce overall health costs to society.

The availability of an evidence-based guideline for staff in this LTCF project site is expected to lead to a reduction in the number of falls recorded among this patient population. The high number of falls has been a discouraging factor against social interactions because people, particularly the older residents who fall and who are afraid of walking, are not participating in as many social activities. Preventing additional falls can consequently eliminate this fear and eventually increase the level of social interaction. The creation of this CPG aims to ensure standardized, safe care for all patients. Knowledge transfer can lead to the application of research findings and enhanced outcomes for patients and clients.

Problem Statement

The group of LTCFs involved in this DNP project lacked a consistent practice approach to prevent and reduce falls and were using single or a combination of various preventive interventions. The use of a targeted set of interventions for patients in this

long-term care setting was lacking, thus highlighting the need for an evidence-based approach that uses multiple interventions that have been shown to be effective in current research.

The current high incidence of falls has averaged two to three falls per week based on a Quality Assurance and Performance Improvement QAPI report of 12 to 20 falls per month. These falls predispose these residents to the complications of falls, which have the potential to lead to poor health outcomes and poor quality of life as well as poor organizational outcomes for the facility. Therefore, there was a determined need for the development of guidelines outlining a multifaceted, tailored fall prevention bundle that includes a set of interventions to be included in practice, based on EBPs to reduce falls among the elderly patients in LTCFs. The findings of the research done by Pop et al. (2020) indicated that a bundled approach is superior to single or multiple approaches.

Purpose Statement

Recognizing the lack of a consistent practice approach for preventing and reducing the fall rate at this facility, the primary purpose of this DNP project was to develop a CPG outlining a multifaceted, bundled fall prevention program based on evidence-based practice (EBP) to reduce falls for the older adult population living in LTCFs. More specifically, this DNP project was designed to address what evidence-based sources have emerged in the literature on best practices for reducing falls in long-term facilities to address a practice gap in this LTCF.

The gap in practice at this facility was the lack of a comprehensive fall-prevention program for older residents. Thus, the purpose of this DNP project was to fill this void by

developing a CPG that addresses the lack of a formal fall-prevention program that may be used to educate direct care staff on current best practices to prevent falls once this project is completed.

LTCFs are institutions that provide health, personal care, and compassionate services for frail senior citizens and other adults with a constrained capacity for self-care (Harris-Kojetin et al., 2016). Recent statistics have indicated that 1.6 million of Americans aged 65 years and older reside in these facilities to obtain assistance with activities such as bathing, dressing, grooming, and disease management (CDC, 2017). Currently, the LTCFs that will participate in this DNP project use either a single and/or multiple interventions in fall risk assessment. Both the use of single and multiple interventions has been shown to be less effective in reducing the incidence of falls (Lavallée et al., 2017). Furthermore, the use of single and/or multiple interventions has not been shown to be as effective as a bundle because the former incorporates a narrow body of evidence or a single best practice (Lavallée et al., 2017). The use of a bundled intervention delivers the best possible care for patients because it incorporates several well-established evidence-based best practices (Lavallée et al., 2017) Moreover, in a bundled intervention, the changes are packaged in such a way that they are implemented concurrently. Thus, the purpose of this DNP project was to develop a CPG that reflects an evidenced-based multifaceted, bundled prevention program to reduce the number of falls of the aging residents living in a group of LTCFs. The DNP project has the potential to address the gap-in-practice regarding how to reduce fall rates in the LTCFs and translate evidence-to-practice in fall prevention. The development of the targeted bundled

CPG based on current evidenced-based practice may help fill the existing gap in the current approaches that have failed to curb the ever-rising number of falls.

The practice question guiding this project is as follows: What available scientific evidence on bundled fall prevention programs can be used to develop a CPG for nursing staff to reduce the number of falls among elderly residents in this LTCF?

Nature of the Doctoral Project

Through this DNP project, I sought to develop a CPG outlining a multifaceted, bundled fall prevention program based on EBPs to reduce falls for elderly patients living in a LTCF. The CPG was created as guided by the steps outlined in the Walden University DNP Manual on CPG development (Walden University, 2019). To meet the purpose of this doctoral project, multiple databases, including PubMed, MEDLINE, EMBASE, EBSCO host, and CINAHL, were used as sources of evidence to be collected and reviewed. Once the evidence was obtained, the Appraisal of Guidelines Research and Evaluation (AGREE) II instrument was used to carry out the evaluation from which a conclusion on the effectiveness of the proposed CPG was determined. The purpose of this project was to develop an evidence-based approach to prevent falls in LTCFs as a means of filling the existing gap in the current approaches that have failed to curb the ever-rising number of falls.

Peer-reviewed journal articles were one source of evidence for the development of this clinical guideline because they provide high quality evidence. Inclusion criteria were applied and used to retrieve the sources from various databases, including the evidence that were published between 2012 and 2020, peer reviewed, and between Level

I and Level III based on the Oxford Centre for Evidence-Based Medicine 2011 levels of evidence criteria (see Burns et al., 2011).

Following an exhaustive review of the literature to discover the best practices in fall prevention for LTCFs, I led a designated project team of stakeholders to gather a second source of evidence. I used the AGREE II tool (see Brouwers et al., 2010), which was used as a framework for developing and evaluating the quality of the CPG. I used the AGREE II tool to develop the CPG and to assess the quality of the guideline development. The relevance of the evidence to practice was based on the level of evidence with considerations being given to practices backed by Level I and II based on GRADE Practice Recommendation (Guyatt et al., 2008). Nonetheless, the evidence needed to demonstrate patient safety and that it can lead to improved quality of care.

Significance of the DNP Project

The stakeholders who may benefit from and who are involved directly in this process include the nurse caregivers, made up of registered nurses (RNs), licensed practical nurses (LPNs) and certified nursing assistants (CNAs) in the facilities. The goal of the project was to develop a CPG outlining a multifaceted, bundled fall prevention program based on EBP to reduce falls for elderly patients living in a group of LTCFs. This guideline can be used by nurses to reduce the number of falls among the care facility residents. The project can increase knowledge of the available literature sources on the effectiveness of the bundled fall prevention programs in reducing/or preventing patient falls. This project will help eliminate a gap in nursing practice through the application of evidence-based interventions for fall prevention. Nurses are involved in the

communication with the residents and their families, review of medications, conducting hourly rounding, and promoting fall prevention through creating awareness among the residents (Chu, 2017). As such, nurse involvement in this project is vital in addressing the problem of falls occurring in LTCFs. This DNP project has the potential for transferability to similar practice settings. Using the CPG as an approach, I demonstrated in this project the application of EBP, the use of the project teams to evaluate evidence and share the relevance of the findings to other facilities. Dissemination of this CPG has the potential to affect positive social change to reduce falls and associated risk for injuries and other negative consequences.

Summary

Falls remain a significant cause of mortality and morbidity. Falls are a serious problem among individuals aged 65 and over (Bergen et al, 2016). One out of 4 older people fall each year, and falling once doubles one's chances of falling again (NCOA, 2019). Fall prevention interventions are broad and can be tailored to meet the specific needs of the patients, and the use of multifaceted bundled fall prevention guidelines based on EBPs can lead to a reduced incidence of falls (Wilkerson, 2017). In this section, I described the problem of falls at the project site's LTCF, the lack of a consistent evidenced-based approach by nursing to use a CPG for fall prevention, and, therefore, the need to develop a multifaceted bundle fall prevention program based on EBP to reduce the number of falls among elderly patients living in a group of LTC facilities. In the next section, I describe the theoretical framework that guided the project, my role, and the project team.

Section 2: Background and Context

Introduction

The purpose of this DNP project was to develop a CPG outlining a multifaceted, bundle fall prevention guideline based on EBP to reduce falls for elderly patients living in a group of LTCFs. More specifically, the goal of this project was to develop multifaceted bundle guidelines that can be used to reduce the incidence of falls in LTCFs. In this section, I present the model that was used to inform the project, define terms relevant to the project, describe the local background and context, and review my role and the role of the project team.

Concepts, Models, and Theories

Lewin's 3-step model was used to guide the design of this project. Lewin developed the model in 1946 and identified three stages through which change should occur (as cited in Hartzell, 2019). These stages or phases include the unfreezing, moving/changing, and refreezing stages (Hartzell, 2019). Lewin hypothesized that realizing change entails recognizing the driving forces, restraining forces, and the equilibrium. Because change is a process, the driving forces are dynamisms that lead to the occurrence of a change in the desired direction while the restraining forces are influences that counter the driving forces. Equilibrium describes the state where the driving forces balance with the restraining dynamisms, and no change occurs (Hartzell). The choice of the Lewin change model allowed for planning for practice change. The model has been used in nursing to implement changes in human systems across different healthcare settings.

