2020

Effectiveness of a Standardized Fall Assessment Tool in Reducing Falls Among Elder Home Health Clients

Terica M. Woods
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Terica Woods

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Robert McWhirt, Committee Chairperson, Nursing Faculty
Dr. Maria Revell, Committee Member, Nursing Faculty
Dr. Riyad Naser, University Reviewer, Nursing Faculty

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

Walden University
2020

Abstract

Effectiveness of a Standardized Fall Assessment Tool in Reducing Falls Among Elder Home Health Clients

by

Terica Woods

MS, University of Phoenix, 2010

BS, University of Arkansas at Pine Bluff, 2007

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2020

Abstract

Because of the physiological changes that occur with the normal aging process, falls tend to have more serious consequences in individuals age 65 and older. The purpose of this systematic review of literature was to analyze studies that addressed the impact of a multifactorial fall risk assessment tool on decreasing falls in the elderly home health patient population following hospitalization. The conceptual model for this project was Roper, Logan, and Tierney's activity of daily living model. A narrative analysis was used to analyze 16 selected articles from the CINAHL, ProQuest and MEDLINE databases. Results indicated that implementing fall assessment tools across clinical settings can provide education to individuals, their families, and their appointed caregivers to reduce falls that can be detrimental for the elderly population. A multifactorial fall risk assessment can be used not only to assess the risk for falls but also to provide evidence-based education on the prevention of falls. Findings may be used to support the implementation of multifactorial fall assessment tools in reducing the incidence of falls in the elderly community-dwelling population.

Effectiveness of a Standardized Fall Assessment Tool in Reducing Falls Among Elder Home Health Clients

by

Terica Woods

MS, University of Phoenix, 2010

BS, University of Arkansas at Pine Bluff, 2007

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2020

Table of Contents

Section 1: Nature of the Project 1

Problem Statement 2

Purpose Statement 3

Nature of the Doctoral Project 3

Significance to Practice 4

Implications for Social Change 5

Summary 5

Section 2: Background and Context 7

Conceptual Model 7

Relevance to Nursing Practice 8

Background and Context 8

Role of the DNP Student 9

Summary 9

Section 3: Collection and Analysis of Evidence 10

Practice-Focused Question 10

Sources of Evidence 10

Inclusion and Exclusion Criteria 11

Analysis of Reviewed Literature 12

Summary 13

Section 4: Findings and Recommendations 14

Summary of Findings 14

Falls 14

Risk Factors for Falls 15

Fall Prevention Strategies 16

Home Environment 16

Multifactorial Fall Assessment Tool 17

Implications and Recommendations 20

Strengths and Limitations 21

Summary 22

Section 5: Dissemination Plan 23

Planned Dissemination 23

Analysis of Self 23

Summary 24

References 25

Appendix A: Summary of Literature Review 31

Appendix B: Prisma Flow Diagram 34

Section 1: Nature of the Project

In the United States, individuals are living longer, and the aging population is growing. One of the greatest safety risks to this population is falls. Falls are an increasingly common incident in the elderly that can lead to a loss of independence and other detrimental consequences. For example, each year 1 in 3 individuals of age 65 and older falls, leading to moderate to severe injuries that play a major role in accidental death and hospitalization (Centers for Disease Control and Prevention, 2015). Rubenstein, Robbins, Josephson, Schulman, and Osterweil (2002) identified that 10% to 20% of the falls result in serious injuries, and 2% to 6% result in fractures. Moreover, falls are a major factor in mortality and morbidity in individuals age 65 years and older. Given this, falls are a cause for concern.

Lee, Neily, Mills, Couternarsh, and Cantrell (2012) found that falls in the older adult can reduce the ability of the older adult to remain independent. As a result, it is priority to reduce falls in elderly patients who are living at home. Pynoos, Rose, Rubenstein, Choi, and Sabata (2006) posited that home health care clinicians can play a major role in assessing and managing fall risk in the home by carrying out assessments and interventions that target fall risk reduction in the home health patient. For this reason, it is important that the fall risk for this population be carefully assessed and appropriate interventions be implemented to reduce falls among this population.

The quality of life in individuals age 65 years and older can be reduced by injuries caused by falls. Because falls can have a detrimental effect on the quality of life and well-being of older individuals, it is important to identify the risk factors and interventions

than can be implemented to reduce and/or eliminate the identified risk. Although there is no single way to prevent falls in the home health patient because of the many factors that influence falls, the use of a multifactorial fall assessment tool can assist in identifying the risk. Anemaet and Krulish (2011) stated that falls are a high-volume, high-risk issue for home health stakeholders, and the measurement of provider-specific processes related to assessing fall risk is becoming a certainty in the health care industry. The purpose of this systematic literature review is to analyze studies that addressed the impact of the Multifactorial Fall Risk Assessment Screening tool on decreasing falls in the elderly home health patient following hospitalization.

Problem Statement

Falls have become an increasing global health problem in individuals age 65 and older, which makes it imperative that strategies be implemented in the home setting to prevent fall occurrence among this population. The problem that this project addressed was reducing the incidence of falls experienced by community-dwelling elderly individuals by using a multifactorial fall assessment tool. Because of the debilitating condition that can result from a fall in the elderly, focusing on this growing problem that negatively impacts the selected population is relevant to nursing practice and the health care industry. Many inpatient settings have policies and strategies to identify patients at risk for falls and reduce the occurrence of falls; however, the home health setting can be challenging due to lack of around-the-clock clinical personnel in the home setting. This makes it imperative to identify those patients at risk for falls in the home setting and implement effective strategies to reduce the occurrence of falls. Research indicated a

growing number of falls in individuals age 65 and older living at home, which can increase the mortality, morbidity, and frailty rate of these individuals. By implementing a multifactorial fall assessment tool among elderly individuals receiving home care, fall risk can be assessed and strategies can be put in place to assist in maintaining the safety and independence of this vulnerable population. In the current project, statistical processing control charts were used to determine whether there was a reduction in fall occurrence after implementation of the multifactorial fall assessment tool.

