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Systematic Review of Falls Among Older Individuals in the Long-Term Care Settings

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This is to certify that the doctoral study by

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Walden University
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Abstract

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by

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MS, Walden University, 2016

BS, Coppin State University, 2012

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Falls are common in the older population and can result in disability, increased

dependence, or mortality. Falls have received increased attention in the literature as the

most common cause of injuries among older individuals. The incidence of falls in the

older population has a positive correlation with adverse health issues necessitating major

lifestyle adjustments. The problem is magnified for older patients in long-term care

settings where they are 3 times more susceptible to falls. The purpose of this project

study was to conduct a systematic review of the literature to understand the impact and

incidence of fall rates among older patients in long-term care sites while determining

strategies that would be helpful in preventing falls in these care settings going forward.

The study was guided by the personality theory framework. The systematic review

included 12 peer-reviewed articles, final articles were selected based on recent year of

publication, scholarship, and English language. The revised Standards for Quality

Improvement Reporting Excellence was used to guide the review of identified

literature. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses

flow diagram was used to document the included studies. Results indicated that falls

among older patients have been attributed to personal and environmental factors

including medication, previous history of falls, and comorbidity risk factors regardless of

the setting. Multifactorial interventions including exercise therapy and assistive devices

have been more effective in preventing falls compared to stand-alone strategies. Findings

support social change by providing information to enhance patient safety practices

and improve patient outcomes for older individuals in long-term care settings.

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Dedication

This project is dedicated to my late father who died as a result of injury from a fall, and to all nurses who work in long-term care settings for the critical work they do. I hope the findings in this paper contribute to patient-centered care in geriatric settings.

Acknowledgments

I return all the glory to God for the strength and courage He gave me. I give Him all the glory. I would like to acknowledge my husband, Lawrence, and daughter, Stephanie, for their unwavering support as I completed this project.

Words alone are not enough to thank my DNP chair, Dr. Deborah A. Lewis. You are such a great mentor and teacher. I count myself fortunate to be under your guidance. You inspired and encouraged me when I was down. I also want to acknowledge other Walden faculty members, including Dr. Marisa Wilson, Dr. Faisal Aboul-Enein, and Dr. Joe Gredler, for their essential input in completing this research. Your constructive feedback allowed me to develop the study in a way that could positively impact nursing practice in long-term care environments.

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Section 1: Nature of the Project

Introduction

A fall is an abrupt, unintended change in position resulting when a person either hits the ground or an object below their starting point. Falls result from loss of body balance and the inability of the skeletal muscles to support the rest of the body (Alves et al., 2017). Galet, Zhou, Ten Eyck, and Romanowski (2018) reported that falls are the noteworthy cause of death and injuries in long-term care facilities among the older population. Furthermore, Bjerk, Brovold, Skelton, and Bergland (2017) characterized falls as a leading cause of nonfatal and fatal injuries among Americans age 65 or older, which results in more than 2 million visits to emergency rooms. Approximately 1,800 older people who live in long-term care facilities die annually because of injuries related to falls, and several of these falls go unreported (Slade, Carey, Hill, & Morris, 2017).

Compared to young adults, older adults are more prone to falls due to aging and different health situations in health care settings and homes (Bjerk et al., 2017). Age-associated changes in the bodies of older individuals, as well as the health problems they face in their senior years, have a significant impact on the increased incidence of falls and general inability to maintain body balance (Najafpour, Godarzi, Arab, & Yaseri, 2019). Moreover, cognitive impairment, drugs, medications, and changes in the environment of a person are associated with the increased risk of falling (Najafour et al., 2019) Increased falls among older adults result in several consequences, including physical, social, psychological, and financial (Florence et al., 2018). These issues are categorized as physical deformity, fractures and dislocations, anxiety, and fear of recurring falls

(Florence et al., 2018). These issues result in an increase in the direct cost of medical care due to injuries and loss of productivity among elders (Najafpour et al., 2019).

Older patients, their families, and caregivers are the primary victims of fall consequences. In long-term care facilities, predisposing factors for older patients include weak muscles, medications, poor vision, dementia, and unsteady gait and balance (Franse et al., 2017). Besides these physical factors, other factors are loose rugs, floor clutter, toilets or beds without rails, poorly fitting shoes, and poor lighting (Franse et al.,2017) Medical conditions like stroke, Meniere's disease, low blood pressure, uncontrolled diabetes, thyroid problems, Parkinson's disease, brain disorders, arthritis, and epilepsy are also contributing factors for falls (Kosse, de Groot, Vuillerme, Hortobágyi, & Lamoth, 2015). According to Cameron et al. (2018), falls contribute to an increased incidence of depression among older patients secondary to loss of confidence that is due to the physical limitations that come with either injuries or fear of falls. Repeated falls lead to a reduction in older adults' quality of life; an increase in the length of hospitalization; and financial loss to individuals, families, and organizations (Cameron et al., 2018).