In Lewin's change model according to Hartzell (2019), the unfreezing phase entails getting ready to change. The moving phase entails refocusing towards a new way of doing things after accepting the proposed change, and refreezing steps entail establishing permanency once the change has been made. In the first phase, unfreezing entails preparing the facility staff to understand and accept the need for change through creating problem awareness, demonstrating the issue, and challenging the status quo. A project team at the study site was assembled to discuss the problem of falls and review the evidence of interventions that address the problem. Unfreezing entails explaining the purpose of the project and how the proposed interventions can impact the current process for preventing falls among the elderly population residing in LTCF.

The moving phase of the change model entails a review of the literature for EBPs currently in the prevention of falls. I led a project team composed of nursing staff, a physical therapist assistant, and a CNA restorative aide, who worked together to decide on the appropriateness of the strategies for inclusion in the clinical guidelines. Clinical guidelines were then be developed and distributed to the project team for feedback and evaluation using the AGREE II tool. The refreezing phase would entail the distribution of the new guideline to caregivers. The project team also recommended steps to ensure consistent adherence to the guidelines. Lewin's change model (see Hartzell, 2019) has been used before in the development of CPG, as noted by Wojciechowski et al. (2016), with development of a CPG to promote interprofessional collaboration in sustaining bedside shift reporting.

Definition of Terms

The following terms are used in this project: *QAPI report*, *clinical practice guideline*, *fall*, *fall intervention*, *Morse Fall Scale*, *residential care*, and *nursing home*.

Clinical practice guideline: Systematically developed statements to assist practitioner decisions about appropriate health care for specific clinical circumstances. Guidelines can be used to reduce inappropriate variations in practice and to promote the delivery of high quality, evidence-based health care (Grimshaw et al., 1995).

Fall: To drop oneself to a lower position (Merriam-Webster, n.d.). Event that results in a person coming to rest inadvertently on the ground or floor or other lower level. Fall-related injuries may be fatal or nonfatal, though most are nonfatal.

Fall intervention: Fall intervention is a variety of actions to help reduce the number of accidental falls suffered by older people (Sherrington et al., 2019).

Morse Fall Scale: The Morse Fall Scale (MFS) is a rapid and simple method of assessing a patient's likelihood of falling (Borikova et al., 2017).

Nursing home: A facility that offers 24-hour care and support as residential care homes includes nursing care by an RN. It often houses patients with physical and mental medical conditions and those needing close monitoring and attention (Rickard, 2014).

QAPI Report Term: The merger of two approaches to quality management, quality assurance and performance improvement. Both involve seeking and using information, but they differ in key ways: quality assurance is a process of meeting quality standards and assuring that care reaches an acceptable level; performance improvement is

measuring the output of a particular process or procedure and then modifying the process or procedure (Dellefield et al., 2013).

Residential care: Long-term care provided to elderly adults and those who stay in residential settings instead of in their home or family home. In residential care, the clients are offered home-style, live-in accommodations. Those staying in these facilities have low-needs (Rickard, 2014).

Relevance to Nursing Practice

Falls are the leading cause of severe injuries and death among older adults. A fall is one of the most debilitating problems among individuals aged 65 years and over. According to the U.S. NCOA, 2019, 1 out of 4 older people fall each year, and falling once doubles one's chance of falling again. Moncada and Mire (2017) reiterated that the history of falls is correlated with a two- to six-fold escalation of the probability of an eventual fall. The CDC (2017) reported that millions of people fall each year, with 1 in 5 falls culminating in severe injury, including death. Every year, fall injuries account for approximately 2.8 million emergency department visits, and 25% of falls result in life-threatening injuries, including fractures and traumatic brain injury (Moncada & Mire, 2017). Falls are a public health concern because they are often associated with the loss of independence, disability, psychological distress, and extra economic costs estimated at an average of approximately \$50 billion annually in treatment expenses (Florence et al., 2018). The existing evidence supporting fall risk assessment and use of bundled interventions, further described in Section 3, was used to fill the gap in fall prevention at the project site with a CPG.

Local Background and Context

The LTCF is a 100-bed facility located in the southern state of Virginia. The facility offers long-term care and skilled nursing to the elderly aged 65 years and above. On average, two to three falls with or without injury occurred weekly, per the project site QAPI report. At the targeted facility, those individuals identified as being at risk for falls are placed near the nurse's station to enhance visibility. Other approaches include engaging in hourly rounding, placing a falling leaf on the door, wearing nonskid socks and busy aprons (Hatton et al., 2013), and providing activities by the activity coordinators to enhance gait and balance for those patients at risk of falling. I have observed that these approaches are either single or multiple interventions, are inconsistently applied, and, as the evidence has suggested, are less effective in preventing falls compared to multifactorial bundled interventions. The current interventions/strategies in place are not reducing the fall rate in the LTCF. The facility has not implemented bundled interventions at the time this project began; therefore, the purpose of this DNP project was to create a multifaceted, bundled fall prevention program based on EBP to reduce the number of falls among elderly patients living in a group of LTC facilities. This is in line with the initiative of the Agency for Healthcare Research and Quality (2017), a federal agency, to improve quality through fall management programs in long term care.

Role of the DNP Student

My role in the doctoral project entailed the creation of the CPG and evaluation of evidence to inform the strategies. I was also responsible for gathering and analyzing the literature related to creating the guideline in fall reduction. I oversaw the project and was

responsible for the data collection from the team. The final analysis of the project team will be presented upon completion. My project reflects the American Association of College of Nursing, DNP Essentials II, Organizational and Systems Leadership for Quality Improvement and Systems Thinking (2006). This Essential is a guide used to assist the DNP student to become competent in developing evidenced-based care delivery methods that address the present and potential needs of patient populations (The American Association of Colleges of Nursing, 2006).

My inspirations for this DNP project were founded on my patients and my passion for caring for the elderly patient. With this project, I aimed to improve the quality of care for the patients in my care and other patients in similar settings. The current fall rate of two to three falls weekly, with or without injury, indicates a gap in nursing practice and leads to the elderly resident experiencing poor quality of life as some of the falls are severe. The experiences I have had that may affect my work on this project include clinical practice experiences, local health care policy issues, ethical concerns, and translating evidence into practice. To avoid bias, I used the experience and expertise I have gained and combined it with extant evidence along with an evaluation of quality by a content expert team to create the CPG for this project site.

Role of the Project Team

The DNP project team was composed of individuals in leadership positions who could promote change in the organization. This group included the director of nursing, RNs, LPNs, and CNAs. The project team was instrumental in helping to create the clinical guidelines with suggestions for improvement. The team members rated the

AGREE II tool items to evaluate the five areas: applicability, scope and purpose, team involvement, clarity of presentation, and editorial independence (see Brouwers et al., 2017). As a team, the goal was to create guidelines that would reduce fall rates within the facilities. Evaluation of guidelines following their implementation at project site was not a part of this DNP project. The LTCF will evaluate staff compliance and the effectiveness of the guideline once implemented.

Summary

In this section, I described how Lewin's 3-step model (Hartzell, 2019) guided the formulation of the bundled prevention program CPG as well as several key terms relevant to the doctoral project. Moreover, the relevance of the healthcare problem was defined in terms of the impact of falls on patients, nursing health care providers, and healthcare organizations. The local and background context of the project was also described in this section, whereby the project will be implemented in a LTCF with a 100-bed capacity, located in a southern state. I described my role in the project and the role of the stakeholders. The next section addresses plans for analyzing sources of evidence that were used in the project through an illustration of the use of the AGREE II tool.

Section 3: Collection and Analysis of Evidence

Introduction

In this section, I discuss the criteria used in the collection and analysis of evidence to develop a CPG. The U.S. Census Bureau has estimated that 2 in 10 persons in the U.S. population will be aged 65 years and above by 2030 (as cited in CDC, 2017). The report for the Centers for Medicare and Medicaid Service has identified falls as a preventable health issue (as cited in Southern California Evidence-Based Practice Center, n.d.). Falls have physical and emotional implications for patients as well as increased cost for organizations (Godlock, 2016). When comparing different patient populations and settings, skilled nursing patients have an estimated fall incidence of 1.6 falls per bed per year, with almost half of admitted residents falling more than once a year (Vlaeyen et al., 2015). The incidence of falls at this skilled nursing setting required immediate attention to ensure the safety of all patients within the organization's system.

The organizational setting for this DNP project was a 100-bed skilled and rehabilitation facility located in the southeastern region of the United States. The facility leadership director of nursing reported that the unit had 12 to 20 falls per month (2-3 falls per week) and lacked a standardized fall prevention program at the time this project began. The clinical guideline for this project, once implemented, has the potential to serve as a quality improvement activity for this LTCF and for sister facilities in the area. It is anticipated that the decrease number of falls within the facility through use of a CPG would increase positive health outcomes, including improved patient safety and quality of life.

Practice-Focused Question

The purpose of this DNP Project was to develop a CPG that reflects a multifaceted, bundled prevention program to reduce the number of falls of elderly residents living in a group of LTCFs. The practice question for this project was as follows: What available scientific evidence on bundled prevention programs can be used to develop a CPG for nursing staff to reduce the number of falls among elderly residents in this LTCF?