Purpose Statement

The purpose of this project was to perform a systematic review of literature to determine whether the implementation of a standardized multifactorial tool decreased the number of falls among elderly home health patients 65 years of age and older. I assumed that a multifactorial fall assessment tool could be used to accurately identify patients at risk for falls, therefore allowing strategies to be implemented to reduce the occurrence of falls. Because of the different care settings in the health care industry, it is imperative to nursing practice that appropriate interventions be implemented into practice. The following was the practice-focused question for the current project: Can the implementation of tools such as a multifactorial fall assessment tool accurately identify patients at risk for falls, therefore allowing strategies to be implemented to reduce the occurrence of falls?

Nature of the Doctoral Project

In the current project, I used a systematic review of literature to examine the use of multifactorial fall assessment tools in the elderly population. The goal of this literature

review was to identify and evaluate current studies with falls and multifactorial fall assessment tools as the study focus. For the purpose of this literature review, the CINAHL, ProQuest, and MEDLINE databases were used with the following key words: *elderly falls*, *ageing population*, *fall risk*, and *multifactorial assessment tool*. Using these key words to search for articles allowed for the integration of studies that covered the project topic. Using a systematic review, I was able to compile a list of studies that would aide in supporting decision-making that would bridge the knowledge-practice gap and assist with the implementation of future health care decisions.

Significance to Practice

Corbett et al. (2001) identified that 13% of the population was 65 years of age or older and that this number was expected to double by 2050. Gallagher, Stithh, and Southard (2013) stated that falls and the consequences that are caused by falls result in an increase in cost due to emergency, operative, and rehabilitative services; therefore, it is projected that by the year 2020 the cost of falls for individuals age 65 and older will be $43.8 billion annually. Therefore, it is imperative that evidence-based strategies be identified that will reduce the occurrence of falls in this population. Researchers have identified multiple coexisting risk factors for falls in the older adult. Fortinsky et al. (2004) argued that multifactorial approaches to identifying falls risk and appropriate follow-up interventions have been shown to reduce falls in the community-dwelling elderly population. Having worked directly in the community setting with the selected population, I have witnessed falls that could have been prevented if the patient had been

identified to be at risk for falls and if the appropriate interventions had been set in place to promote education and prevention strategies related to falls.

Implications for Social Change

It is well documented that the United States has an increasing aging population. This shift in the population demographics makes it more important than ever to consider the health, safety, and social needs of the elderly population. Many agencies and accrediting bodies have addressed the needs of the aging population with policies and procedures that address the safety of the elderly population. The Joint Commission on Accreditation of Healthcare Organizations has set international patient safety goals to promote progression in patient safety, with one of the goals focusing on reducing the risk of patient harm resulting from falls (Joint Commission, 2019). With this goal in mind, health care organization clients should be assessed and reassessed periodically for the client risk for falling; if a risk is identified, the health care organization should implement interventions to reduce or eliminate the identified risk in all settings. Chen, Zhu, and Zhou (2014) argued that falls occurring in the elderly population are an international and public health issue that accounts for substantial economic and quality of life burdens to persons and society as a whole, and that measures to reduce falls are essential for nursing quality and patient safety.

Summary

The purpose of Section 1 was to summarize the intent of the current project. Evidence has shown that the use of a multifactorial fall assessment tool can play a role in identifying intrinsic and extrinsic risk factors in the elderly population and reduce the

number of falls in this population. Decreasing falls in the elderly population may prevent serious injuries and fractures from occurring as a result of falls. My review of the literature indicated that many researchers had an interest in reducing falls.

Section 2: Background and Context

Falls in the elderly have dramatically increased over the years. It is imperative that the issue be addressed and interventions be implemented to reduce the number of falls in efforts to reduce loss of independence in the elderly population, mortality and morbidity in the elderly population, and deaths related from injurious falls. In this section, I focus on the conceptual models, the importance of the current project to nursing practice, the background information, and the role of the DNP student in the current project.

Conceptual Model

The use of theories in the health care setting can serve as a foundation that assists in guiding research and implementation. Roper, Logan, and Tierney's activity of daily living model can be of benefit in implementing the interventions identified by the multifactorial fall assessment tool to the client, the nurses, and other disciplines caring for the homebound client. McEwen and Wills (2011) identified that the major concepts of the model are the activities of daily living, lifespan, and the independence/dependence continuum. This model will assist disciplines to assess, treat, and evaluate the elderly homebound client. Because the aim of the project was to determine the impact a standardized multifactorial fall assessment tool on decreasing falls in the elderly home health patient, this model was useful in assisting with identifying and assessing the elderly client at risk for falls.

Relevance to Nursing Practice

Evidence can be translated into health care practice to design effective interventions based on the needs of the elderly population and to implement cost-effective fall prevention programs. The need for effective measures to reduce falls in the elderly population is evident because falls have major adverse consequences for this population, including loss of independence, reduced quality of life, increased mortality and morbidity, and increased utilization of health care related to injurious falls. With the growing population of aging adults, it is imperative that evidence-based interventions and education be implemented in all practice settings to address this international issue.