Annually, more than 2.8 million injuries treated in emergency rooms occur due to falls involving over 800,000 hospitalizations and more than 27,000 deaths were recorded (Choi, Choi, DiNitto, Marti, & Kunik, 2019). The total cost of fall injuries was $50 billion in 2015, with Medicaid and Medicare carrying 75% of these costs (Centers for Disease Control and Prevention [CDC], 2017). As the U.S. population ages, the expenses for falls among older individuals are expected to increase and may hit $67.7 billion in

2020 (CDC, 2017). Nurses play an important role as health care staff to keep their

patients safe in long-term care facilities by providing evidence-based interventions for

fall prevention (Woodall, 2016). These interventions include hourly rounding, which

informs the nurses about the patient's needs (Luk, Chan, & Chan, 2015; Linehan &

Linehan, 2018). For example, patients may need assistance in walking to bathrooms or

access to the call light and bed alarm to call for assistance (Luk et al., 2015).

One initiative that can result in reduced fall rates is education for the nursing staff

(Zia, Kamaruzzaman, & Tan, 2015). Long-term care facilities could introduce the

information through a fall prevention awareness week to promote fall prevention with the

help of poster presentations or lectures (Bjerk et al., 2017). This initiative will educate the

nurses about the risk factors for falls and related prevention strategies (McKenzie et al.,

2017). Before the fall prevention program is initiated, there is a need for proper

recognition and evaluation of individuals who are at risk for falls (Mckenzie et al., 2017)

Some of the fall assessment tools can be used for the identification of patients who are at

risk (Abraham, 2016). The current project was a systematic review to examine the

evidence related to falls and their prevention among older adults in long-term care

settings. The primary objective of this project was to identify policies, processes, and

practices that have been successful in reducing the incidence of falls among older patients

in long-term care settings.

Problem Statement

According to Florence et al. (2018), the estimated cost of falls among older

individuals per year was close to $32 billion in 2017. In long-term care facilities, elders

are more prone to falls (Galet et al., 2018). Statistics revealed that the rate of falls for older adults is 3 times higher in long-term care facilities than for older adults who live in the community (CDC, 2017). Around 50% of older adults fall annually in long-term care, and of these 40% fall two or more times (Abbott-McNeil et al., 2010). With medical conditions and dissolution of bone mass, any fall in the older person leads to massive fractures and injuries that are difficult to treat and control (Abbott-McNeil et al., 2010). Men fall more often than women, but the rates of falls associated with fractures are higher in women (CDC, 2015). Most fall cases occur during the daytime because health care staff are less available due to shift changes or increased demand for care (Saftari & Kwon, 2018).

In long-term care settings, older patients often struggle with confusion and disorientation and are more likely to stumble on unfamiliar items on their paths and steep staircases, and are less likely to locate personal support devices such as walking sticks and eyeglasses (Callis, 2016). Fall rates are increasing in long-term care facilities due to workload, increase care demand, and improper awareness of fall prevention among health care staff and patients (Kosse et al., 2015). There is a need to educate both the nursing staff and patients to anticipate patients' needs before negative consequences occur. Due to the physical, mental, and psychological implications of falls, it is necessary to explore strategies and policies that help prevent falls in the long-term care setting (King, Pecanac, Krupp, Liebzeit, & Mahoney, 2016). The current project addressed the risk factors of falls and evidence from the literature regarding improvements in policies and strategies in

long-term care settings to manage and prevent falls and to improve the quality of care of older adults.

Purpose Statement

In hospitals, more than 84% of adverse incidents are associated with falls, which leads to complicated recovery, and these incidents are increasing with the number of risk factors (Cameron et al., 2018). There is a need to address which factors are responsible for increasing the incidence of falls among older patients in long-term care facilities (Shankar, Taylor, Rizzo, & Liu, 2017). Findings from the current study may be used to prevent the consequences of falls and ensure a higher quality life for patients. Multiple studies have been done on the issue, but there is a lack of a workable plan for the long-term care setting (Bjerk et al., 2017).

The gap in nursing practice is improper communication and lack of knowledge regarding falls. Communication and proper education are essential tools for the quality of care in health care settings (Kim & Jeong, 2015). The study site organization should educate the health care staff, and the health care staff should provide the knowledge to families and patients about fall prevention. Different strategies have been addressed in the literature regarding effective communication to reduce the rates of falls in long-term care (McKenzie et al., 2017).