Sources of Evidence

Databases including PubMed, Medline, EMBASE, EBSCOhost, and CINAHL were used to retrieve the relevant sources of evidence and professional standards to address the practice-focused question. The practice-focused question was used to retrieve sources of evidence and professional standards to address the practice focused question. I used the AGREE II model in the development of the CPG and the AGREE II tool to gather evidence to assess its quality and usability (see Brouwers et al., 2010) to gather support for its implementation at project site upon completion. The key words used in the project included *fall intervention, fall rates, fall prevention, injury prevention, nursing practice, and residential and care homes*. The dates of inclusion were from 2017 to 2021.

Clinical Guideline Development Using AGREE II

The AGREE II tool and a literature summary matrix table were used to develop the clinical guideline and to evaluate its quality (see Brouwers et al., 2010). The AGREE II tool was also used as a guide to evaluate the rigor and transparency through which a guideline was developed. In the development of this clinical guideline, I used peer-

reviewed sources of information to provide the context and guide the formulation of the clinical guidelines that can reduce and prevent falls in this LCTF.

Participants

The expert panel for this DNP was comprised of expert nursing professionals who are holders of a doctorate in nursing either practice focused (DNP) or research-focused doctorate (PhD) because they are educated to have the highest level of clinical expertise and can translate scientific knowledge for use in practice. The inclusion criteria entailed those with leadership knowledge and experience in development, implementation, evaluation, and revision of EBP guidelines, policies, protocols, and algorithms (see Grove et al., 2013). The expert panel was selected purposively and drawn from university faculty and clinical practice in the group of LTCFs. A letter of request was drafted and emailed to each of the experts, and later on, the draft CPG and the AGREE II tool was emailed to those who agreed to serve on the panel. A timeline of 30 days was considered adequate for completion of the assessment. Email reminders were sent weekly. The role of the experts was to evaluate the proposed CPG by rating the strength of each item using the AGREE II tool and providing feedback. The feedback was based on a survey containing an open question on which items the experts used in the general assessment of the quality of the CPG.

Procedures

The literature matrix table of evidence created due to the exhausted search to create this guideline was presented to the project team with the drafted guidelines that

they reviewed. The appropriateness of the guideline evaluated the quality of the guidelines using the AGREE II tool.

The AGREE II tool was used to guide development of the CPG. The main focus of the AGREE II tool use was to assess the effectiveness of the process that was used in the development of the CPG rather than the evaluation of the tool itself (see Kato et al. 2006). In the current case, the tool was used to evaluate the fall policies and guidelines with the various stakeholders who were part of their implementation. These stakeholders were required to show their level of agreement on the basis of a Likert scale (see Figure 1).

Figure 1

AGREE II Instrument Likert Scale

1 Strongly disagree	2	3	4	5	6	7 Strongly agree
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As shown in Figure 1, using the Agree II rating scale in the tool, I sought to establish the level of agreement among the key stakeholders who would be involved in the implementation of the fall CPG. If raters selected 1, this implied that they disagreed with the statement made while a selection of 7 implied that they agreed with the statement made.

After carrying out the literature search of the relevant clinical guidelines that can be adopted to reduce the incidence of falls within LCTFs, the Agree Tool II was used in

the assessment of the guidelines in the project. A meeting for the stakeholders to review the material found in the literature was called. The AGREE II tool rates the items on a scale of 1 to 7, whereby 1 is *strongly disagree* while 7 is *strongly agree*. Also, the 23-itemized tool is organized into six domains that evaluate the scope and purpose of the guidelines, the stakeholder involvement, and rigor of development, clarity of presentations, applicability, and editorial independence of the guidelines. See Appendix A for a copy of the AGREE II tool. The scores are assigned depending on the completeness and quality of the reporting and increase when the criteria are met. In the selection of the guidelines for the DNP project, the stakeholders and I listed some guidelines on an Excel spreadsheet that can be recommended. Each member of the expert panel was invited to complete the AGREE II tool scoring and give their concerns on the guidelines that would be selected. At the end, the scores were calculated, then the guidelines with the highest scores were selected for use in this DNP project. The domain scores were calculated using the formula for the AGREE II tool (see Figure 2) as described by Novo et al. (2016).

Figure 2

Formula for AGREE II Tool Domain Calculation

$$score = \frac{\text{Obtained score} - \text{minimum possible score (1)}}{\text{maximum possible score (7)} - \text{minimum possible score (1)}}$$

Upon completion of the scoring, the stakeholders were provided an overall assessments of the selected guidelines. Stakeholders were required to make judgements on the quality of the selected guideline while considering the assessment process. The stakeholders were required to indicate whether they recommended the specific guidelines. The stakeholders involved in the selection of the appropriate guidelines for use included the LCTF directors, administrators, the nursing directors and RNs, LPNs, CNAs, and physical therapist.

Sources of Evidence

Search Strategies and Criteria

Different databases, including PubMed, MEDLINE, EMBASE, EBSCO host, and CINAHL, were searched for relevant articles to use to provide the evidence for the CPG development. Keywords used to retrieve and select the relevant articles for use of the guideline included *fall intervention, fall rates, fall prevention, injury prevention, nursing practice, and residential and care homes*. Boolean operators, and *OR* were used to combine these search terms to refine the search process further.

The included online databases were explored from November 2015 through June 2020 to ensure an intensive review of the literature surrounding the topic. However to ensure that the retrieved literature was the current and the most relevant, the date delimitations for the search engine was set at 2011 to the present time. The filter restrictions were set to produce full-text articles only and articles written in the English language.

To assist with the organization of retrieved literature, an evidence table (see Appendix B) was created to include information such as

- reference
- research method
- main findings
- level of evidence based on GRADE tool

The literature review matrix table (Appendix B) was used to assist with organizing and ensuring that the publication and articles included quality information based on the GRADE tool (see Guyatt et al., 2008). I also ensured that the articles contained accurate and the most up-to-date information needed to create a quality improvement program that could assist with a later quality improvement activity to be conducted by this organization.

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria defined the type of studies that were used in the development of the clinical guidelines. Inclusion criteria included studies published from 2012 to 2020 in the English language and that focused on the measures that can be taken to reduce patient falls in nursing homes and LCTFs. The criteria used for consideration was a Level I-III based on the AGREE II tool method of determining the evidence, research design and methodology, significant results, limitations of the study, and nursing implications. The exclusion criteria included studies that were published before 2015 and in languages other than English. Moreover, studies that did not evaluate the effectiveness of various fall prevention measures were excluded from the literature review.

Data Collection and Appraisal

The data collection and appraisal from the selected and included studies were carried out through the collection of the study characteristics, including the interventions developed, study population and characteristics, data collection and analysis methods, and the results and conclusion. The data were placed on an Excel spreadsheet. Data analysis was conducted and reported using descriptive statistics.

Summary of Evidence for the Doctoral Project

The Morse Fall Scale and Other Tools

The MFS is a simple fall risk evaluation method that is used on patients. It is widely used in acute care settings and has six variables that are used to assess patient risk for falls (Borikova et al., 2017). The patient variables that are evaluated in this scale include the history of the patient's falls and their causes, be it seizures or impaired gait, and the secondary diagnoses of the patient that might increase their risk for falling. Furthermore, their use of ambulatory aids such as crutches, canes, walkers, or nurse assists in carrying out the activities of daily living, their gait, and their mental status are evaluated using the MFS tool. Following the classification of the patient to either the low risk or high-risk groups, the implementation of the appropriate fall prevention strategies that are patient-specific can significantly reduce the falls among the residents in long-term care facilities. These fall prevention strategies can include increased nursing rounds, use of bedside devices like alarms, engagement in balance and stability exercises, and nurse assists to carry out activities.

Baran and Gunes (2018) carried out a study to compare the psychometric properties of the MFS with the Fall Risk Assessment (FRA) and the Hendrich fall risk model in elderly residents of 159 nursing homes. The results obtained indicated that the MFS model had an acceptable level of specificity of 71.3%, and an area under the curve (AUC) value of 0.72 (Baran & Gunes, 2018). These results indicated that the psychometric properties of the MFS tool were acceptable and suitable for use in the evaluation of the fall risk of elderly residents of nursing homes and can be used effectively in such healthcare settings. Similarly, Baek et al., 2014 examined the validity of the MFS in the determination of the fall risk of different hospitalized patients, using electronic medical records. The retrospective study was conducted on 845 patients, 151 fallers, and 694 nonfallers. The nonfallers were selected through random sampling, and the MFS was used in their evaluation at three different times during their hospitalization (Baek et al., 2014). The results obtained indicated that the MFS had a sensitivity of 0.72 and a specificity of 0.91. The positive predictive value was 0.94, while the negative predictive value was 0.63 (Baek et al., 2014). The researchers concluded that the scale can be used in the evaluation of the fall risk of different patients and will correctly classify them as either no risk, low risk, or high-risk patients.