Background and Context

My nursing experience consisted of mostly the home health setting in a management role. A significant issue in the home health setting is preventing the incidence of falls in the elderly population. Reducing falls in the elderly population in the home health setting positively impacts the health, wellness, and independence of the elderly; reduces the acute hospital admission rate of the home health agency; and decreases premature admission to nursing facilities in the elderly population (Vieira, Palmer, and Chaves, 2016). I have witnessed the negative impacts of falls in the home health setting, ranging from minor injuries and fractures to death in the elderly population. By personally witnessing the impact that a fall can have on the elderly population, I developed an interest in identifying the risk of falls in this population and strategies that can reduce the incidence of falls and injury in this population.

Role of the DNP Student

In the role as a doctoral prepared nurse, I can translate evidence-based research into the practice setting. The doctoral prepared nurse can play an essential role in the research, development, and implementation of evidence-based practice in the health care industry. Walker and Polancich (2015) stated that advanced practice nurses, doctoral prepared nurses, and registered nurses are in the position to translate evidence into the practice setting. I used the skills gained in the role of a doctoral student to conduct a systematic review of literature that produced relevant information related to current project. My role in the current project as the doctoral student was to identify inclusion and exclusion criteria that allowed for the identification of research studies that were pertinent to the current project question. My work in developing the project question and translating evidence into nursing practice across various settings may help address the growing problem of the incidence of falls in the elderly population.

Summary

In this section I identified the conceptual framework and described the relevance of the current project to nursing practice. I also identified the background of the project and highlighted the importance of the current project as it relates to the DNP student.

Section 3: Collection and Analysis of Evidence

The purpose of the current systematic review of literature was to determine whether there was enough evidence to support the use of a multifactorial fall assessment tool in reducing falls in the elderly population. When conducting a systematic review, researchers should follow steps when reviewing and analyzing the current literature and provide a comprehensive summary to answer the practice-focused question (Wardle & Steel, 2015). This section focuses on the objectives of the literature review and the sources of evidence identified in the systematic review of literature.

Practice-Focused Question

The following was the practice-focused question for the current project: Can the implementation of tools such as a multifactorial fall assessment tool accurately identify patients at risk for falls, therefore allowing strategies to be implemented to reduce the occurrence of falls? The following were the objectives for the systematic review of literature:

1. to determine whether the implementation of a standardized multifactorial tool decreases the number of falls among elderly home health patients 65 years of age and older, and
2. to make recommendations regarding future implementation of the standardized multifactorial fall assessment tool.

Sources of Evidence

I conducted a comprehensive review of literature by using available online databases. The CINAHL, ProQuest, and MEDLINE databases were used with the

following key words: *elderly falls*, *fall risk*, *home environment*, and *multifactorial assessment tool*. Using these key words to search for relevant articles allowed for the integration of studies focused on the project topic and comparison of studies that covered the project topic to ensure that the most effective evidence would be used to make practice recommendations. The results of the literature review revealed 386 articles based on the search terms. From the 386 articles, 226 were selected due to full text availability. From the full text available articles, 213 articles had abstracts available. Of the 213, 16 articles were selected after reviewing the abstracts and articles that were identified to be pertinent to the project question. The 16 selected articles were then analyzed and summarized in a table summarizing the theme, aim, methods, and fall prevention strategies (see Appendix A). From the literature search, the following themes were identified: falls, risk factors for falls, fall prevention strategies, use of assessment tools, and the home environment. The literature was consistent regarding the growing concern and life-changing consequences that falls can have on the elderly population. In most cases, falls were not the result of a single causative agent; they were the result of multiple causative agents. Several studies indicated that because falls can be a result of multiple extrinsic and intrinsic factors, it is beneficial to assess the patient risk of falls using a multiple component assessment tool. Some studies indicated that the use of various multiple component assessment tools can be beneficial to identifying at-risk individuals.

Inclusion and Exclusion Criteria

For the purpose of the current review of literature, I was able to compile the articles relevant to the project by implementing a list of inclusion and exclusion criteria.

The number of articles from the initial search was reduced due to the inclusion and exclusion criteria. The inclusion criteria included peer-reviewed articles that focused on the elderly, community-dwelling elderly, and intrinsic and extrinsic risk factors for falls. The exclusion criteria consisted of articles that focused on early adulthood, falls occurring as a result of elderly abuse, and hospital-based falls. Due to the nature of the project and the impact that growing trends from the literature could have on the current project, I allowed for studies published within the past 20 years.

Analysis of Reviewed Literature

A narrative analysis was used to analyze the included articles. Information was extracted from each article using sample characteristics, including age; descriptive characteristics, including time period; inclusion and exclusion criteria, intervention characteristics, including effect of intervention; risk factors, including extrinsic and intrinsic; and fall-related outcome data, including the number of recent falls. Each article was appraised to ensure the quality and pertinence of the article related to the project topic. Fineout-Overholt, Melnyk, Stillwell, and Williamson's (2010) critical appraisal guide for quantitative studies was used to ensure the articles were appropriate for inclusion by seven identified criteria related to each article. The results allowed me to analyze the number of falls after the implementation of the multifactorial fall assessment tool and to make evidence-based recommendations based on the implementation of the multifactorial fall assessment tool in the home care environment. The data from the selected articles were analyzed to determine the best evidence for practice-focused recommendations.