The purpose of this project was to examine the evidence related to falls and their prevention among older adults in long-term care settings. The primary objective was to identify policies, processes, and practices that have been successful in reducing the prevalence of falls among older patients in long-term care settings. Findings may be used

to improve practice and policy in the study site organization. Implementation of improved policies, processes, and practices in long-term care settings in the health care industry may reduce the rates of falls and improve the safety and quality of care. The practice-focused question for the study was the following: What is the evidence on the causes and risk factors that contribute to falls in long-term care settings, and what are the evidence-based interventions that could be implemented?

Nature of the Doctoral Project

I explored the research evidence related to recurring falls among older patients in the long-term care setting. I focused on care modalities, adjustments, and practices to reduce the incidence and risk of falls in the selected population. The project was a systematic review of the literature. I used the Systematic Review Guideline, which includes (a) formulation of the research question, (b) identification of the scope, (c) identification of inclusion and exclusion criteria, (d) identification of relevant studies, (e) selection of studies that meet the criteria, (f) study appraisal, (g) synthesis and summary of findings, and (h) identification and presentation of implications for future practice. The framework was vital to collect quality evidence that addresses the gap in practice and the interventions that could be implemented to reduce the problem.

Significance

The number of older adults in the world is rapidly increasing (Masiero & Carraro, 2018). With the increasing health literacy and enhanced health-seeking behaviors, research indicates that most of the people today below the age of 40 will have an average life expectancy of 65 (Sharma et al., 2017). Studies indicated that by 2025, there will be

more than 800 million senior citizens in developing nations and more than 500 million in

developed nations (Lionis & Midlöv, 2017; Mohammed et al., 2017). Researchers have

predicted that more than 4 million hip fractures resulting from falls of the older patients

will be reported in developing nations by 2045 (Sharma et al., 2017). In the coming

years, therefore, there must be a correct and professional approach to management and

prevention of falls among older patients.

The consequences of falls among older individuals are far-reaching, affecting the

whole family and organization in multiple domains (Bjerk et al., 2017). There have been

multiple attempts to study the measures that can be put in place to prevent new patients

from suffering falls and to avoid recurring falls among patients in long-term care settings.

Given the social and economic burden related to falls, there is a need to develop

principles and care procedures and practices that will lead to social change and practice

adjustments (Shankar et al., 2017). The indication is that as life expectancy increases, a

higher percentage of older adults will be in long-term care settings (Shankar et al., 2017).

There is a need to explore methods and interventions to ensure that falls do not become a

significant problem in geriatric care in the future.

The current project may bring about social change in the care of older clients in

long-term care environments. First, findings may be used to improve the safety of care

provided in the facilities. Currently, safety issues such as medical errors, hospital-

acquired conditions, and falls have become subjects of discourse among administrators,

providers, and policymakers (Sharma et al., 2017). The health care system and clinicians

should implement interventions to minimize these problems. By addressing safety issues,

health care practitioners will improve patient outcomes. As a result, patients and their families will be more satisfied with the care experience, and nurses and other health care providers will be more satisfied with the care they provide.

Summary

The systematic review addressed the documented and researched remedies to the existing problem of falls among older patients in the long-term care setting. The existing practice in long-term care facilities has not solved the fall problem, as evidenced by the increasing incidence of injuries and deformities resulting from falls (Abbott-McNeil et al., 2010). With the projected increase in the number of older adults and the number of long-term care facilities, improved practice and interventions are needed to reduce the negative impact of falls and ensure that older patients receive the best care possible. The current project focused on gathering information from the existing literature regarding the remedies and practices that have been effective in minimizing the risk of falls among older individuals and to assess how they can be applied in long-term care facilities.

Section 2: Background and Context

Introduction

Among older people, falls are the most common cause of unintentional injury (Galet et al., 2018). In the U.S. population, one third of community dwellers age 65 years or older report at least one incident of fall every year (Chacko, Thangaraj, & Muhammad, 2017; Najafpour et al., 2019; Shankar et al., 2017). Such incidents affect older people in ordinary settings and home environments with which they are familiar. In long-term care settings, disorientation in a new environment and the presence of an underlying chronic health condition increases the incidence of falls (Galet et al., 2018). For the aging population, recurring falls and fear of falls contribute to personal distress and depression, leading to anxiety and inactivity. Repeated falls lead to a cynical and unhealthy spiral of inactivity and muscular strength decline, which leads to a reduction in the performance of the activities of daily living for older individuals (Franse et al., 2017). Research indicated that there are various factors related to falls among older individuals (Franse et al., 2017). These factors include the loss of balance with the aging brain, visual impairment with age, muscular weaknesses, and dizziness and confusion that may be the result of an existing disease process or side effects of drugs and medications (Kioh & Rashid, 2018; Pynoos, Steinman, & Nguyen, 2018; Saftari & Kwon, 2018). Environmental factors such as staircases, slippery floors, poor lighting, and obstacles are also causes of falls in an institutional setting (Vu et al., 2020). These factors increase the risk of falls, especially for patients who have underlying conditions that interfere with their balance and vision

(Kioh & Rashid, 2018). The new and unfamiliar environment will often be confusing to the patients, leading to commotion, accidents, and falls ((Pynoos et al., 2018).