In another study Borikova et al., 2017. carried out a literature review study to examine the predictive value of the MFS in the evaluation of the fall risk of different patients. The authors searched for relevant full-text research studies from different databases to determine the predictive value of the tool. They included 14 studies in the review and noted that the sensitivity values of the tool ranged from 31% to 98%, while

the specificity values ranged from 8% to 97% (Borikova et al., 2017). The researchers also observed that the predictive value of the tool varied, depending on the cut off value that was tested, the frequency of the patient evaluations, the size and age of the patients, and the status of the patients (Borikova et al., 2017). The researchers concluded that although the MFS was not stable as it varied according to different patient factors, it can be used to indicate the fall risk of the patients before the initiation of the appropriate prevention strategies.

In contrast, the quantitative, descriptive, cross-sectional research by Lim and Yam (2016) showed that the level of knowledge and competency of the nurses using the Morse Fall Scale tool influenced its effectiveness. In their study, the researchers determined the nurses' level of knowledge and competency and how this influenced the use of the Morse Fall Scale tool. They noted that the registered nurses had a moderate level of competency and knowledge in the use of the Morse Fall Scale tool and reduced the effectiveness of the tool. Lim and Yam recommended that the nurses should be educated on the use of the Morse Fall Scale tool to increase its sensitivity and reliability.

In another study, Aranda-Gallardo et al. (2013) conducted a systematic review and meta-analysis to investigate the accuracy of the Morse Fall Scale, STRATIFY, and the Hendrich II Fall Risk Model scales in the detection of the fall risk and prediction of falls in patients in acute care settings (Caldvella et al., 2012). Relevant studies were obtained from different databases, and blinded reviewers evaluated the articles that were selected for inclusion, to reduce the selection bias that might have occurred (Aranda-Gallardo et al., 2013). The data obtained was used to indicate the specificity, sensitivity,

and likelihoods of validity of the tool. Fourteen studies were included in the review, and the sensitivity and specificity of the Morse Fall Scale tool were noted to be 0.755 and 0.677, higher than those of the Hendrich II tool (Gangavati, et al., 2011). Similarly, the likelihood of the Morse Fall Scale was higher than the Hendrich II tool. However, Aranda-Gallardo et al. concluded that the STRATIFY tool was more effective in the evaluation of the fall risk of patients (2013). Nonetheless, they recommended the education and training of the nursing personnel in the use of the Morse Fall Scale tool to improve its sensitivity and reliability in the determination of the fall-risk of the patients.

Similarly, Pasa et al. (2017) evaluated the use of the Morse Fall Scale tool in the assessment of the risk of falls among adult hospitalized patients and verified the incidence of the events. Eight hundred thirty-one patients were included in the cohort study, and the tool was used to evaluate the fall risk of the patients who were considered to be exposed to falls. The results obtained indicated a mean score of 39.4, and this increased between the first patient assessment before hospitalization, and the final assessment after hospitalization (Pasa et al., 2017). They also observed that the Morse Fall Scale tool is effective in indicating the fall risk of the patients, and in the identification of the risk factors that contribute to the patient falls. The researchers concluded that the incidence of falls among the patients during their hospitalization period increased and that the Morse Fall Scale tool was reliable in indicating the risk of the patients.

Likewise, Gringauz et al. (2017) indicated that the Morse Fall Scale tool was effective in indicating the fall risk of hospitalized patients. However, patients who were

classified as high risk could be stratified further through the assessment of individual characteristics such as serum electrolytes.

In summary, the literature that has been reviewed in this section has indicated the effectiveness, reliability, sensitivity, and specificity of the Morse Fall Scale tool in the evaluation of the fall risk potential of patients in different healthcare settings.

Multifactorial Bundled Fall Prevention Interventions

Various fall prevention strategies and interventions can be implemented to control or prevent patients from falling. Quality improvement initiatives in the nursing facilities can significantly reduce the rates of patient falls, and these can be made through evaluating the effectiveness of *multicomponent bundled* guidelines that foster adequate patient assessment, individualization of the fall prevention measures, increased nursing rounds, and adequate nursing staff. Multifactorial fall prevention measures can be implemented to enhance the prevention of falls. The researchers noted that the multifactorial program studied significantly reduced the fall rates among the residents of the nursing facilities, and the costs of care (Trepanier & Hislenbeck, 2014).

Increased and structured nursing rounds have also been shown to reduce the number of patients falls in different healthcare settings. For instance, Brosey and March (2015) evaluated the effectiveness of structured hourly nurse rounding in the prevention of patient falls and improvement of patient outcomes and satisfaction in a medical-surgical unit in a community hospital. The results obtained at the end of their study indicated that the intervention led to reduced patient falls and hospital-acquired pressure ulcers (Brosey & March, 2015). Similarly, Nuckols et al. (2017) evaluated the

effectiveness of hourly rounding of nurses in a hospital setting, using an uncontrolled before-after design. They noted a decline of patient fall rates after one year and concluded that the implementation of quality improvement measures could significantly improve patient outcomes and prevent patient falls (Nuckols et al., 2017). The systematic review by Mitchell et al. (2015) that evaluated the effectiveness of nursing hourly rounding and education on the prevention of patient falls demonstrated that these interventions led to a significant reduction of the patient falls when compared to pre-implementation rates.

Kumar et al. (2016) used a systematic review and meta-analysis to demonstrate the importance of exercises in reducing the risk of falls among elderly patients. In their study, Kumar et al. evaluated randomized or quasi-randomized trials that had a total of 2,878 patients and evaluated the effectiveness of Tai Chi, Yoga, balance training, strength, and resistance training exercises. The researchers noted that exercise interventions reduced the fear of falling among the patients and increased their strength and gait. In the long-term, continued exercises had a significant and positive effect on reducing patient falls. The literature that has been reviewed in this section shows that the implementation of various fall prevention interventions significantly reduces the risk and rates of patient falls in different healthcare settings. In this project, following the classification of the patients as either no risk, low risk or high risk by the Morse Fall Scale, these interventions can be implemented to reduce/ prevent falls among the long term care facility residents.

Protections

There were no foreseeable risks or actual risks during the project that involved the participants in this project. To guarantee participants anonymity would be safeguarded, there were no names or demographic information collected. The paper versions of the gathered information will be kept in a safely locked box which can only be accessed by the project leader. Once the AGREE Tool are completed, the data will be transferred to an electronic Excel data file spreadsheet. Since the project will be involving human subjects it will need to be approved by the Walden University IRB.

Analysis and Synthesis

The AGREE II tool (AGREE Next Steps Consortium, 2017) provided the framework to guide the development of this CPG and was used to assess the quality of guideline using the 23 individual items across the domains. The AGREE II tool is reliable and organized within the six domains (Brouwers et al., 2010).

The deidentified data obtained from the project site based on the stakeholder evaluation of the CPG was analyzed using descriptive statistics. The findings of this analysis were shared with the stakeholders who are involved in the management of the fall policy within the nursing care facilities. Recommendations were made following the analysis and synthesis of the project results on whether next steps would begin with educating the healthcare practitioners on the newly created clinical practice guideline to guide fall policies and the implementation of the Morse Fall Scale tool.

Descriptive statistics were utilized to analyze the data collected from the AGREE II tool and questionnaire. The AGREE II instrument was distributed electronically to the

expert panel. In Phase One the expert panel rated the CPG with the AGREE II tool. Data consisted of scores for each AGREE II item as well as comments from each of the panelists. During the first phase of implementation, AGREE II data was collected from each member on paper forms with no identifiers, as well as comments from the panelist. Data was collected by a volunteer and stored in a locked box. The data to be evaluated were entered on an Excel spreadsheet. Scores for each of the six domains of the AGREE II were calculated along with the overall score. The Agree Tool II provided the framework to guide development of the CPG and to assess the quality of guideline using the 23 individual items across the domains.

Summary

In Section 3, I described how the data collection and analysis process was carried out and how the data collected would inform the guideline that was developed. The use of this intervention was informed by various studies that will show its effectiveness in reducing falls among patients and the elderly. Stakeholders in the project included DONs and RNs of the nursing facility. The development of the interventions involved having consultations and meetings with the staff to get their opinions of what intervention might be successful or which intervention was not appraised to be beneficial. There were several roundtable discussions before CPG was finalized. The inclusion and exclusion criteria and the search words enabled the retrieval of the relevant articles for use from the different databases. The constant reference to the current standards of practice enabled the identification and conformity of the recommendations to the current best practices.

Section 4: Findings and Recommendations

Introduction

Falls prevention programs are vital components of LTCFs because of the increased risk for falls among the elderly. Falling doubles the risk of falling again and lessens the frequency of physical activity. Statistics have shown that 95% of hip fractures and traumatic brain injuries among the elderly are contributed to falls (CDC, 2017). Falls are also a significant cause of death. Some of the factors that increase their risk include polypharmacy, comorbidity, and declined physiologic function (Fu et al., 2017). The CPG developed for this DNP project was a bundled approach for addressing falls in a LTCF. However, before the guideline could be implemented, following development using the evidence from the literature, I convened a team of stakeholders who assessed the quality of the CPG recommendations based on the AGREE II tool (see Brouwers et al., 2010).