Summary

In this section, I identified the literature review objectives, the online databases where the studies were obtained, the inclusion and exclusion criteria that allowed for the narrowing of the search to studies that were most pertinent to the current project, and the appraisal method used in the selection of the research articles. In Section 4, I provide a summary of the findings, an analysis of each article, the strengths and limitations of the project, and implications and recommendations for further research.

Section 4: Findings and Recommendations

In the United States, individuals are living longer, and the aging population is growing. The primary focus of this project was to perform a systematic literature review to determine whether the use of a multifactorial fall assessment tool has an impact on reducing falls in the elderly population. In this section, I provide a summary of the analysis of articles that were included in the systematic review of literature (see Appendix B). Furthermore, implications and recommendations of this systematic review are discussed.

Summary of Findings

Falls

According to Cook et al. (2009) falls are a major health issue for the elderly population, increasing the elderly risk for disability, mortality, morbidity, and frailty. Because of this increased risk for disability, morbidity, and other outcomes that can create a limitation in independent functioning, it is imperative that evidence-based interventions be implemented to reduce the risk of falls in this aging population. Watlking, Blanchard, Tookman, and Sampson (2012) found the most typical patient-related safety incidents involving elderly patients are slipping, falling down, and falling from a height. With these being considered typical accidents, it is not only necessary but is also priority to implement strategies that can be used to assess the risk for falls and interventions to prevent the incidence of falls from occurring in the elderly population.

Risk Factors for Falls

The evidence showed that there are a number of intrinsic and extrinsic factors that contribute to falls in the elderly population. Because falls can result from a complex interaction between intrinsic and extrinsic risk factors, it is critical to identify the predisposing and precipitating factors related to falls. Heitterachi, Lord, Meyerkort, McCloskey, and Ftizpatrick (2002) identified several risk factors that influence falls in the elderly population: diabetes, balance and range of motion impairment, postural hypotension, vision and hearing disturbance, and urinary incontinence. Berlie and Garwood (2010) suggested that elderly patients with a diagnosis of diabetes have an increased risk for falls related to increased frailty, peripheral neuropathy, retinopathy, hypoglycemia, and polypharmacy.

Similarly, Leveille et al. (2002) suggested that many falls may result from acute or chronic loss of balance related to physiological changes, advancing age, reduced mobility, and muscle weakness and pain. Huang, Gau, Lin, and Kernohan (2003) suggested that whether an elderly individual has experienced a fall or not, fear of falling can potentially lead to a fall. Therefore, understanding specific sources of risk factors is imperative in reducing falls.

The use of some medications may have a significant influence of falls due to their side effects such as dizziness, postural disturbances, altered gait/balance, and impaired cognition. The use of multiple medications (polypharmacy) can increase the risk of the elderly patient falling. Chen et al. (2014) suggested that taking five or more medications has a significant impact on fall risk and that polypharmacy rather than the number of

comorbidities has an impact on fall risk. Vassallo et al. (2009) identified that cognitive impairment and confusion are common risk factors for falls in the community-dwelling patient and that patients with confusion are 3 times more likely to fall than patients who are not confused. Confusion can play a major role in the incidence of falls in the elderly, which is one of the intrinsic risk factors in the multifactorial fall assessment tool. Watlking, et al. (2012) stated that a mild to moderate memory deficit and acute confusion are often present in older adults when analyzing the factors associated with patient-related safety incidents. In summary, the evidence showed that the increased risk for falling in confused patients can be attributed to the lack of awareness of environmental dangers and not adhering to a safety or medical treatment regimen.

Fall Prevention Strategies

Fall prevention strategies are an important aspect of health promotion and injury prevention in the elderly population. Findings from the current project revealed the impact that the multifactorial fall assessment tool has on reducing falls in the elderly home health population.

Home Environment

The home environment can pose a great risk for falls in the elderly population. Many home hazards have been attributed to falls or trips or slips that occurred inside the home or the immediate surroundings of the home (Lord, Menz, & Sheerington, 2006). Environmental modifications can help reduce or eliminate extrinsic factors that may be associated with a greater risk of falls (Dionyssiotis, 2012).

Multifactorial Fall Assessment Tool

Researchers have examined the impact of multifactorial tools on the reduction of fall risk and fall incidence. Sjosten et al. (2007) described the implementation and effects of a multifactorial fall prevention program on the risk of falling and the incidence of injurious falls. Sjosten et al. found that the use of tool can have a positive impact on reducing the occurrence of falls. However, Salminen, Vahlberg, and Kivela (2009) demonstrated that multifactorial fall prevention tools are not effective in reducing the incidence of falls in the community-dwelling elderly individual; moreover, Salminen et al. revealed interventions that could be used to decrease the risk of falls, such as exercise and programs promoting balance and gait training in the elderly population. The current project focused on early risk identification and early implementation of interventions through the use of the multifactorial fall assessment tool. Front-loading therapy, fall reduction education, and more frequent reassessments for those identified to be at risk may significantly reduce the occurrence of falls.