The problem of falls among older individuals is a global issue. In Australia, about 30% of older individuals living in the community experience at least one serious fall annually (Dhargave & Sendhilkumar, 2016). In the United States, the statistics indicated a similar proportion of 32% of the older population, whereas in Canada the figures are 35-53% of older individuals in both community and institutional settings (Dhargave & Sendhilkumar, 2016. In China, one study determined "a rate of falls of 13.7 per 100 person years," which resulted in different injuries and deformities (Zhou, Peng, Tiedemann, Peng, & Sherrington, 2019, p. 4). These statistics indicate the significance of the problem from an international perspective and the need to address the issue comprehensively.

Concepts, Models, and Theories

To understand the risk of falls among older individuals in the long-term care setting, it is imperative to look at the individual and environmental or institutional factors increasing the risks. The incidence of falls increases with age, and fractures are the most common injuries that result from falls (Masiero & Carraro, 2018). Over 300,000 nursing home admissions in the United States are due to falls and related injuries and disabilities (CDC, 2017). For older individuals, the aging body and mind will contribute to an increase in the incidence of falls (Dhargave & Sendhikumar, 2016). According to the personality theory of development, the main characteristic of people above the age of 65 years is that they develop irreversible frailty that, when accompanied by declining

eyesight, weakening muscles, and unstable or painful joints, increases the risk of falls (Chacko et al., 2017). In addition, cognitive changes such as disorientation, confusion, and loss of memory contribute to the vulnerability to falls (Choi et al., 2019). Although dementia is associated with most of the cognitive impairment that increases the patient's risk for falls, memory loss and normal deterioration of brain functions contribute to falls even in the absence of dementia among the older patients (Chacko et al., 2017).

According to the personality theory of development, as people age their ability to multitask diminishes, and the demand on a brain that has limited performance ability increases the risk of confusion, loss of attention, and accidents (Slade et al., 2017). The current challenge is to understand and characterize the interaction between the person and the environment considering the changes taking place with age. As individuals age in their home settings, they minimize commotion and obstacles in their paths and live in environments that are less challenging to their movement (Vu et al., 2020). However, such awareness of the environment is less likely in long-term care facilities, which warrants the need for efforts to address this problem (Vu et al., 2020).

Relevance to Nursing Practice

The role of nurses in the care of geriatric patients is not any different from any other nursing care in terms of fundamentals (Donelan et al., 2019). However, nursing professionals targeted in the current study recognize that older patients are a special population due to their vulnerability to different safety and health-related issues (Donelan et., 2019). In nursing practice, older patients are regarded as patients requiring special care and concern (Donelan et al., 2019). Holistic care, especially involving psychosocial

therapy, spiritual therapy, and physical care, must be part of the nursing process (StraBner et al., 2019). The inadequacy of nurses in the health care setting means that some of the issues related to the vulnerability and susceptibility of older individuals to falls are unprioritized (Donelan et al., 2019). It is not possible to have nurses working directly with the patient at all times (Donelan et al., 2019).

Further, in long-term care facilities, older patients are cared for in groups, often by informal caregivers and therapists, with only occasional nursing care being necessary. With falls and the morbidity that follows, the situation changes, and the patients need wound dressings, fracture and dislocation care, mobility assistance, pressure area care, and other nursing practices that replace their lost ability to self-care (Tricco et al., 2017). The situation often overburdens the staff in the facilities leading to burnout and an increased risk of errors in care (Donelan et al., 2019). In the current nursing practice, several interventions are possible to reduce the risk of falls in long-term care settings (Straßner et al., 2019). However, most of these remain scantly tested, and their effectiveness in different situations has not been demonstrated (Straßner et al., 2019). The current review was conducted to bridge this gap by providing a systematic analysis of the available evidence related to the prevention and reduction of the risk of falls among older individuals. Successful completion of the review may result in the improvement of nursing practice in the long-term care setting. Effective interventions may be used depending on their applicability in care settings.