Despite the high incidence of falls, a gap in practice is evident in the lack of a comprehensive fall-prevention program for older residents of this LTCF. Such programs are especially crucial for the elderly residing in LTCFs. Therefore, the purpose of this doctoral project was to fill this void by developing a CPG that addresses the lack of a formal fall-prevention program that may be used to educate direct care staff on current best practices to prevent falls. The practice-focused question that guided the project was as follows: What available scientific evidence on bundled fall prevention programs can be used to develop a CPG for nursing staff to reduce the number of falls among elderly residents in this LTCF? To develop the guideline, I explored evidence-based sources that

had emerged in the literature on best practices for reducing falls in long-term facilities and best sources of evidence support implementation of the CPG at this LTCF.

The primary issue that these stakeholders analyzed was whether using the proposed fall prevention guidelines was reliable and had enough supportive evidence to recommend its implementation at this LTCF. Section 4 of the project provides a review and summary of the findings. Carried out using descriptive statistics, these findings are presented in tables and graphs. The tabular presentation allows for quick data analysis. See Appendix C for a summary of AGREE II Tool results by domain.

Findings and Implications

Guideline Development

This CPG was developed to fill the void on the absence of guidelines to address patient falls in a LTCF. Thus, carrying out a review of the literature, the first source of evidence was used to provide the recommendations to be included in the CPG and is presented in a summary literature review matrix table (see Appendix B). The literature was synthesized into two categories: evidence that supported use of the MFS and evidence that supported used of bundled interventions for fall prevention. This evidence formed the basis of the development of the CPG presented to the LTCF staff for evaluation.

A synthesis of the evidence provided by the studies described in the matrix table led to key recommendations of the CPG. Evidence has supported the use of the FRA, Hendrich fall risk model, STRATIFY, and the MFS (see Arnada-Gallardo et al., 2013; Baek et al., 2013; Baran & Gunes, 2018; Borikova et al., 2013; Gringauz et al., 2013;

Lim & Yam, 2016; Pesa et al., 2017). In addition, Baek et al. (2014) showed that the MFS could be used in various settings. Other studies have recommended educating nurses in the use of this tool to increase its sensitivity and reliability (Arnada-Gallardo et al., 2013; Lim & Yam, 2016). These studies have shown that MFS can be applied to people from different cultural backgrounds, and nurses' competency is essential in determining the accurate score.

Once identified to be at fall risk, evidence from intervention studies has suggested that patients should receive optimum preventative care, which can take either a singular or a bundled approach. The proposed CPG is using the latter due to research findings that have revealed more significant results when nurses applied a bundled approach to prevent falls (see Trepanier & Hislenbeck, 2014). Although singular interventions like structured hourly rounding (Brosey & March, 2015; Mitchell et al., 2014; Nuckols et al., 2017) and exercise (Kumar et al., 2016) have been shown to reduce elderly falls, combining different interventions into one bundle may yield better results (Pop et al., 2020). Thus, approaches were recommended as a bundle.

Guideline Evaluation

The second source of evidence was gathered from the data obtained from the 23 stakeholders who were invited to participate in the evaluation of the CPG using the AGREE II tool, a reliable and valid tool (see Brouwers et al., 2010). The AGREE II assessment tool is composed of six domains and includes a total of 23 items. Each participant was assigned a score independently rating their level of agreement with each item using the Likert scale of 1 to 7, whereby 1 was *strongly disagree* while 7 was

strongly agree (see Figure 1). Domain scores were calculated using the formula for AGREE II Tool domain calculation (see Figure 2) as described by Novo et al. (2016).

Anonymity and confidentiality were ensured by not collecting demographic information of stakeholders. An exception was made for revealing job titles to ensure that only relevant stakeholders were involved in evaluation of the CPG. Upon completion of the scoring, the stakeholders were requested to assess the overall quality of the selected guidelines. Stakeholders assessed the quality of the selected guidelines while considering the assessment process. The stakeholders were also required to indicate whether they recommended the specific guidelines for inclusion in the CPG. Lack of demographic data was a way of enhancing anonymity and encouraged the participants to provide scores without fear of potential repercussions. The following sections outline the findings for each domain and describe their implications of the CPG developed for this LTCF (see Appendix D).

Scope and Purpose (Domain 1)

There was an overall high score for level of agreement for Domain 1, scope and purpose of the CPG ($M = 6.6$), as depicted in Table 1. Most participants agreed that the overall objective of the guideline was explicitly described. It was clear that the primary goal was to reduce elderly falls. Moreover, the health issue covered by the guideline is the lack of effective fall mitigations. The stakeholders strongly agreed that the population for which the guidelines applied is specifically described. A high mean score for this domain can be contributed to the fact that the target population includes older adults aged 65 and above in LTCFs.

Table 1*Scope and Purpose*

Domain 1: Scope and purpose	<i>M</i>	<i>SD</i>
1. The overall objective(s) of the guideline is (are) specifically described.	6.2	0.78
2. The health question(s) covered by the guideline is (are) specifically described.	6.7	0.49
3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.	7.0	0.00
Mean subscale score	6.6	0.41

Stakeholder Involvement (Domain 2)

This domain received a relatively low mean score (4.8) as depicted in Table 2. There was a favorable score on the item that assesses whether the guideline development group includes members from other relevant professions. Most stakeholders commented that this project did not require other health professionals because the DNP project was limited to an individual. However, the fifth item scored poorly because the project did not include the views and preferences of the elderly members from the LTCF. The views of patients may have been integrated in previous studies used to develop this CPG; however, no patients were included in this CPG development. Lastly, there was a strong agreement that the target CPG users were clearly defined. The target users include RNs, LPN, and CNAs. However, the guideline implementation is not limited to these professionals because all healthcare team members can help reduce falls incidence.

Table 2*Stakeholder Involvement*

Domain 2: Stakeholder Involvement	<i>M</i>	<i>SD</i>
4. The guideline development group includes individuals from all the relevant professional groups.	5.5	0.51
5. The views and preferences of the target population (patients, public, etc.) have been sought.	2.0	0.77
6. The target users of the guideline are clearly defined.	6.9	0.34
Mean subscale score	4.8	2.49

Rigor of Development (Domain 3)

The overall domain score was 62% with a mean level of agreement rating of 4.7 (see Table 3). The use of systematic methods to search for evidence received high scores because all the literature was systematically derived from peer-reviewed sources. The selection criteria for the appraised studies were also appropriate as only clinical trials, and systematic reviews were used. The selection criteria excluded studies that did not belong between Levels I and III of evidence (see Burns et al., 2011). The lowest score (1.9) was on the item about using strengths and limitations of the supporting evidence. This area should be considered in future guideline development. Most participants were ambivalent concerning the 10th item. Generally, the stakeholders commented that there was an inadequate description of the methods used to formulate the recommendations. On the item concerning health benefits, side effects, and risks, the respondents showed that much emphasis was placed on the benefits with a minimum exploration of the risks. However, this can be attributed to the assumption that the benefits of the proposed guidelines

outweigh potential disadvantages. There was also a unanimous agreement for an explicit link between the recommendations and supporting evidence.

Meanwhile, there was a low score of 2.0 ($SD = 0.88$) on the component of external review before the publication of the CPG because of the inherent limitations of the DNP project as an individual assignment. A lack of procedures for guideline updates also contributed to the domain's low score. I envisioned that including this aspect after the preliminary implementation of the guideline would be significant in incorporating the challenges faced. Table 3 reflects the stakeholders' scores for each item.

Table 3

Rigor of Development

Domain 3: Rigor of development	<i>M</i>	<i>SD</i>
7. Systematic methods were used to search for evidence.	6.7	0.63
8. The criteria for selecting the evidence are clearly described.	5.7	0.45
9. The strengths and limitations of the body of evidence are clearly described.	1.9	0.34
10. The methods for formulating the recommendations are clearly described.	4.2	0.42
11. The health benefits, side effects and risks have been considered in formulating the recommendations.	5.7	0.49
12. There is an explicit link between the recommendations and the supporting evidence.	6.9	0.34
13. The guideline has been externally reviewed by experts prior to its publication.	2.0	0.88
14. A procedure for updating the guideline is provided.	4.7	0.93
Mean subscale score	4.7	1.93

Clarity of Presentation (Domain 4)

Domain 4, clarity of presentation, received a score of 96.4. The level of agreement item scores suggest that the recommendations are specific and unambiguous.

Different options for mitigating falls are also clearly presented. There is more than one option because the guideline offers a bundled approach rather than a single or multiple interventions. Lastly, the stakeholders unanimously agreed that key recommendations were easily identifiable; item results are shown in Table 4.