As I researched the use of multifactorial fall assessment tools, I noted that one study revealed the efficacy of a fall assessment tool as it is used in conjunction with a multifactorial fall assessment program. Johansson, Jonsson, Dadlberg, and Patomella (2018) analyzed the efficacy of a multifactorial fall prevention program. Johansson et al. focused on the comparison and evaluation of a multifactorial fall assessment programmer with fall prevention in the health care setting. Johansson et al. examined community-dwelling adults older than age 65 who had experienced a fall within the past 6 months or who had acknowledged a fear of falling. The study consisted of 131 randomized

individuals in an intervention or control group with the primary outcome to measure the falls and the secondary outcome to measure the fear of falling (Johansson et al., 2018). The program took place over 12 months with multidisciplinary teams examining participants every 3 months to identify any falls that occurred during the 3 month period with educational sessions on fall prevention (Johansson et al., 2018). The findings indicated that frequent interventions with a multidisciplinary team resulted in a significant decrease in the risks of falls; over the 12 month period, only the fear of falling remained significant (Johansson et al., 2018). Small group learning interventions in combination with hands-on learning may be an effective approach in reducing the incidence of falls and reducing the fear of falls in elderly individuals.

Studies that focused on the community-dwelling elderly provided a view of the elderly population outside of the inpatient setting. Russel et al. (2009) focused on 344 individuals from the elderly population who presented to the emergency department following the incidence of a fall. After discharge from the hospital, each individual had a home-based fall assessment performed, which included a multifactorial fall assessment tool titled Fall Risk for Older People in the Community (Russel et al., 2009). Following the initial assessment, each individual was monitored for 12 additional months (Russel et al., 2009). The items assessed with the identified multifactorial fall assessment tool were the number of fall occurrences in the previous 12 months, the visual observation of the individual's balance, and the need for assistance of the individual to perform domestic activities of daily livings (Russel et al., 2009). The findings indicated that in a time-

limited situation, such as an emergency department visit without inpatient admission, this assessment tool served as a good predictor of fall risk (Russel et al., 2009).

Due to the growing community-dwelling population, there has been an increase in studies related to falls in the elderly who are living at home in the community. Smith et al. (2017) focused on the assessment of risk related to falls in the elderly living at home. Smith et al. focused on the history of falls, sociodemographic and cognitive factors, and comorbidities reported by the individual. In this cross-sectional quantitative study involving 240 elderly individuals, data were collected based on the social profile of the individual (Smith et al., 2017). Findings revealed that being female over the age of 80 with low cognitive status increased the risk for occurrence of falls (Smith et al., 2017). Additionally, Smith et al. identified several variable that are associated with falls, including history of falls, the dynamics of the home environment, and visual impairments. Findings indicated that there are risk factors related to falls in the elderly community-dwelling individual including; fall, with whom the elderly live, hypertension and vision impairment (Smith et al., 2017).

A similarly study was performed focusing on the physical functions that predict falls in the community-dwelling elderly population. Hirase, Inokuchi, Matsusaka, Nakahara, and Okita (2014) examined a modified fall risk assessment tool that focused on physical functions that predict falls in the elderly community-dwelling population. The data included both retrospective and prospective samples for a duration of 3 months that consisted of community-dwelling individuals over the age of 65 (Hirase et al., 2014). The number of falls, the risk factors identified through a 15-question questionnaire, and

physical function were assessed during the study (Hirase et al., 2014). Findings revealed that seven of the 15 risks factors were related to physical function (Hirase et al., 2014). Findings also indicated that a screening tool consisting of seven fall risk factors may be used to predict falls and identify high-risk fallers (Hirase et al., 2014).

Implications and Recommendations

The mortality and morbidity of the incidence of falls in the elderly have been researched. Many studies addressed the impact that a fall can have on the elderly population. The need for effective measures to reduce falls in the elderly population is evident because falls have major adverse consequences on this population, including increased hospital admission related to traumatic brain injury, loss of independence, increased mortality and morbidity, and increased utilization of health care related to injurious falls (Hsieh et al., 2018). With the growing population of aging adults, it is imperative that evidence-based interventions and education be implemented in all practice settings to address this international issue.

Evidence can be translated into health care practice to design effective interventions based on the needs of the elderly population and to implement cost-effective fall prevention programs. My analysis of the literature indicated that implementing fall assessment tools across clinical settings can provide education to individuals, their families, and their appointed caregivers to reduce falls that can be detrimental for the elderly individual. A multifactorial fall risk assessment can be used not only to assess the risk for falls but also to provide evidence-based education on the prevention of falls. My recommendation for future studies is to focus not only on the

intrinsic factors of the elderly but also on the extrinsic factors such as the home environment. Providing individual-centered education on fall risk and expanding the risk assessment to include the home environment may reduce the incidence of falls by providing a broader assessment of the daily living circumstances of the elderly community-dwelling individual.

Strengths and Limitations

The major strength of this systematic review of literature was the number of studies that addressed falls in the elderly population. An additional strength was the time frame of the evidence used for the literature review, with the earliest study being less than 17 years old. The final strength of this review was that all articles focused on the elderly population, ensuring that the results pertained to the population identified in the project question.

One limitation of the systematic review of literature was that many of the studies focused on falls that occur in the inpatient setting compared to the home setting. Although the prevention of falls in any setting is important, one of the priorities of the project was to identify strategies that prevent falls in the community setting. Another limitation was the small number of studies that focused on the use of a multifactorial tool in fall risk assessment. Another limitation was the presence of studies that could have been pertinent to the current project; however, these studies were published in a language other than English and could not be included in the literature review.

Summary

The literature review revealed 16 studies on assessment tools and risk factors for fall occurrence. Many studies have been conducted on what influences the elderly patient to be at risk for falls. Both intrinsic and extrinsic factors such as medications, environmental hazards, and cognitive factors have been identified to be causative factors that increase the incidence of falls.