Local Background and Context

According to the CDC (2019), assisted living facilities, nursing homes, and skilled nursing facilities are known as long-term care facilities. With the increasing prevalence of terminal illnesses such as diabetes, cancer, dementia, and other diseases associated with aging, the number of long-term care facilities in the United States has increased over the last two decades (Sharma et al., 2017). Currently, over 4 million Americans reside in these facilities, and over 90% of them are older (CDC, 2019). Among the most prominent nosocomial health issues affecting the residents of these facilities are severe infections, fractures, and other injuries resulting from falls (CDC, 2019). Close to 250,000 older patients are under treatment for fall-related injuries and fractures in long-term care facilities (Kioh & Rashid, 2018). Nurses are the primary caregivers in the facilities but become exhausted by the increase in the number of patients in need of geriatric care, so unskilled and semiskilled personnel must be involved. Using an evidence-based approach to prevention and management of falls in these facilities is a critical priority.

The current project was conducted in the context of the Walden University library to ensure that I had access to credible and relevant resources to inform the practice change and review. Walden University has qualified and experienced faculty who are helpful to students when conducting projects. The guidance provided by the faculty was crucial to the completion of the current study, especially in the areas of selecting and searching the resources and using the digital catalog and databases to identify peer-reviewed studies relevant to the topic.

Role of the DNP Student

I have been a nurse for close to 10 years, and throughout my nursing experience falls have been the primary cause of readmission and death among older patients. I lost my father as a result of a complication from a fall. My role in the current study was a change agent to investigate this issue and help older adults live a quality life to the fullest. As the researcher, I prepared the prospectus and designed the study. My primary role was to refine the research topic, taking into consideration the input from my mentor and other staff, such as the librarian, in the exploration of the research. As the researcher, I explored the topic and selected relevant studies that met the inclusion criteria for the review.

Summary

Falls among older individuals are a global issue. Finding ways to minimize or prevent the problem is essential. The lack of knowledge and communication between caregivers, patients, and their families poses a threat to older populations (Straßner et al., 2019). Section 3 provides the background of the problem from the perspective of researchers and agencies in health care. I also provide statistics from different resources to justify the importance of this research in health care and to identify relevant methods to be used in finding a solution to the health problem. I also provide a detailed description of the literature search strategy.

Section 3: Collection and Analysis of Evidence

Introduction

The cost of caring for injuries associated with falls has placed a considerable burden on the health care system (CDC, 2017). Florence et al. (2018) posited that falls in the older population, including the long-term care setting, not only lead to physical injuries but also affect older individuals socially, psychologically, and financially. Nurses, as the primary caregivers, have a role to play in decreasing the incidence of falls by using an evidence-based approach in the management and prevention of falls in the long-term care setting. In Section 3, I describe the methods used in the collection of evidence from the existing literature and explain how the data analysis was conducted. I describe the search strategy used in the systematic review and explain how the articles were reviewed. The section also contains the inclusion and the exclusion criteria applied in the research, as well as the number and nature of research articles reviewed. IRB approval was obtained for this project (IRB approval #04-08-20-0450843).

Practice-Focused Question

The practice-focused question for this project was the following: What is the evidence on the causes and risks factors that contribute to falls in long-term care settings, and what are the evidence-based interventions that could be implemented? Other questions that guided the project to operationalize the practice-focused question included the following:

- What are the effective interventions in the management of falls in long-term care facilities?

- How can the risk of falls among older individuals in long-term care facilities be reduced?

- What is the role of the nurse in the management of falls and patient safety management in long-term care facilities?

Sources of Evidence

The evidence of this project was obtained from the systematic review of articles obtained from professional databases that contain recent and updated peer-reviewed articles. Access to the databases was obtained through the official institutional login with the help of the librarian. The following keywords and their variations were based on the practice-focused question and the topic: *elderly falls*, *geriatric care*, *risk of falls*, *fall management*, *long-term care*, *falls in long-term care*, and *falls among the elderly*.

Published Outcomes and Research

I used the following databases in searching and collecting evidence: Cochrane Library Database, PubMed, Medline, Cumulative Index to Nursing and Allied Health Literature, and ProQuest. These databases were selected because they contain peer-reviewed articles. The databases also have several tools that allowed me to search for articles. For example, I used Boolean operators to narrow down the searches to the most relevant sources. I also examined the bibliographies of certain articles to identify other credible and relevant sources that were assessed for eligibility using the inclusion and exclusion criteria. The review was conducted to answer the following practice-focused question: What is the evidence on the causes and risks factors that contribute to falls in

long-term care settings, and what are the evidence-based interventions that could be implemented?

Analysis and Synthesis

I used the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) flow diagram to track various scholarly sources for their suitability in systematic reviews and meta-analyses. The PRISMA enabled me to review different sources and determine whether they met the inclusion criteria. I excluded sources published before 2015, those that contained inconclusive evidence, or those that were not written in English. The project included only sources that provided current and adequate evidence regarding falls among older patients in the long-term care setting. When synthesizing the articles, I used a table to organize and evaluate the characteristics of the articles, as well as their essential finding and conclusions. The Revised Standard for Quality Improvement Reporting Excellence was used to describe the process of the research. The synthesized findings provided evidence-based support for the recommendations offered.