Table 4

Clarity of Presentation

Domain 4: Clarity of presentation	<i>M</i>	<i>SD</i>
15. The recommendations are specific and unambiguous.	6.6	0.51
16. The different options for management of the condition or health issue are clearly presented.	6.8	0.42
17. Key recommendations are easily identifiable.	7.0	0.00
Mean subscale score	6.8	0.22

Applicability (Domain 5)

Items within this domain received low scores (depicted in Table 5). On whether the guideline describes facilitators and barriers to its application, a significant number were unsure. Some believed that although facilitators and barriers were not clearly mentioned, the guideline implicitly integrated them. One of the identified facilitators is the increasing life expectancy and population of older adults. There is also a growing need to develop efficient fall prevention measures. It was also found that the guideline did not provide specific tools for its implementation or audit criteria for performance monitoring. Inadequacies in these items were based on the assumption that the proposed guidelines presented were straightforward interventions and that falls incidence are used

to monitor performance. Lack of adequate information on potential resource implications also contributed to the low scores.

Table 5

Applicability

Domain 5: Applicability	<i>M</i>	<i>SD</i>
18. The guideline describes facilitators and barriers to its application.	6.1	0.69
19. The guideline provides advice and/or tools on how the recommendations can be put into practice.	3.7	0.45
20. The potential resource implications of applying the recommendations have been considered.	1.7	0.47
21. The guideline presents monitoring and/ or auditing criteria.	2.6	0.50
Mean subscale score	3.5	1.92

Editorial Independence (Domain 6)

All stakeholders strongly agreed that there was no external influence from funding bodies. This agreement was informed by the realization that the project did not receive external funding. There were relatively lower quality scores on the last item because the guideline did not sufficiently address competing interests. Table 6 shows the reported scores.

Table 6

Editorial Independence

Domain 6: Editorial Independence	<i>M</i>	<i>SD</i>
22. The views of the funding body have not influenced the content of the guideline.	7.0	0.00
23. Competing interests of guideline development group members have been recorded and addressed.	4.6	0.51
Mean subscale score	5.8	1.72

Overall Guideline Assessment

Participants assessed overall quality of the guideline and recommendations of the guideline for use on the last two items of the AGREE II tool. The mean rating of the overall quality of the guideline was 5.4 ($SD = 0.11$) based on a Likert scale ranging from 1 (*lowest possible quality*) to 7 (*highest possible quality*). All participants recommended this guideline for use in this LTCF; 100% reported a Yes response on the evaluation segment on whether to recommend the CPG for use. See Table 7 for results.

Table 7

Overall Guideline Assessment

Overall Guideline Ratings			
Overall guideline assessment		<i>M</i>	<i>SD</i>
	Rate the overall quality of this guideline ¹ .	5.4	0.11
Recommendation for use		<i>n</i>	%
	Yes	23	100
	Yes with modification	0	0
	No	0	0

Note. ¹Based on a Likert scale ranging from 1 (*lowest possible quality*) to 7 (*highest possible quality*).

Recommendation for Implementation

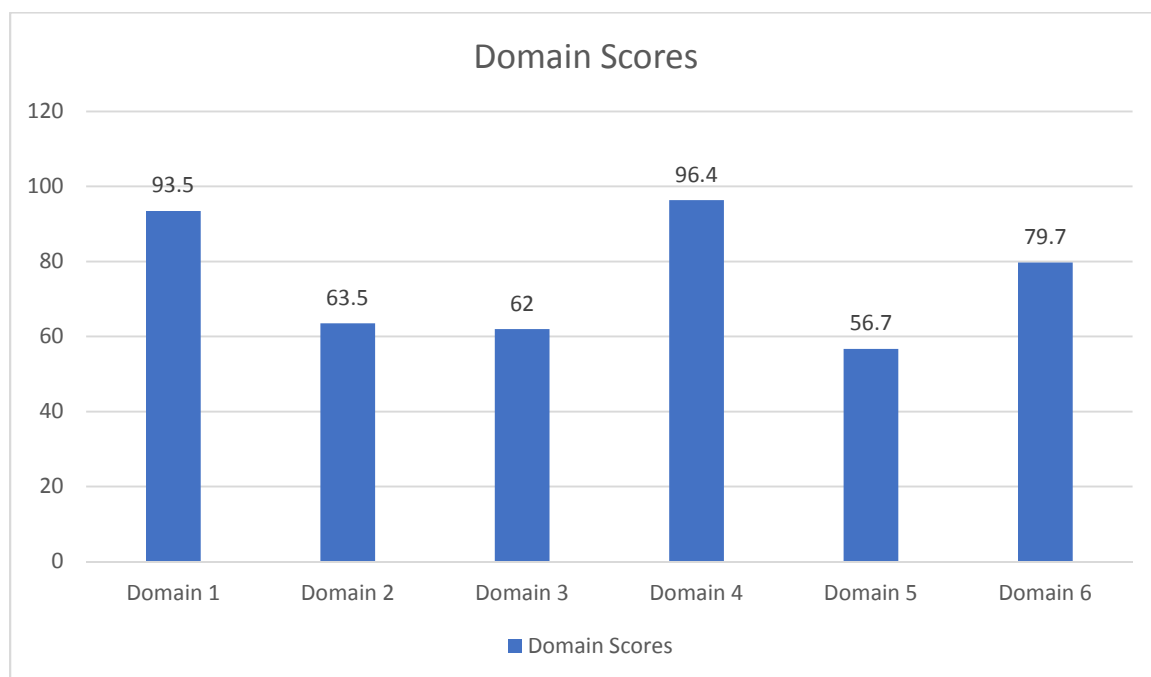
The overall domain score was 75.3%, deemed a satisfactory score considering the limitations of this DNP project. The findings also showed that Domain 5 (Applicability) had the lowest score (56.7%) while Domain 4 (Clarity of Presentation) and Domain 1 (Scope and Purpose) had the highest scores (96.4% and 93.5, respectively). The following criteria as described by Ciapponi et al. (2020) can be used to categorize the CPG's recommendation level:

1. Strongly recommended – the score of at least four AGREE-II domains exceeds 60% and that for rigor of development is at least 30%.
2. Recommended – the score of at least four domains is between 30 to 60%, including that for rigor of development
3. Not recommended – the score is less than 30% for at least four domains or Domain 4.

According to the above criteria, described by Ciapponi et al. (2020), this CPG guideline is strongly recommended. Figure 3 illustrates each of the six domain scores.

Figure 3

Quality Scores for Each Domain



Note. Domain 1- Scope and purpose; Domain 2 – Stakeholder involvement; Domain 3 – Rigor of development; Domain 4 – Clarity of presentation; Domain 5 – Applicability; Domain 6 – Editorial independence

Recommendations for Implementation

The stakeholders unanimously agreed that the guideline would be useful in geriatric care and recommended its implementation. However, most stakeholders stated that its implementation should integrate patients' preferences and culture. For example, Tai Chi is a form of exercise that is typically practiced among people of Asian descent. However, the patient population in this LTCF is primarily Caucasian and African American. There should also be an analysis of required resources and adaption of this guideline to fit the available resources as well as the preferences and values of the residents. Lastly, facility nurses should receive training to increase their awareness and motivation of the evidence-based guidelines.

Recommendations

Based on the supporting evidence and the guideline's quality score, recommendations indicate that this CPG be implemented at this LTCF. The background section showed that there is a high incidence of elderly falls at the LTCF. The selected evidence from the literature showed that falls programs with single or multiple interventions are likely to fail (Trepanier & Hislenbeck, 2014). Therefore, this guideline provides a bundled approach that is supported along with the use of the Morse fall tool. The benefits of the bundled approach are noted to include adequate fall mitigation and enhancement of the quality of life of older adults in LTCFs (refer to Appendix B). I will recommend an educational session to orient healthcare leaders and staff nurses on the CPG before its initial implementation. Ongoing monitoring as a part of a quality improvement initiative is indicated. Data collected during implementation of the CPG

will help to develop the CPG further and contextualize it to the facilities' needs. Further CPG development should keenly consider the input of various stakeholders, including nurses and healthcare leaders.

Contribution of the Doctoral Project Team

The success of this project could not be realized without the input of all team members. My mentor and preceptor played a crucial role in shaping the idea for a guideline into a concrete concept. The committee members and the Walden librarian helped find high-level evidence sources since the guideline has to be supported by quality scientific findings. Meanwhile, the stakeholders played a significant role in reviewing the guidelines and developing an overall quality score. Consultation amongst team members has improved staff members' understanding of the evidenced based process. The impact of this project is anticipated to extend to the future execution of quality improvement projects.

Strengths and Limitations of the Project

One of the project's strengths was the availability of high-level evidence that supported the recommendations included in this CPG. This project filled the practice gap calling for a pressing need for a more effective fall prevention program. The CPG had a satisfactory quality score, considering the inherent limitations of the DNP project. This project benefited from the input of stakeholders and expert opinion. Therefore, it is likely to gain acceptance and be enforced in this local healthcare institution. However, further monitoring and assessment of the CPG is indicated once implemented to assess its practicality as a process and if effectiveness in preventing falls. There will be no

assurance of the project's practical benefits without further assessment and evaluation once the CPG is implemented.