Identifying patients who are at risk for falls is only part of addressing the reduction of falls in the elderly. For patients who are identified to be at risk for falls, interventions should be implemented to address the risk factors and reduce falls or recurring falls. Research findings were not conclusive regarding the type of assessment tool to identify those at risk or the interventions to implement; however, a consistent finding from the studies was that falls are a growing concern in the elderly population and there must be strategies implemented to address this concern.

Section 5: Dissemination Plan

Falls in the elderly have been an increasing concern with detrimental impacts on the elderly population. Injury-causing falls are one of the major concerns for health care providers as the elderly population is increasing with a significant increase of life expectancy (Linaltiniemi, Jokelainen, & Luukinen, 2008). I conducted a systematic review of the literature to determine whether the use of multifactorial fall assessment tools has an impact on reducing falls in the elderly population. Evidence suggested that the use of a multifactorial fall assessment tool along with other programmatic interventions may reduce fall risk across health care settings.

Planned Dissemination

Findings from this systematic review of literature can be translated into various health care settings to enable practitioners to collaborate on strategies to reduce the incidence of falls in the elderly. My personal plans are to engage with local and national organizations that advocate for the elderly population and to discuss ways to address concerns within the elderly population. As this population continues to grow, it is imperative that evidence-based practices be disseminated across health care settings to assist with preventing falls and related injuries.

Analysis of Self

The process of completing my first systematic review of literature was a complex experience for me. Getting the grasp of conducting a literature review required vigorous research and networking with peers. Through conducting the review of literature, I was able to learn the importance of inclusion and exclusion criteria in identifying the most

important studies related to the project question. By identifying gaps in the literature, I developed recommendations regarding further research needed to translate evidence into practice. With what I have learned during the process of conducting the literature review, I wish to continue to enlighten myself and others on how conducting a systematic review of literature can help identify evidence that can be used to develop and implement strategies that can be used in health care practices.

It is always beneficial to critique oneself. The main critique that I have related to the process of conducting this literature review is to set a time line. Although a literature review can be time-consuming, I have concluded that setting a strict time line will benefit the results, consistency, and cohesiveness of the outcomes.

Summary

Conducting this comprehensive review of literature allowed for analysis of studies related to falls in the elderly. Various intervention programs can play a role in the prevention of falls. Multifactorial intervention programs used to assess intrinsic and extrinsic risk factors have been shown to be effective in reducing falls in the elderly population.

References

American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopedic Surgeons Panel on Fall Prevention. (2001). Guideline for prevention of falls in the older persons. *Journal of American Geriatrics Society*, *49*(5), 664-672.

Anemaet, W. K., & Krulish, L. H. (2011). Fall risk assessments in homecare: Oasis-C expectations. *Home Health Care Management and Practice*, *23*(2). doi: 10.1177/1084822310385084

Berlie, H. D., & Garwood, C. L. (2010). Diabetes medications related to an increased risk of falls and fall-related morbidity in the elderly. *Annals of Pharmacotherapy*, (44). doi: 10.1345/aph.1M551

Centers for Disease Control and Prevention. (2015). Falls among older adults: An overview. Retrieved from www.cdc.gov

Chen, Y., Zhu, L. L., & Zhou, Q. (2014). Effects of drug pharmacokinetic and pharmacodynamics properties, characteristics of medication use, and relevant pharmacological interventions on fall risk in elderly patients. *Therapeutics and Clinical Risk Management*, (10), 437-448. doi: 10.2147/TCRM.S63756

Cook, A. S., Ciol, M. A., Hoffman, J., Dudgeon, B. J., Yorkston, K., & Chan, L. (2009). Falls in the Medicare population: Incidence, associated factors, and impact on health care. *Physical Therapy*, *89*(4), 324-330. doi: 10.2522/ptj.20070107

Corbett, E., Freeman, L., Kennedy, A. R., Miller, Smith, C. Radensky, L., & Zarrow, A. (2001). A fall prevention program for the home environment. *Home Care*

Provider, (5), 157-163. doi: 10.1067/mhc.2001.119263

Dionyssiotis, Y. (2012). Analyzing the problem of falls among older people. *International Journal of General Medicine,* (5), 805-813. doi: 10.2147.IJGM.S32651

Fineout-Overholt, E., Melnyk, B., Stillwell, S., & Williamson, K. (2010). Evidence-based practice step by step. Critical appraisal of the evidence part I: An introduction to gathering, evaluating, and recording the evidence fifth in a series. *American Journal of Nursing*, *110*(7), 47-52. doi: 10.1097/01.NAJ.0000383935.22721.9c

Fortinsky, R. H., Sucich, M. I., Baker, D. I., Gottschalk, M., King, M. B., Brown, C. J., & Tinetti, M. E. (2004). Fall-risk assessment and management in clinical practice: Views from healthcare providers. *Journal of American Geriatric Society*, *52*(9). doi: 10.1111/j.1532-5415.2004.52416.x

Gallagher, R., Stith, N., & Southard, V. (2013). Evaluation of the Missouri alliance for home care fall risk assessment tool and home based balanced approach fall reduction initiative. *Home Health Care Management and Practice*, *25*(5), 224-228. doi: 10.1177/1084822313487203

Heitterachi, E., Lord, S. R., Meyerkort, P., McCloskey, I., & Fitzpatrick, R. (2002). Blood pressure changes on upright tilting predict falls in the elderly. *Age and Ageing*, *31*(3), 181-186. doi: 10.1093/ageing/31.3.181