Summary

In this systematic review, I followed Walden's doctoral project guidelines to identify, organize, review, synthesize, analyze, and draw conclusions from the evidence regarding the topic. The findings from the review may be useful in preventing falls among older patients in long-term care environments.

Section 4: Findings and Recommendations

Introduction

Research indicated that older patients living in long-term care facilities are more susceptible to falls in comparison to older adults living in the community. Current data indicated that close to 53% of older individuals living in long-term care settings experience falls each year (Saftari & Kwon, 2018; Sharif et al., 2018). The social and economic burden related to the falls is significant to the community. Falls cost close to $32 billion each year (Florence et al., 2018). The gap in nursing practice was improper communication and lack of knowledge among caregivers, patients, and their families regarding falls. The purpose of the current project was to systematically review evidence on the causes and risk factors that contribute to falls in long-term care settings, and to identify interventions to curb the high incidence of falls in these settings. This section of the project includes the synthesized findings and the practical change necessary to prevent falls among older patients in the long-term care setting. I discuss the findings and their implications for practice, as well as recommended changes in geriatric care in the long-term care setting. The section also addresses the contribution of the project to the professional body of knowledge, as well as the strengths and limitations of the study.

Findings and Implications

Twelve studies with different methodologies were analyzed and synthesized. Table 1 provides the criteria for including and excluding peer-reviewed scholarly sources for the systematic review. To select the final articles for the review, I followed the

PRISMA diagram (see Figure 1). The major findings and conclusions from the 12 articles

selected for the systematic review are provided in the Appendix.

Table 1

Inclusion and Exclusion Criteria

Included	Criteria	Excluded
Articles dealing with falls prevention or risks among the elderly	Topic	Not to the topic, not about falls or the elderly
Articles published within the last 5 years (2015-2019)	Publishing time	Articles published before 2015
Peer-reviewed articles from credible and professional databases with replicable methodology	Level of evidence	Nonscientific papers and expert opinions, guidelines with no research element
Findings are conclusive and relate to a recommended practice or policy change	Findings	No findings indicated, inconclusive or not pointed towards practical change
The article is available online in full text with no subscriptions needed	Article availability	Subscription access only or no full text available
English	Language	Non-English articles
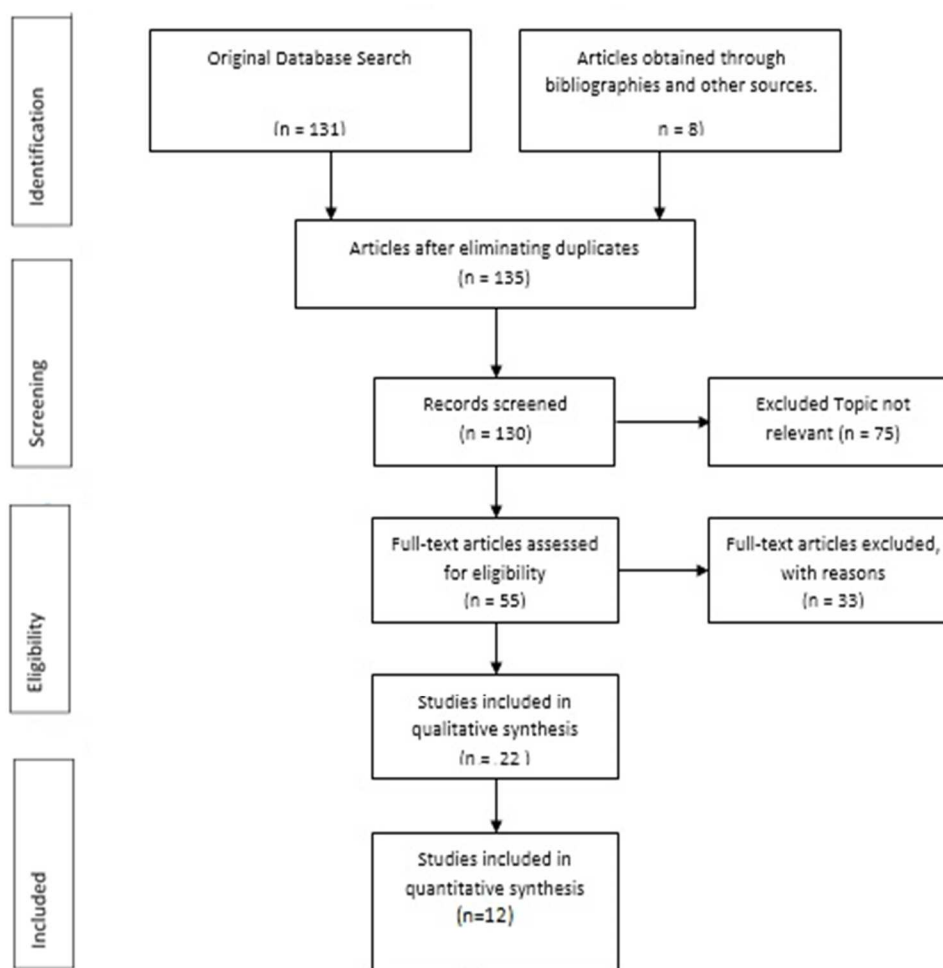
Figure 1. PRISMA flow diagram of search and study selection.