Section 5: Dissemination Plan

Dissemination of findings is an essential component of all scientific projects because the goal of findings is to improve current knowledge and clinical practice. Projects cannot attain objectives if relevant professionals tasked with implementing findings are unaware of project results. Therefore, this process increases awareness besides creating a change-receptive environment. One of the ways I plan to disseminate the findings of this project is by providing a PowerPoint presentation to healthcare leaders and staff nurses. The presentation session will offer an opportunity for professionals to ask questions and clarify the presented concepts. This activity can help ensure that healthcare providers at the LTCF have a basic understanding of the proposed changes. Finally, an infographic will be placed on the facility's billboards to increase attention and awareness of the newly proposed guideline. An example of an infographic created for this project is included in Appendix E.

Meanwhile, continued use of Lewin's change model (as cited in Wojciechowski et al., 2016) can help in the system-wide site implementation of the CPG. The unfreezing phase will coincide with the dissemination process, where nurses can gain knowledge and motivation. After that, the staff will proceed into the moving phase by establishing the proposed CPG as an integral practice intervention, exploring its clinical usefulness, and making appropriate modifications. The refreezing phase will be characterized by comprehensive CPG use and its integration into the usual workflow processes.

Analysis of Self

The project has helped in both personal and professional development. It has enabled me to develop research and analysis skills. It has broadened my perspective on clinical problems. Rather than accepting problems as part of professional practice, I have begun to question the status quo and to develop ways to overcome challenges and improve patient care using an evidenced-based approach to problem-solving. The project has increased self-awareness through periodic self-assessment on my strengths and limitations and how they impacted the project's outcome.

As Practitioner

The DNP project has helped me improve my clinical skills, with an emphasis on patient safety. Proactively addressing the prevalent issue of elderly falls can increase patient safety and clinical outcomes. This experience has also increased my understanding of the significance of using evidence-based guidelines in clinical work. The project has also enabled me to become proactive in managing elderly falls through accurate risk assessment followed by relevant interventions.

As Scholar

This project has significantly improved skills essential to effectively use research through conducting literature reviews and data analysis and synthesis of sources. It has positively impacted my perspective on evidence-based literature and its application in healthcare. I have gained much understanding on theoretical frameworks that guide research and implementation of findings. I now know that I can use my scholastic abilities to develop solutions for clinical problems.

As Project Manager

The success of the project has increased my confidence in leading change process procedures in healthcare organizations. As the project manager, I have gained skills in communication, team coordination, attention to detail, and organization. These skills were necessary for each step of the project, and I will continue to use these earned skills to positively impact nursing care and professional development.

Summary

Following the high incidence of elderly falls and their associated complications, it is necessary to develop better mitigation approaches. Therefore, through this project, I intended to achieve this goal to improve geriatric care and the quality of life of older people. The proposed recommendations include combining the MFS and a set of bundled interventions as a CPG to prevent falls in this LTCF. The AGREE II tool was used to assess the quality of this guideline with achievement of satisfactory results. However, its implementation should not be limited to clinical nurses but to all healthcare professionals engaging with this older adult population in long-term care.

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Appendix A: AGREE II Tool



AGREE II INSTRUMENT

DOMAIN 1. SCOPE AND PURPOSE

1. The overall objective(s) of the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

2. The health question(s) covered by the guideline is (are) specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

DOMAIN 2. STAKEHOLDER INVOLVEMENT

4. The guideline development group includes individuals from all relevant professional groups.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

5. The views and preferences of the target population (patients, public, etc.) have been sought.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

6. The target users of the guideline are clearly defined.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

DOMAIN 3. RIGOUR OF DEVELOPMENT continued

13. The guideline has been externally reviewed by experts prior to its publication.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

14. A procedure for updating the guideline is provided.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

DOMAIN 4. CLARITY OF PRESENTATION

15. The recommendations are specific and unambiguous.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

16. The different options for management of the condition or health issue are clearly presented.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

17. Key recommendations are easily identifiable.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

DOMAIN 5. APPLICABILITY continued

21. The guideline presents monitoring and/or auditing criteria.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

DOMAIN 6. EDITORIAL INDEPENDENCE

22. The views of the funding body have not influenced the content of the guideline.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

23. Competing interests of guideline development group members have been recorded and addressed.

1 Strongly Disagree	2	3	4	5	6	7 Strongly Agree
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Comments

Appendix B: Literature Review Matrix Table

Reference	Type of study or brief description of study	Main findings	Implications for CPG	Level of evidence (Based on GRADE tool)
Fall Tools				
Borikova et al. 2017	This study was a systematic review to review studies that predicted the use of the Morse Fall Scale to explore the predictive value of using the tool in various settings.	<i>The predictive value of the tool in validation studies varies depending on the tested cut-off value, the type of clinical ward, the frequency of assessment, the size and age of the sample, and the length of hospitalization.</i>	The Morse Fall Scale may be used in a variety of settings. When used staff should set a cut-off score that is optimum for the preventive strategies that meet the site's needs.	I
Aranda-Gallardo et al. (2013)	The study was a systematic review and meta-analysis to establish the accuracy of fall risk detection and predicting instruments: Morse (MFS), STRATIFY, and Hendrich II Fall Risk Model scales among acute hospitalized patients in various settings.	Among the tools considered, the STRATIFY scale was established as the best tool for fall risk assessment for acute hospitalized patients in various settings. However, the instruments have variable behavior depending on the population and context hence operational testing of the instrument should be done before use.	The STRATIFY scale is the best tool and may be used in multiple settings. However, the other tools are effective based on the context and population they are used. Therefore, tool selection should be determined by the context and population.	II
Baek et al. (2014).	The study was a retrospective case-control study that examined the validity of the Morse Fall Scale through the analysis of the fall risk electronic medical records (EMRs) in different hospitalization phases in Korea.	The Morse Fall Scale had a relatively high predictive value on the Korean population	The Morse Fall Scale can be used in different settings and among persons from different cultural backgrounds. Therefore, the tool is culturally competent, and cultural considerations should not affect tool selection.	II
Baran and Gunes (2018)	The study was a prospective observational design that offered a report of a study that compared the psychometric attributes of the Fall Risk Assessment (FRA), Morse Fall Scale (MFS) and Hendrich Fall Risk Model-II (HFRM-II) among residents in a nursing home.	The FRA was considered effective when the area under the receiver operating characteristic curve (AUC) and the four validity criteria are considered. The MFS is also effective in this setting, but FRA has greater sensitivity and AUC values. HFRM-II has a low discriminative value.	The FRA can be used for fall risk assessment in nursing homes. When used, the staff should consider the validity criteria to be used.	II

(continued)

Gangavati, et al., 2011).	The study was a prospective population-based study that investigated the link between controlled and uncontrolled hypertension, orthostatic hypotension (OH), and falls among participants of the Maintenance of Balance, Independent Living, Intellect, and Zest in the Elderly of Boston Study.	Older adults with uncontrolled hypertension and SOH at one minute have a greater risk of falls within a year. Controlling hypertension with/without OH does not correlate with higher fall risk among older adults dwelling in the community.	MMFS can be used for measuring fall risk among older adults. However, the staff should consider other underlying conditions that may increase future fall risk.	II
Gringauz et al. (2017)	The study was a retrospective cohort analysis of adult patients hospitalized in Internal Medicine departments to ascertain the hypothesis that certain patient attributes could result in further stratification of fall risk among hospitalized patients with MMFS.	There was further risk stratification for patients with high MMFS.	The MMFS can be used for fall risk assessment for hospitalized in Internal Medicine departments. However, the staff should be considered the attributes that may create further stratification when applying the tool.	III
Lim and Yam (2016)	The study was a quantitative, descriptive, cross-sectional research that determined the level of knowledge and competency of nurses in using the Morse Fall Scale as an assessment tool in preventing falls in Malaysia	The nurses had moderate knowledge and competency in using the Morse Fall Scale.	The Morse Fall Scale is effective for determining fall risk and preventing falls. Staff should be adequately trained on using the Morse Fall Scale to ensure its effectively implemented.	IV
Pasa et al. (2017).	The study was cohort research to assess the risk of fall among adult hospitalized patients and verifying the fall incidence within the environment using the MMFS	The higher the fall risk score when the patient is admitted, the higher the score at the end of hospitalization with the opposite also holds. The incidence rates were correspondent to 1.68% with a greater percentage of patients being categorized as being at high fall risk.	The MMFS is an effective tool for measuring fall risk during hospitalization and at the end of the hospitalization period. The staff should use the MMFS to determine patient fall risk before being discharge and use the results for discharge planning.	III

(continued)