Hirase, T, Inokuchi, S., Matsuska, N., Nakahara, K., & Okita, M. (2014). A modified fall risk assessment tool that is specific to physical function predicts falls in community-dwelling elderly people. *Journal of Geriatric Physical Therapy*,

37(4), 159-165. doi: 10.1519/JPT.0b013e3182abe7cb

Hsieh, C. H., Rau, C. S., Wu, S. C., Liu, H. T., Huang, C. Y., Hsu, S. Y., & Hsieh, H. Y. (2018). Risk factors contributing to higher mortality rates in elderly patients with acute traumatic, subdural hematoma sustained in a fall: A cross-sectional analysis using registered trauma data. *International Journal of Environmental Research and Public Health*, *15*(11), 474-481. doi: 10.3390/ijerph15112426

Huang, H. C., Gau, M. L., Lin, W. C., & Kernohan, G. (2003). Assessing risk of fall in older adults. *Public Health Nursing*, *29*(5), 399-411. doi: 10.1046/j.1525-1446.2003.20508.x

Johansson, E., Jonsson, H., Dahlberg, R., & Patomella, A. (2018). The efficacy of a multifactorial falls-prevention programme, implemented in primary health care. *British Journal of Occupational Therapy*, 8. doi: 10.1177/0308022618756303

Joint Commission. (2019). National Patient Safety Goals. Retrieved from https://www.jointcommision.org/standards/national-patient-safety-goals/hospital-2019-national-patient-safety-goals/

Lee, A., Lee, K., & Khang, P. (2013). Preventing falls in the geriatric population. *Permanente Journal*, *17*(4). 37-39. doi: 10.7812/TPP/12-119

Lee, A., Neily, J., Mills, P., Couternarsh, C., & Cantrell, M. G. (2012). Assessing readiness to change of a high fall risk patient: A case report. *Care Management Journals*, *1*(13). doi: 10.1891/1521-0987.13.1.2

Leveille, S. G., Bean, J., Bandeem, K. R., Jones, R., Hochberg, M., & Guralink, J. M. (2002). Musculoskeletal pain and risk for falls in older disabled women living in

the community. *American Geriatrics Society*, *50*(4), 671-678. doi: 10.1046/j.1532-5415.2002.50161.x

Linaltiniemi, S., Jokelainen, J., & Luukinen, H. (2008). Exercise and risk for injurious fall in home-dwelling elderly. *International Journal of Cicumpolar Health*, *67*(2-3), 235-244. doi: 10.3402/ijch.v67i2-3.18279

Lord, S. R, Menz, H. B., & Sherrington, C. (2006). Home environment risk factors for falls in older people and the efficacy of home modifications. *Age Ageing*, (2), 55-56. doi: 10.1093/ageing/af1088

McEwen, M., & Willis, E. M. (2011). *Theoretical basis for nursing* (3rd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Pynoos, J., Rose, D., Rubenstein, L., Choi, I. H., & Sabata, D. (2006). Evidence-based interventions in fall prevention. *Home Health Care Services Quarterly*, *25*(1), 55-73. doi: 10.1300/J027v25n01_04

Rubenstein, L. Z., Robbins, A. S., Josephson, K. R., Schulman, B. L., & Osterweil. D. 2002. The value of assessing falls in an elderly population. *Annals of Internal Medicine, 113*(4), 308-316. doi: 101.7326/0003-4819-113-4-308

Russell, M. A., Hill, K. D., Day, L. M., Blackberry, I., Gurrin, L. C., & Dharmage, S. C. (2009). Development of the falls risk for older people in the community. *Age Ageing, 38*(1), 40-46. doi: 10.1093/ageing/afn196

Salminen, M., Vahlberg, T., & Kivela, S. L. (2009). The long-term effect of a multifactorial fall prevention programme on the incidence of falls requiring medical treatment. *Public Health*, *123*, 809-813. doi: 10.1016/j.puhe.2009.10.018

Sjosten, N. M., Salonoja, M., Piirtola, M., Vahlberg, T., Isoaho, R., Hyttinen, H.,…Kivela, S. L. (2007). A multifactorial fall prevention programme in home-dwelling elderly people: A randomized trial. *Journal of the Royal Institute of Public Health*, *121*, 308-318. doi: 10.1016/j.puhe.2006.09.018

Smith, A., Silva, A., Rodrigues, R., Moreira, M., Nogueira, J., &Tura, L. (2017). Assessment of risk of falls in elderly living at home. *Revista Latino-Americana de Enfermagem*, *25*(1). doi: 10.1590/1518-8345.0671.2754

Walker, D. K., & Polancich, S. (2015). Doctor of nursing practice: The role of the advanced practice nurse. *Seminars in Oncology Nursing*, *31*(4), 263-272. doi: 10.1016/j.soncn.2015.08.002

Wardle, J., & Steel, A. (2015). Systematic reviews in integrative medicine: A clinician's guide to publication. *Advances in Integrative Medicine, 2*(2), 103-109. doi: 10.1016/j.aimed.2015.09.001

Watlking, L., Blanchard, M. R., Tookman, A., & Sampson, E. L. (2012). Prospective cohort study of adverse events in older people admitted to the acute general hospital: Risk factors and the impact of dementia. *International Journal of Geriatric Psychiatr*y, (27), 76-82. doi: 10.1002.gps.2693

Vassallo, M., Mallela, S., Williams, A., Kwan, J., Allen, S., & Sharma, J. (2009). Fall risk factors in the elderly patients with cognitive impairment on rehabilitation. *Geriatrics Gerontology International, 9*(1), 41-46. doi: 10.1111/j.1447-0594.2008.0056.x