One of the most prominent themes was that falls can be attributed to personal and environmental factors (Alves et al., 2017; Najafpour et al., 2019). Sharif et al. (2018) explored the prevalence of falls and associated risk factors and found medication, previous history of falls, and comorbidity risk factors for patient falls regardless of the setting. Franse et al. (2017) underlined the impact that personal and environmental factors have on patient falls. Most of the studies indicated that fall interventions must follow patient and environmental assessments. According to Cheng et al. (2018), the

implementation of preventive intervention must accompany comprehensive assessments that consider personal and environmental factors. Other studies demonstrated the effect of personal and environmental factors on falls and promoted the idea of implementing targeted interventions (Franse et al., 2017; Kioh & Rashid, 2017; Russell, Taking, & Roy, 2017).

Another critical observation was that multifactorial interventions are more effective in preventing falls compared to stand-alone strategies. Cheng et al. (2018) found evidence to support the efficacy of multifactorial interventions in a systematic review of the literature. Some of the interventions that could apply in the multifactorial program include exercise therapy, assistive devices, and supplementation (Guirguis-Blake, Michael, Perdue, Coppola, & Beil, 2018). Chesser, Woods, Reyes, and Rogers (2017) and Shankar et al. (2017) recognized health literacy as a modifiable factor that could be addressed through the delivery of health education and training. According to Tricco et al. (2017), multicomponent interventions could encompass elements such as health education, treating underlying conditions, and offering psychotherapy treatments. Using insights from Katana et al. (2018), programmed therapeutic exercises could also be included in multifactorial programs.

Recommendations

The recommendations that emerged from the systematic review of the literature focused on having a support system in the long-term care facility that could screen patients for individual vulnerability to fall, implementing an acceptable exercise program, and teaching patients on how to avoid falls. In addition, findings indicated that

management in these facilities could increase focus on improving the environment to accommodate different patients with varying and changing physical abilities. Lighting, rails, and stairs must be friendly to older individuals. Older patients' families should also be trained on what to expect and how to adjust in their own environments.

Strengths and Limitations

The primary strength of this systematic review was that I focused on clinical and research evidence as documented in the articles explored. However, researcher bias may have had an impact on the results obtained. For example, my selection of articles may have been influenced by evidence selection bias, since I may not have exhausted all available data revolving around my topic. Despite this concern, the exploration of 12 articles and the consistency of data obtained from credible sources indicated that recommendations were generalizable.

Section 5: Dissemination Plan

Plan for Dissemination

The findings from this study may be useful in the clinical setting, especially in long-term care facilities treating older patients. My intention was to provide research-based evidence regarding ways for clinicians and other health care staff to curb the incidence of falls among older patients in long-term care facilities. To disseminate these results, I plan to use a poster presentation summarizing the findings and recommendations in workshops to target health care policymakers, especially those in geriatric and palliative care sectors. This approach may help to raise awareness among policymakers of the value of practice change and environment modification in long-term care contexts.

Analysis of Self

The effects of falls among older individuals are extensive, affecting the whole family and organization in multiple domains (Bjerk et al., 2017). Multiple studies have addressed this phenomenon. My purpose was to systematically review the literature to identify principles, care procedures, and processes that contribute to social change and practice adjustments (see Shankar et al., 2017). As a leader and a social change agent, I hoped to prevent new patients from suffering falls and to contribute to the reduction of recurring falls in the long-term care setting.

Summary

This research may benefit nurses in the geriatric and palliative care settings, as well as those in mainstream care facilities, which also handle older patients. Reducing the

risk of falls and preventing falls among older individuals is an important step toward the realization of improved quality of care. Safety of the patients, as well as their freedom to move without anxiety related to recurring falls, may improve their physical and mental health and ensure the success of nursing care objectives.