Bundled Fall Interventions				
Reference	Type of study or brief description of study	Main findings	Implications for CPG	Level of evidence (based on GRADE Tool)
CMS (n.d.)	This is a report prepared for CMS based on a systematic review of evidence on assessment and interventions for fall prevention .	Findings from this evidence-based systematic review support a multifactorial approach which includes assessment of risk and multiple interventions for fall prevention reduce number who fall and monthly fall rate. The most effective intervention combines fall risk assessment and management strategies with exercise. Common risks assessed were vision, medications, environment and ortostatic blood pressure check.	The CPG should include both a multifactorial fall risk assessment and interventions. Evidence supports recommending exercise in general as a component of a fall prevention strategy.	I
Lavallee et al., 2017	The study was a systematic review with meta-analysis to explore the effects of care bundles on patient outcomes.	An examination of 37 studies was conducted on care bundles. Authors found low quality evidence and mixed findings; however, some evidence supports the effectiveness of bundles to reduce negative patient outcomes compared to usual care.	The use of a bundled care approach may be effective; however, further study is needed to support effectiveness.	I
Wilkerson, L. (2017)	This is a description of a DNP project designed to implement a multifactorial fall prevention protocol for the effect on fall and injury rates as well as patient and staff compliance using a pre and post data comparison..	Although no reduction in mean number of falls or injuries was noted (injuries were minimal), improvement occurred in documentation of fall education; and use of visual check interventions targeted to address fall prevention..	Providing information to nursing staff about a multifactorial approach is indicated	IV
Pop et al. (2020)	This article describe a descriptive study on about the process of implementation and staff education of a tailored bundled fall intervention in an emergency department. The bundle included a tailored fall risk assessment, toileting and early warning interventions, and strategies for staff communication and patient education	Findings support implementation of a tailored bundle to reduce falls in the ED setting.	Bundles that are created to target a bundled approach to manage falls has potential to improve greater staff awareness and reduction of falls.	IV

(continued)

Trepanier & Hislenbeck, 2014	This article describes the need for intervention that aim at reducing the risks for falls and decrease the actual needs of events and severity of patient outcomes	The implementation of a standardized multifactorial program for adult patients appears to have reduced falls are likely to fail.	Researchers analyzed the impact of a standardized fall prevention program across 50 acute care hospitals in 11 states.	IV
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Appendix C: Summary Table of AGREE II Tool Results

Domain	Item	<i>M</i>	<i>SD</i>
Scope and purpose	1. The overall objective(s) of the guideline is (are) specifically described.	6.2	0.78
	2. The health question(s) covered by the guideline is (are) specifically described.	6.7	0.49
	3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.	7.0	0.00
Stakeholder involvement	4. The guideline development group includes individuals from all the relevant professional groups.	5.5	0.51
	5. The views and preferences of the target population (patients, public, etc.) have been sought.	2.0	0.77
	6. The target users of the guideline are clearly defined.	6.9	0.34
Rigor of development	7. Systematic methods were used to search for evidence.	6.7	0.63
	8. The criteria for selecting the evidence are clearly described.	5.7	0.45
	9. The strengths and limitations of the body of evidence are clearly described.	1.9	0.34
	10. The methods for formulating the recommendations are clearly described.	4.2	0.42
	11. The health benefits, side effects and risks have been considered in formulating the recommendations.	5.7	0.49
	12. There is an explicit link between the recommendations and the supporting evidence.	6.9	0.34
	13. The guideline has been externally reviewed by experts prior to its publication.	2.0	0.88
	14. A procedure for updating the guideline is provided.	4.7	0.93
Clarity of presentation	15. The recommendations are specific and unambiguous.	6.6	0.51
	16. The different options for management of the condition or health issue are clearly presented.	6.8	0.42
	17. Key recommendations are easily identifiable.	7.0	0.00
Applicability	18. The guideline describes facilitators and barriers to its application.	6.1	0.69
	19. The guideline provides advice and/or tools on how the recommendations can be put into practice.	3.7	0.45
	20. The potential resource implications of applying the recommendations have been considered.	1.7	0.47
	21. The guideline presents monitoring and/ or auditing criteria.	2.6	0.50
Editorial independence	22. The views of the funding body have not influenced the content of the guideline.	7.0	0.00
	23. Competing interests of guideline development group members have been recorded and addressed.	4.6	0.51
Domain	Item	<i>M</i>	<i>SD</i>
Overall Guideline Assessment	1. Rate the overall quality of this guideline.	5.4	0.11
	2. I would recommend this guideline for use	<i>n</i>	%
	Yes	23	100%

Appendix D: Clinical Practice Guideline

Clinical Practice Guideline to Reduce Falling for 65 Years and Older Living in a Long-Term Care Facility

The long-term care facility (LTCF) is a 100-bed facility and is located in the southern state of Virginia. The facility offers long-term care and skilled nursing to the elders aged 65 years and above. On average, two to three falls with or without injury occur weekly per project site Quapi report. According to the Morse Fall Scale, nurses can assess the likelihood of a patient's fall and adopt adequate and evidence-based measures and guidelines to help prevent such falls in the future, as shown below (Bórikován et al., 2017).

Clinical Practice Guideline

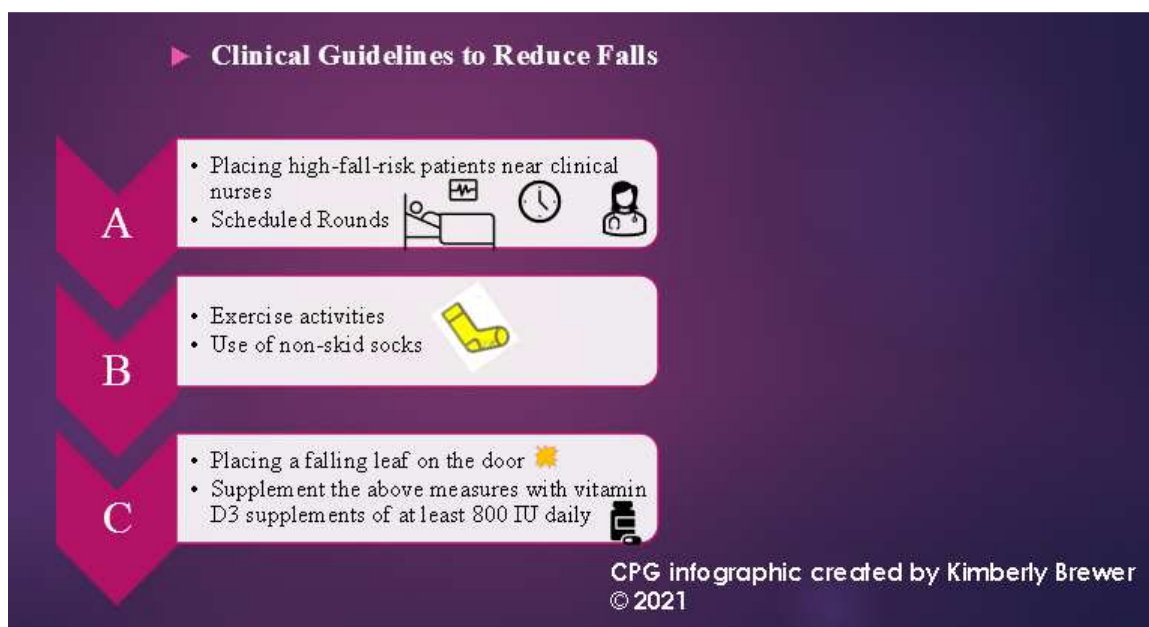
- i. Placing high-fall-risk patients near clinical nurses. This measure helps in enhancing visibility and, as such, enables the nurse on duty to monitor the patient closely for any eventful fall.
- ii. Scheduled Rounds. Additionally, after assessing the likelihood of a patient's fall using the Morse Fall Scale, a Registered Nurse (RN) should schedule round visits on the patient, at an average of every one hour (Melin, 2018). These rounds help in achieving close monitoring and rescuing the patient long before they fall.
- iii. Exercise activities. Moreover, the nurses should engage the patients in daily exercise activities to boost their immune, improve their balance and gait. Such activities help in keeping the 65-year-olds active and awake to avoid unnecessary falling.

- iv. Use of non-skid socks. Evidence-based clinical practice shows that non-skid or non-slip socks have high chances of preventing falls, slides, and injuries among the elderly such as those 65 years and above (Hatton et al., 2013). Therefore, the facility should provide this category of patients with non-skid socks to enhance their protection and safety against accidental falling due to weak body muscles.
- v. Placing a falling leaf on the door. The other measure the LTCF can employ to reduce the falling of the 65-year-old is to place falling leaves on the door to warn patients of the underlying risks (falling) within the hospital setting. This measure will help create awareness among elderly patients and reduce the frequency of patient falls in the facility.
- vi. Moreover, in collaboration with the concerned nurses, the facility/pharmacy management can supplement the above measures with vitamin D3 supplements of at least 800 IU daily. These supplements and the vitamin help in adding strength to the weak bones of this category of patients, occasioned by old age.
- vii. The above multifaceted and bundled falling interventions among the 65-year-olds and above can either be implemented independently or collectively at the LTCF facilities to minimize falling rates among this category of patients.

References

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Appendix E: Sample Infographic on Fall Prevention



Note. This infographic was developed for this project based on the clinical practice guideline.