Vieira, E. R., Palmer, R. C., & Chaves, P. H. (2016). Prevention of falls in older people

living in the community. *British Medical Journal, 353*. doi: 10.1136/bmj.i1419

Appendix A: Summary of Literature Review

Author/Year	Project Theme	Aim of Article	Method	Reduces Falls	Implications for practice.
Cook, A.S., Ciol, M.A., Hoffman, J., Dudgeon, B.J., Yorkston, K., & Chan, L. (2009).	Elderly Falls	To identify evidence based interventions on reducing falls.	The use of a longitudal survey	Yes	Due to increased mortality and morbidity of falls it is imperative to implement EBP to prevent falls in the elderly.
Watlking, L., Blanchard, M.R., Tookman, A., & Sampson, E.L. (2012).	Elderly Falls	To identify implementation strategies to prevent the incidence of falls.	Randomized Control Trail	Yes	Due to falls being considered typical accidents in the elderly it is priority that strategies are implemented to access fall risk.
Heitterachi, E., Lord, S.R., Meyerkort, P., McCloskey, I., & Fitzpatrick, R. (2002).	Risk Factors for Falls	To identify risk factors that influence falls in elderly population.	Systematic review using one-stage meta analysis	Yes	Assessing for intrinsic factors related to disease processes in the elderly can contribute to the reduction of falls in the elderly.
Berlie, H.D., & Garwood, C.L. (2010).	Risk Factors for Falls	To identify factors that increase the elderly risk for falls.	Sytematic Review with emphasis on randomized control trials.	Yes	N/A
Leveille, S.G., Bean, J., Bandeem, K.R., Jones, R., Hochbery, M., & Guralink, J.M. (2002).	Risk Factors for Falls.	To identify physiological factors that increase risk for falling in the elderly.	Population-based longitudinal study.	Yes	Chronic Pain is associated with a greater risk for falls in the elderly.

Huang H.C., Gau, M.L., Lin, W.C., & Kernohan, G. (2003).	Risk Factors for Falls	To identify physiological factors that increase risk for falling in the elderly.	Literature Review with cross sectional design	Yes	The understanding of specific sources of risk factors for falls by the clinical staff can play a role in reduction of falls.
Chen, Y., Zhu, L.L., & Zhou, Q. (2014).	Risk Factors for Falls	To evaluate the association of medication use in the elderly.	Literature Review	Yes	Poly pharmacy can play a role in increasing the risk of falls in the elderly.
Vassallo, M., Mallela S., Williams, A., Kwan, J., Allen, S. & Sharma, J. (2009).	Risk Factors for Falls.	To explore characteristics associated with falls in cognitively impaired individuals..	Prospective Observational study.	Yes	Cognitive impairment plays a significant factor in the occurrence of falls and increase the risk for injurious falls.
Watlking, L., Blanchard, M.R., Tookman, A., & Sampson, E.L. (2012).	Risk Factors for Falls	To evaluate the impact cognitive impairments can have on increasing the incidence of falls.	Longitudal cohort study.	Yes	Adverse events such as falls are associated with increased mortality and morbidity are identifiable at admission.
Lord, Menz, and Sheerington (2006)	The Home Environement	To discuss how environmental factors can contribute to falls.	Literature review	Yes	Environmenta l hazards have been identified to be contributory factor in the incidence of falls in the elderly.
Sjosten, Salonoja, Piirtola, Vahlberg, Isoaho,	Multifactorial Fall-Assessment Tool	To analyze the efficacy of a multfactorial fall-prevention programme.	Radomized controlled trial.	Yes	Using a tool aimed to identify risk and interventions

Hyttinen, Aarnio, & Kivelaa (2007)					can positively impact the occurrence of falls in the elderly.
Salminen, Vahlberg, and Kivela (2009)	Multifactorial Fall-Assessment Tool	To identify interventions that can be implemented to reduce the incidence of falls.	Randomized controlled trail	Yes	Frontload therapy, education and frequent assessments to reduce incidence of falls.
Johansson, Jonsson, Dadlberg and Patomella (2018)	Multifactorial Fall-Assessment Tool	To analyze the efficacy of a multifactorial= fall prevention programme.	Randomized Control Trail	Yes	Multifactorial and Multidisciplary methods could be effective in the prevention of falling and fear of falling in the elderly.
Russel, Hill, Day, Blackberry, Gurrin, and Dharmage (2009)	Multifactorial Fall-Assessment Tool	To identify the use of a multifactorial fall assessment tool in reducing falls 12 months following the incidence of an occurred fall.	Randomized Control Trail	Yes	The use of multifactorial tools in the ED can be good predictors for identifying fall risks.
Smith, Silva, Rodrigues, Moreira, Nogueira, and Tura (2017)	Multifactorial Fall-Assessment Tool	To assess the risk of falls in the elderly as it relates to the comparison of sociodemograp hicc and cognitive factors.	Cross-Sectional and Quantitative Study	N/A	Identifying the sociodemopgr aphic and cognitive status of the elderly has an impact on predicting the risk of falls.
Hirase, Inokuchi, Matsusaka, Nakahara, and Okita (2014)	Multifactorial Fall-Assessment Tool	To identify specific items related to physical functions and if these items can be used to predict falls and fall risk.	Analysis consisting of retrospective and prospective studies.	Yes	7 fall risk factors predicted falls; tools may be used to identify high risk fallers

Appendix B: Prisma Flow Diagram

Prisma Flow Diagram