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Appendix: Characteristics of the Studies

Author	Article Title	Study Design	Findings and Conclusions
Najafpour, Godarzi, Arab, & Yaseri (2019)	Risk Factors for Falls in Hospital In-patients: A Prospective Nested Case-Control Study	Prospective control study	In all cases of falls among the older population, a combination of both patient and environmental factors increased the risk for falls.
Sharif et al. (2018)	Falls in the Elderly: Assessment of Pevalence and Risk Factors	Cross-sectional study	Most older persons were at risk of falls even in familiar home environments. Medication, comorbidity, and previous history of falls were related to increased risk of falls regardless of the setting. Older women were at higher risk of falls in homes and the long-term care settings.
Guirguis-Blake, Michael, Perdue, Coppola, & Beil (2018)	Interventions to Prevent Falls in Older Adults: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force	Systematic review of literature	Three interventions were suggested to prevent falls in the older population, which included multifactorial assessment and treatment of patients, exercise therapy, and Vitamin D supplementation. Multifactorial prevention reduced vulnerability through modification of both personal and environmental factors related to falls. Exercise therapy helped to empower and increase the stability and balance of the patients. Supplementation increased bone strength and reduced weakness that can result in falls.

Author	Article Title	Study Design	Findings and Conclusions
Cheng et al. (2018)	Comparative Effectiveness of Published Interventions for Elderly Fall Prevention: A Systematic Review and Network Meta-Analysis	Systematic review of literature	Multifactorial interventions involving the assessment of patients' conditions and environmental factors were more effective in reducing the risk of falls. Caregivers in long-term care facilities should prioritize exploring individual and environmental factors, health education, and exercise in reducing falls in older patients.
Chesser, Woods, Reyes, & Rogers (2017)	Health Literacy and Older Adults: Fall Prevention and Health Literacy in a Midwestern State	Retrospective research study	There was a lower number of falls reported among older male patients and patients with higher health literacy levels. Even with concerns about personal balance and risks of falls, health literacy was an important factor, indicating the relevance of health education as a possible intervention in fall prevention.
Tricco et al. (2017)	Comparisons of Interventions for Preventing Falls in Older Adults: A Systematic Review and Meta-Analysis	Systematic review of literature	Interventions involving combined strategies were more effective in the prevention of falls compared to single interventions. Exercise in combination with other interventions, such as treatment of underlying conditions, health education, and psychotherapy, was related to lower risk of injurious falls among older adults. Practitioners should select interventions based on patient needs and health goals.

(table continues)

Author	Article Title	Study Design	Findings and Conclusions
Katana et al. (2018)	The Effects of Programmed Therapeutic Exercises on Falls Risk Factors in the Elderly	Randomized control trial	Programmed exercises significantly reduced the risk of falls and the effects of unavoidable falls among the older population. The authors recommended that programmed exercises be implemented as part of physical therapy among the older population to reduce risks and incidences of falls as well as improve outcomes of care.
Russell, Taing, & Roy (2017)	Measurement of Fall Prevention Awareness and Behavior among Older Adults at Home	Qualitative research	Measures that require more professional health literacy and action were inadequate. However, it was found that families could implement home modification strategies in the prevention of falls. In long-term care settings, such measures can be manageable even as environmental modification strategies are put in place.
Kioh & Rashid (2018)	The Prevalence and the Risk of Falls Among Institutionalized Elderly in Penang, Malaysia	Cross-sectional survey	In institutionalized patients, screening for comorbidity, mental health status, and history of falls was essential. Preventive measures in facilities must focus on a comprehensive assessment of the patient's condition, as well as environmental factors related to falls.

(table continues)

Author	Article Title	Study Design	Findings and Conclusions
Shankar et al. (2017)	Exploring Older Adult ED Fall Patients' Understanding of Their Fall: A Qualitative Study	Qualitative research, phenomenological design	Many older patients in long-term care settings did not understand their predisposition to falls but were ready to adopt institutional and therapeutic strategies focused on reducing their risks of falls. The primary concern should be to increase the patient's understanding and perception of falls and promote their ability to work towards reducing their risk of falls. Nurses and caregivers must approach the problem of falls in the care setting from the perspective of both the patient and the environment.
Franse et al. (2017)	A Prospective Study on the Variation in Falling and Fall Risk among Community Dwelling Older Citizens in 12 European Countries	Prospective research study	Intrinsic risk factors to falls were the main reason behind inter-country variations in the prevalence of falls. The findings supported the importance of focused concern over the intrinsic and patient-related factors of falls.
Alves et al. (2017)	Evaluation of Risk Factors that Contribute to Falls among the Elderly	Cross-sectional study	The risk of falls increased with age and was directly associated with environmental changes, disorientation, and health condition of older patients. Preventing falls must entail a review of environmental modification, treatment of comorbid conditions, and enhancement of the patient's awareness of their environment.